Safety Data Sheet (SDS)
2217-B

SDS Revision Date: 05/20/2015

1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product Identity	2217-B
Alternate Names	2217-B

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use	Contact ChemStation representative.
Application Method	Contact ChemStation representative.

1.3. Details of the supplier of the safety data sheet

Company Name	ChemStation of Indiana 12236 Hancock St. Carmel IN 46032

Emergency	
CHEMTREC (USA)	(800) 424-9300
Customer Service: ChemStation of Indiana	(317) 574-8590

2. Hazard identification of the product

2.1. Classification of the substance or mixture

Skin Irrit. 2;H315	Causes skin irritation.
Eye Irrit. 2;H319	Causes serious eye irritation.

2.2. Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

Warning

H315 Causes skin irritation.

H319 Causes serious eye irritation.

[Prevention]:

P264 Wash thoroughly after handling.

P280 Wear protective gloves / eye protection / face protection.

[Response]:

P302+352 IF ON SKIN: Wash with plenty of soap and water.

P305+351+338 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.

P321 Specific treatment (see information on this label).

P337+313 If eye irritation persists: Get medical advice / attention.

P362 Take off contaminated clothing and wash before reuse.

[Storage]:

No GHS storage statements

[Disposal]:

No GHS disposal statements

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Urea CAS Number: 0000057-13-6	10 - 25	Not Classified	[1]

[1] Substance classified with a health or environmental hazard.
[2] Substance with a workplace exposure limit.
[3] PBT-substance or vPvB-substance.
*The full texts of the phrases are shown in Section 16.

4. First aid measures

4.1. Description of first aid measures

General In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

Inhalation Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

Eyes Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.

Skin Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.

Ingestion If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

Overview No specific symptom data available.
See section 2 for further details.

Eyes Causes serious eye irritation.

Skin Causes skin irritation.

5. Fire-fighting measures

5.1. Extinguishing media

Recommended extinguishing media; alcohol resistant foam, CO_2, powder, water spray.

Do not use; water jet.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: No hazardous decomposition data available.

5.3. Advice for fire-fighters

Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from fire fighting to enter drains or water ways.

ERG Guide No. 0

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

6.2. Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up

Ventilate the area and avoid breathing vapors. Take the personal protective measures listed in section 8.

Contain and absorb spillage with non-combustible materials e.g. sand, earth, vermiculite. Place in closed containers outside buildings and dispose of according to the Waste Regulations. (See section 13).

Clean, preferably with a detergent. Do not use solvents.

Do not allow spills to enter drains or watercourses.

If drains, sewers, streams or lakes are contaminated, inform the local water company immediately. In the case of contamination of rivers, streams or lakes the Environmental Protection Agency should also be informed.

7. Handling and storage

7.1. Precautions for safe handling

See section 2 for further details. - [Prevention]:

7.2. Conditions for safe storage, including any incompatibilities

Handle containers carefully to prevent damage and spillage.

Incompatible materials: Any acidic material, ammonia, urea, oxidizable materials and metals such as nickel, copper, tin, aluminum and iron.

See section 2 for further details. - [Storage]:

7.3. Specific end use(s)

No data available.

8. Exposure controls and personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
0000057-13-6	Urea	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	AIHA Workplace Environmental Exposure Limit (WEEL): 10mg/m3, 8-hr TWA

Carcinogen Data

CAS No.	Ingredient	Source	Value
0000057-13-6	Urea	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

8.2. Exposure controls

Respiratory	Use NIOSH/MSHA approved respirator, following manufacturer's recommendations when concentrations exceed permissible exposure limits.
Eyes	Wear safety glasses with side shields to protect the eyes. An eye wash station is suggested as a good workplace practice.
Skin	Chemical resistant clothing such as coveralls/apron boots should be worn. Chemical Impervious Gloves
Engineering Controls	Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details. - [Prevention]:

9. Physical and chemical properties

Appearance	Milky white Thick liquid
Odor	Mild
Odor threshold	Not Measured
pH	12.0 - 13.3
Melting point / freezing point	Not Measured
Initial boiling point and boiling range	>212 deg F
Flash Point	>200 degrees F PMCC (non-flammable)
Evaporation rate (Ether = 1)	0.33
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	**Lower Explosive Limit:** Not Measured **Upper Explosive Limit:** Not Measured
Vapor pressure (Pa)	Not Determined
Vapor Density	Not Determined
Specific Gravity	1.034 - 1.054
Solubility in Water	Not Measured
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	Not Measured
Foaming	Moderate

9.2. Other information

No other relevant information.

10. Stability and reactivity

10.1. Reactivity

Hazardous Polymerization will not occur.

10.2. Chemical stability

Stable under normal circumstances.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

No data available.

10.5. Incompatible materials

Any acidic material, ammonia, urea, oxidizable materials and metals such as nickel, copper, tin, aluminum and iron.

10.6. Hazardous decomposition products

No hazardous decomposition data available.

11. Toxicological information

Acute toxicity

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr	Inhalation Gas LD50, ppm
Urea - (57-13-6)	No data available	No data available	No data available	No data available	No data available

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Classification	Category	Hazard Description
Acute toxicity (oral)	—	Not Applicable
Acute toxicity (dermal)	—	Not Applicable
Acute toxicity (inhalation)	—	Not Applicable
Skin corrosion/irritation	2	Causes skin irritation.
Serious eye damage/irritation	2	Causes serious eye irritation.
Respiratory sensitization	—	Not Applicable
Skin sensitization	—	Not Applicable
Germ cell mutagenicity	—	Not Applicable
Carcinogenicity	—	Not Applicable
Reproductive toxicity	—	Not Applicable
STOT-single exposure	—	Not Applicable
STOT-repeated exposure	—	Not Applicable
Aspiration hazard	—	Not Applicable

12. Ecological information

12.1. Toxicity

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Urea - (57-13-6)	Not Available	Not Available	Not Available

12.2. Persistence and degradability

There is no data available on the preparation itself.

12.3. Bioaccumulative potential

Not Measured

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects

No data available.

13. Disposal considerations

13.1. Waste treatment methods

Observe all federal, state and local regulations when disposing of this substance.

14. Transport information

14.1. UN number	Not Applicable
14.2. UN proper shipping name	Compound, Cleaning,N.O.I., Liquid
14.3. Transport hazard class(es)	Not Applicable
14.4. Packing group	Not Applicable

15. Regulatory information

Regulatory Overview	The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.
Toxic Substance Control Act (TSCA)	All components of this material are either listed or exempt from listing on the TSCA Inventory.
WHMIS Classification	D2B E
US EPA Tier II Hazards	**Fire:** No **Sudden Release of Pressure:** No **Reactive:** No **Immediate (Acute):** Yes **Delayed (Chronic):** No

EPCRA 311/312 Chemicals and RQs:
(No Product Ingredients Listed)

EPCRA 302 Extremely Hazardous :
(No Product Ingredients Listed)

EPCRA 313 Toxic Chemicals:
(No Product Ingredients Listed)

Proposition 65 - Carcinogens (>0.0%):
(No Product Ingredients Listed)

Proposition 65 - Developmental Toxins (>0.0%):
(No Product Ingredients Listed)

Proposition 65 - Female Repro Toxins (>0.0%):
(No Product Ingredients Listed)

Proposition 65 - Male Repro Toxins (>0.0%):
(No Product Ingredients Listed)

N.J. RTK Substances (>1%) :
(No Product Ingredients Listed)

Penn RTK Substances (>1%) :
(No Product Ingredients Listed)

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

This is the first version in the GHS SDS format. Listings of changes from previous versions in other formats are not applicable.

End of Document

1 PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Vendor

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Product Name:	AE-60, AE-90, AE-150, AE-200, AE-300, AE-T, MAG-150
Revision Date:	6/1/2015
SDS Number:	AMI-201
Common Name:	Asphalt Emulsion Anionic
CAS Number:	Mixture
Chemical Family:	Emulsified complex petroleum hydrocarbon and water
Synonyms:	Anionic Asphalt Emulsion, Emulsified Asphalt
Product Use:	Highway Paving Applications and Mixtures

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

Health, Acute toxicity, 5 Dermal
Health, Serious Eye Damage/Eye Irritation, 2 B

GHS Label elements, including precautionary statements

GHS Signal Word: WARNING

GHS Hazard Pictograms:

no GHS pictograms indicated for this product

GHS Hazard Statements:

H313 - May be harmful in contact with skin
H320 - Causes eye irritation

GHS Precautionary Statements:

P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Hazards not otherwise classified (HNOC) or not covered by GHS

Inhalation:	Breathing vapors, fumes, or mists may cause irritation to nasal and respiratory tract and central nervous system effects. Symptoms may include labored breathing, sore throat, coughing, wheezing, headache, and nausea.
Skin Contact:	Contact with hot emulsified asphalt can cause minor thermal burns. Prolonged exposure to vapors, fumes, or mists may cause irritation and redness.
Eye Contact:	Contact with hot emulsified asphalt can cause thermal burns to the eyes. Prolonged exposure to vapors, fumes, or mists may cause irritation, redness, and tearing.
Ingestion:	Ingestion is not likely. Ingestion may cause thermal burns. If ingestion of molten material occurs, keep victim's head below their hips to prevent asphalt from reaching the lungs. Take victim to obtain medical

assistance immediately.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
8052-42-4	55-75%	Asphalt (typical)
0	<2%	Antistrip Adhesion Promoter, Proprietary
65997-01-5	1-5%	Tall oil, sodium salt
7732-18-5	25-45%	Water
68476-30-2	<25%	Fuel oil no. 2

Asphalt: Asphalt is a complex mixture of high molecular weight hydrocarbons produced from crude petroleum. Composition varies depending on the source of the crude and the specifications of the final product.

ACGIH: The American Conference of Governmental Industrial Hygienists recommends an exposure limit of 0.5 mg/m^3 as benzene-extractable inhalable particulate (or equivalent method) to avoid irritation of the conjunctive mucous membranes. Historical information on exposure of asphalt workers used methods different than those recommended by ACGIH, so comparisons to the recommended exposure limits are not known.

4 FIRST AID MEASURES

Inhalation: If irritation occurs from inhalation overexposure, immediately remove victim from source to fresh air and seek medical attention.

Skin Contact: Hot Emulsified Material: Cool the affected body parts immediately by submerging in cold water until the material has cooled. Do not attempt to remove solidified material from burn area as this may further tissue damage. Take the victim to obtain medical assistance immediately.

Cold Emulsified Material: Remove cold emulsified asphalt by soaking dressing in mineral oil and place over affected area for 2-3 hours. If irritation occurs, call a physician.

Never try to remove material with solvents.

Eye Contact: Gently flush immediately with cold water for 15 minutes. Do not attempt to remove solidified material from the eye, as this may further injury. Take victim to obtain medical assistance.

Ingestion: Ingestion is not likely. If large amounts are swallowed, do not induce vomiting and immediately call a physician.

5 FIRE FIGHTING MEASURES

Flash Point: Not Applicable
Autoignition Temp: >400°F
LEL: Not Applicable
UEL: Not Applicable

Extinguishing Media:
Foam, Carbon Dioxide, Dry Chemical, and water spray may all be suitable in extinguishing fires involving this product.

Fire Fighting Instructions:
Avoid water streams to prevent frothing. Use water spray to cool exposed surfaces.

6 ACCIDENTAL RELEASE MEASURES

Stop source of leak if safe to do so. Eliminate sources of ignition. Contain by diking or impounding. Absorbents can be used to contain small spills. After containment, emulsified asphalt can be collected for disposal. Advise authorities if product has entered a drainage sewer or a water source. Assure conformity with local, state, and federal government regulations for disposal.

7 HANDLING AND STORAGE

Handling Precautions:

When opening covers and outlet caps on storage tanks, monitor the vapor space for hydrogen sulfide levels. Use faceshield and gloves to avoid possible injury from pressurized asphalt. Long sleeved shirts and pants should be worn to minimize thermal burns. Stay upwind and vent storage tanks before unloading. Keep heating units and flues in storage tanks covered with at least 12 inches of asphalt. Do not overheat.

Empty Container Warning: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, OR OTHER SOURCES OF IGNITION; THEY MAY BURN OR EXPLODE AND CAUSE INJURY OR DEATH.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Local or general exhaust required if in an enclosed area to remain below the TLV. If workplace exposure limits are exceeded, a NIOSH/MSHA-approved air-supplied respirator is advised in the absence of proper environmental engineering controls.

Personal Protective Equipment:

Eye and Face Protection: Safety glasses or chemical splash goggles with faceshield if splashing is anticipated.

Skin Protection: Oil-impervious gloves, such as Neoprene, if frequent or prolonged contact is expected. Long-sleeve shirts and long pants should be worn at all times around asphalt to prevent thermal burns.

Respiratory Protection: Respiratory protection is not normally required under normal conditions and adequate ventilation. If high vapors and expected, use a respirator approved for organic vapors. Observe respirator protection factor criteria cited in ANSI Z88.2 (1980) and other OSHA requirements found in 29 CFR 1910.134. Use air-supplied respirators or self-contained breathing apparatus for fire fighting and in confined spaces when asphalt vapor or Hydrogen Sulfide gas exceends permissible limits.

Work/Hygienic Practices: Skin contact and the breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects. Thoroughly wash exposed skin areas after work to avoid dermatitis. Consider the use of lanolin skin treatments before handling or working around asphalt mixtures.

Other Protection: Wear body-covering clothes to avoid prolonged or repeated exposure. Launder before reuse.

PETROLEUM ASPHALT:

OSHA PEL: Not established for this material.
ACGIH TLV: 0.5 mg/m³ as benzene-extractable inhalable particulate (or equivalent method)
NIOSH REL: 5.0 mg/m³ as a 15-minute ceiling limit measured as total particulates.

ANTISTRIP ADHESION PROMOTER, Proprietary:

OSHA PEL: Not established for this material.

TALL OIL SODIUM SALT:

OSHA PEL: Not established for this material.

No. 2 FUEL OIL:

OSHA PEL: Not established for this material.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Brown Liquid		
Physical State:	Liquid	**Odor:**	Characteristic asphalt odor
Spec Grav./Density:	0.92 - 1.05	**Solubility:**	Completely
Boiling Point:	212°F	**Flash Point:**	Not Applicable
Flammability:	Aqueous, Non-Flammable	**Vapor Density:**	>1.0
Vapor Pressure:	1.9 E-9 psia	**Auto-Ignition Temp:**	>400°F
pH:	7 - 11	**UFL/LFL:**	Not Applicable
Molecular weight:	280		

10 STABILITY AND REACTIVITY

Chemical Stability:	Product is stable under normal conditions.
Conditions to Avoid:	Contact with oxidizers
Materials to Avoid:	Strong Oxidizing Agents.
Hazardous Decomposition:	Fumes, smoke, carbon monoxide, hydrogen sulfide, aldehydes, and hydrocarbons.
Hazardous Polymerization:	Will not occur.

11 TOXICOLOGICAL INFORMATION

International Agency for Research on Cancer Ruling

Occupational exposures to straight-run bitumens and their emissions during road paving:
On the basis of an earlier meta-analysis, the IARC multi-center study and several more recent independent studies, the Working Group concluded that there was inadequate evidence in humans for the carcinogenicity of occupational exposures during road paving with straight-run bitumens. Also, there was inadequate evidence in experimental animals for the carcinogenicity of extracts and of fume condensates of this type of bitumens. However, studies of workers exposed to bitumen emissions during paving with straight-run bitumens showed mutagenic and genotoxic/cytogenetic effects in these workers. Similar effects were also observed in experimental systems under controlled conditions. This strong mechanistic evidence led to the classification of occupational exposures to straight-run bitumens and their emissions during road paving as "possibly carcinogenic to humans" (Group 2B).

Health Hazard Characterization:

Uncertainties exist in the hazard characterization of asphalt fumes by many factors including its chemical complexity, limitation of the information, the inclusion of coal tar in asphalts in past decades, other confounders and mixed results of human studies. **Concise International Chemical Assessment Documents** relating to asphalt and fumes can be obtained on the internet at http://inchem.org/documents/cicads/cicads/cicad59.htm. Despite conflicting reports, the following bullet points should be noted:

- Currently classified as A4 (not classifiable as a human carcinogen). Asphalt Coal Tar Free
- Breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects.
- Asphalt and asphalt fumes contain trace levels of polynuclear aromatic hydrocarbons that are known carcinogens.
- Chronic health effects would not be expected as long as good hygiene and proper safety precautions are practiced and exposures are less than the TLVs/RELs.
- After using material or being around fumes, wash exposed areas thoroughly with soap and water. Showering immediately after work is a good personal hygiene practiced.

No. 2 FUEL OIL:
Lifetime skin painting studies in animals with similar distillate fuels have produced weak carcinogenic activity following prolonged and repeated exposure. Repeated dermal application has produced severe irritation and systematic toxicity in subacute toxicity studies. Some components of distillate fuels, i.e., paraffins and olefins, have been shown to produce a species-specific, sex hormonal dependent kidney lesion in male rats from repeated oral or inhalation exposure. Jet fuel and No. 1 fuel oil were found to be positive in a few mutagenicity tests while negative in the majority of others. The exact relationship between these results and human health is not known. Chronic human health effects would not be expected as long as good personal hygiene and proper safety precautions are practiced.

12 ECOLOGICAL INFORMATION

May cause fouling of water. May be toxic to aquatic animals. Once solidified, this product will no longer exhibit these characteristics.

13 DISPOSAL CONSIDERATIONS

Dispose in accordance with local, state, and federal regulations. After cooling, waste or contaminated asphalt mixtures may be scooped and stockpiled for later recycling into asphalt pavement mixtures, pugmilled into cold mix, or disposed in an approved special waste, industrial waste, or construction debris landfill.

RCRA Information:
This material, if discarded as produced, is not a RCRA "listed" hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261). Along with properly characterizing all waste materials, consult state and local regulations regarding proper disposal of this material.

14 TRANSPORT INFORMATION

This product as produced and shipped is not considered a hazardous material by the U.S. Department of Transportation.

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

Asphalt (typical) (8052-42-4) [55-75%] MASS, NRC, PA, TSCA, TXAIR

Antistrip Adhesion Promoter, Proprietary (0) [<2%]

Tall oil, sodium salt (65997-01-5) [1-5%] TSCA

Water (7732-18-5) [25-45%] TSCA

Fuel oil no. 2 (68476-30-2) [<25%] TSCA

Regulatory CODE Descriptions

MASS = MA Massachusetts Hazardous Substances List
NRC = Nationally Recognized Carcinogens
PA = PA Right-To-Know List of Hazardous Substances
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level

16 OTHER INFORMATION

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

Asphalt Materials, Inc.

1 PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Vendor

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Product Name:	AE-DP, AE-PB, AE-SP, AE-PL, PEP, DUST LAY
Revision Date:	6/1/2015
SDS Number:	AMI-205
Common Name:	Asphalt Emulsion Anionic
CAS Number:	Mixture
Chemical Family:	Emulsified complex petroleum hydrocarbon and water
Synonyms:	Anionic Asphalt Emulsion, Emulsified Asphalt, Dust Lay, Solventless Dust Pallative
Product Use:	Highway Paving Applications and Mixtures

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

Health, Acute toxicity, 5 Dermal
Health, Serious Eye Damage/Eye Irritation, 2 B

GHS Label elements, including precautionary statements

GHS Signal Word: WARNING

GHS Hazard Pictograms:

no GHS pictograms indicated for this product

GHS Hazard Statements:

H313 - May be harmful in contact with skin
H320 - Causes eye irritation

GHS Precautionary Statements:

P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Hazards not otherwise classified (HNOC) or not covered by GHS

Inhalation:	Breathing vapors, fumes, or mists may cause irritation to nasal and respiratory tract and central nervous system effects. Symptoms may include labored breathing, sore throat, coughing, wheezing, headache, and nausea.
Skin Contact:	Contact with hot emulsified asphalt can cause minor thermal burns. Prolonged exposure to vapors, fumes, or mists may cause irritation and redness.
Eye Contact:	Contact with hot emulsified asphalt can cause thermal burns to the eyes. Prolonged exposure to vapors, fumes, or mists may cause irritation, redness, and tearing.
Ingestion:	Ingestion is not likely. Ingestion may cause thermal burns. If ingestion of molten material occurs, keep victim's head below their hips to prevent asphalt from reaching the lungs. Take victim to obtain medical

assistance immediately.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
8052-42-4	30-65%	Asphalt (typical)
0	<0.1%	Antistrip Adhesion Promoter, Proprietary
65997-01-5	5-15%	Tall oil, sodium salt
7732-18-5	30-75%	Water
68476-30-2	<5%	Fuel oil no. 2

Asphalt: Asphalt is a complex mixture of high molecular weight hydrocarbons produced from crude petroleum. Composition varies depending on the source of the crude and the specifications of the final product.

ACGIH: The American Conference of Governmental Industrial Hygienists recommends an exposure limit of 0.5 mg/m^3 as benzene-extractable inhalable particulate (or equivalent method) to avoid irritation of the conjunctive mucous membranes. Historical information on exposure of asphalt workers used methods different than those recommended by ACGIH, so comparisons to the recommended exposure limits are not known.

4 FIRST AID MEASURES

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Never try to remove material with solvents.

Eye Contact: Gently flush immediately with cold water for 15 minutes. Do not attempt to remove solidified material from the eye, as this may further injury. Take victim to obtain medical assistance.

Ingestion: Ingestion is not likely. If large amounts are swallowed, do not induce vomiting and immediately call a physician.

5 FIRE FIGHTING MEASURES

Flash Point: Not Applicable
Autoignition Temp: >400°F
LEL: Not Applicable
UEL: Not Applicable

Extinguishing Media:
Foam, Carbon Dioxide, Dry Chemical, and water spray may all be suitable in extinguishing fires involving this product.

Fire Fighting Instructions:
Avoid water streams to prevent frothing. Use water spray to cool exposed surfaces.

6 ACCIDENTAL RELEASE MEASURES

Stop source of leak if safe to do so. Eliminate sources of ignition. Contain by diking or impounding. Absorbents can be used to contain small spills. After containment, emulsified asphalt can be collected for disposal. Advise authorities if product has entered a drainage sewer or a water source. Assure conformity with local, state, and federal government regulations for disposal.

7 HANDLING AND STORAGE

Handling Precautions:

When opening covers and outlet caps on storage tanks, monitor the vapor space for hydrogen sulfide levels. Use faceshield and gloves to avoid possible injury from pressurized asphalt. Long sleeved shirts and pants should be worn to minimize thermal burns. Stay upwind and vent storage tanks before unloading. Keep heating units and flues in storage tanks covered with at least 12 inches of asphalt. Do not overheat.

Empty Container Warning: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, OR OTHER SOURCES OF IGNITION; THEY MAY BURN OR EXPLODE AND CAUSE INJURY OR DEATH.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Local or general exhaust required if in an enclosed area to remain below the TLV. If workplace exposure limits are exceeded, a NIOSH/MSHA-approved air-supplied respirator is advised in the absence of proper environmental engineering controls.

Personal Protective Equipment:

Eye and Face Protection: Safety glasses or chemical splash goggles with faceshield if splashing is anticipated.

Skin Protection: Oil-impervious gloves, such as Neoprene, if frequent or prolonged contact is expected. Long-sleeve shirts and long pants should be worn at all times around asphalt to prevent thermal burns.

Respiratory Protection: Respiratory protection is not normally required under normal conditions and adequate ventilation. If high vapors and expected, use a respirator approved for organic vapors. Observe respirator protection factor criteria cited in ANSI Z88.2 (1980) and other OSHA requirements found in 29 CFR 1910.134. Use air-supplied respirators or self-contained breathing apparatus for fire fighting and in confined spaces when asphalt vapor or Hydrogen Sulfide gas exceends permissible limits.

Work/Hygienic Practices: Skin contact and the breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects. Thoroughly wash exposed skin areas after work to avoid dermatitis. Consider the use of lanolin skin treatments before handling or working around asphalt mixtures.

Other Protection: Wear body-covering clothes to avoid prolonged or repeated exposure. Launder before reuse.

PETROLEUM ASPHALT:

OSHA PEL: Not established for this material.
ACGIH TLV: 0.5 mg/m³ as benzene-extractable inhalable particulate (or equivalent method)
NIOSH REL: 5.0 mg/m³ as a 15-minute ceiling limit measured as total particulates.

ANTISTRIP ADHESION PROMOTER, Proprietary:

OSHA PEL: Not established for this material.

TALL OIL SODIUM SALT:

OSHA PEL: Not established for this material.

No. 2 FUEL OIL:

OSHA PEL: Not established for this material.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Brown Liquid		
Physical State:	Liquid	**Odor:**	Characteristic asphalt odor
Spec Grav./Density:	0.92 - 1.05	**Solubility:**	Completely
Boiling Point:	212°F	**Flash Point:**	Not Applicable
Flammability:	Aqueous, Non-Flammable	**Vapor Density:**	>1.0
Vapor Pressure:	1.9 E-9 psia	**Auto-Ignition Temp:**	>400°F
pH:	7 - 11	**UFL/LFL:**	Not Applicable
Molecular weight:	280		

10 STABILITY AND REACTIVITY

Chemical Stability:	Product is stable under normal conditions.
Conditions to Avoid:	Contact with oxidizers
Materials to Avoid:	Strong Oxidizing Agents.
Hazardous Decomposition:	Fumes, smoke, carbon monoxide, hydrogen sulfide, aldehydes, and hydrocarbons.
Hazardous Polymerization:	Will not occur.

11 TOXICOLOGICAL INFORMATION

International Agency for Research on Cancer Ruling

Occupational exposures to straight-run bitumens and their emissions during road paving:
On the basis of an earlier meta-analysis, the IARC multi-center study and several more recent independent studies, the Working Group concluded that there was inadequate evidence in humans for the carcinogenicity of occupational exposures during road paving with straight-run bitumens. Also, there was inadequate evidence in experimental animals for the carcinogenicity of extracts and of fume condensates of this type of bitumens. However, studies of workers exposed to bitumen emissions during paving with straight-run bitumens showed mutagenic and genotoxic/cytogenetic effects in these workers. Similar effects were also observed in experimental systems under controlled conditions. This strong mechanistic evidence led to the classification of occupational exposures to straight-run bitumens and their emissions during road paving as "possibly carcinogenic to humans" (Group 2B).

Health Hazard Characterization:

Uncertainties exist in the hazard characterization of asphalt fumes by many factors including its chemical complexity, limitation of the information, the inclusion of coal tar in asphalts in past decades, other confounders and mixed results of human studies. **Concise International Chemical Assessment Documents** relating to asphalt and fumes can be obtained on the internet at http://inchem.org/documents/cicads/cicads/cicad59.htm. Despite conflicting reports, the following bullet points should be noted:

- Currently classified as A4 (not classifiable as a human carcinogen). Asphalt Coal Tar Free
- Breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects.
- Asphalt and asphalt fumes contain trace levels of polynuclear aromatic hydrocarbons that are known carcinogens.
- Chronic health effects would not be expected as long as good hygiene and proper safety precautions are practiced and exposures are less than the TLVs/RELs.
- After using material or being around fumes, wash exposed areas thoroughly with soap and water. Showering immediately after work is a good personal hygiene practiced.

No. 2 FUEL OIL:
Lifetime skin painting studies in animals with similar distillate fuels have produced weak carcinogenic activity following prolonged and repeated exposure. Repeated dermal application has produced severe irritation and systematic toxicity in subacute toxicity studies. Some components of distillate fuels, i.e., paraffins and olefins, have been shown to produce a species-specific, sex hormonal dependent kidney lesion in male rats from repeated oral or inhalation exposure. Jet fuel and No. 1 fuel oil were found to be positive in a few mutagenicity tests while negative in the majority of others. The exact relationship between these results and human health is not known. Chronic human health effects would not be expected as long as good personal hygiene and proper safety precautions are practiced.

12 ECOLOGICAL INFORMATION

May cause fouling of water. May be toxic to aquatic animals. Once solidified, this product will no longer exhibit these characteristics.

13 DISPOSAL CONSIDERATIONS

Dispose in accordance with local, state, and federal regulations. After cooling, waste or contaminated asphalt mixtures may be scooped and stockpiled for later recycling into asphalt pavement mixtures, pugmilled into cold mix, or disposed in an approved special waste, industrial waste, or construction debris landfill.

RCRA Information:
This material, if discarded as produced, is not a RCRA "listed" hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261). Along with properly characterizing all waste materials, consult state and local regulations regarding proper disposal of this material.

14 TRANSPORT INFORMATION

This product as produced and shipped is not considered a hazardous material by the U.S. Department of Transportation.

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

Asphalt (typical) (8052-42-4) [30-65%] MASS, NRC, PA, TSCA, TXAIR

Tall oil, sodium salt (65997-01-5) [5-15%] TSCA

Water (7732-18-5) [30-75%] TSCA

Fuel oil no. 2 (68476-30-2) [<5%] TSCA

Regulatory CODE Descriptions

MASS = MA Massachusetts Hazardous Substances List
NRC = Nationally Recognized Carcinogens
PA = PA Right-To-Know List of Hazardous Substances
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level

16 OTHER INFORMATION

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

Asphalt Materials, Inc.

1 PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Vendor

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Product Name:	AE-F
Revision Date:	6/1/2015
SDS Number:	AMI-206
Common Name:	Asphalt Emulsion Anionic
CAS Number:	Mixture
Chemical Family:	Emulsified complex petroleum hydrocarbon and water
Synonyms:	Anionic Asphalt Emulsion, Emulsified Asphalt, Fog-Seal Emulsion
Product Use:	Highway Paving Applications and Mixtures

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

Health, Acute toxicity, 5 Dermal
Health, Serious Eye Damage/Eye Irritation, 2 B

GHS Label elements, including precautionary statements

GHS Signal Word: WARNING

GHS Hazard Pictograms:

no GHS pictograms indicated for this product

GHS Hazard Statements:

H313 - May be harmful in contact with skin
H320 - Causes eye irritation

GHS Precautionary Statements:

P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Hazards not otherwise classified (HNOC) or not covered by GHS

Inhalation:	Breathing vapors, fumes, or mists may cause irritation to nasal and respiratory tract and central nervous system effects. Symptoms may include labored breathing, sore throat, coughing, wheezing, headache, and nausea.
Skin Contact:	Contact with hot emulsified asphalt can cause minor thermal burns. Prolonged exposure to vapors, fumes, or mists may cause irritation and redness.
Eye Contact:	Contact with hot emulsified asphalt can cause thermal burns to the eyes. Prolonged exposure to vapors, fumes, or mists may cause irritation, redness, and tearing.
Ingestion:	Ingestion is not likely. Ingestion may cause thermal burns. If ingestion of molten material occurs, keep victim's head below their hips to prevent asphalt from reaching the lungs. Take victim to obtain medical

assistance immediately.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
8052-42-4	25-40%	Asphalt (typical)
0	<2%	Antistrip Adhesion Promoter, Proprietary
65997-01-5	1-5%	Tall oil, sodium salt
7732-18-5	60-75%	Water
68476-30-2	<25%	Fuel oil no. 2

Asphalt: Asphalt is a complex mixture of high molecular weight hydrocarbons produced from crude petroleum. Composition varies depending on the source of the crude and the specifications of the final product.

ACGIH: The American Conference of Governmental Industrial Hygienists recommends an exposure limit of 0.5 mg/m^3 as benzene-extractable inhalable particulate (or equivalent method) to avoid irritation of the conjunctive mucous membranes. Historical information on exposure of asphalt workers used methods different than those recommended by ACGIH, so comparisons to the recommended exposure limits are not known.

4 FIRST AID MEASURES

Inhalation: If irritation occurs from inhalation overexposure, immediately remove victim from source to fresh air and seek medical attention.

Skin Contact: Hot Emulsified Material: Cool the affected body parts immediately by submerging in cold water until the material has cooled. Do not attempt to remove solidified material from burn area as this may further tissue damage. Take the victim to obtain medical assistance immediately.

Cold Emulsified Material: Remove cold emulsified asphalt by soaking dressing in mineral oil and place over affected area for 2-3 hours. If irritation occurs, call a physician.

Never try to remove material with solvents.

Eye Contact: Gently flush immediately with cold water for 15 minutes. Do not attempt to remove solidified material from the eye, as this may further injury. Take victim to obtain medical assistance.

Ingestion: Ingestion is not likely. If large amounts are swallowed, do not induce vomiting and immediately call a physician.

5 FIRE FIGHTING MEASURES

Flash Point: Not Applicable
Autoignition Temp: >400°F
LEL: Not Applicable
UEL: Not Applicable

Extinguishing Media:
Foam, Carbon Dioxide, Dry Chemical, and water spray may all be suitable in extinguishing fires involving this product.

Fire Fighting Instructions:
Avoid water streams to prevent frothing. Use water spray to cool exposed surfaces.

6 ACCIDENTAL RELEASE MEASURES

Stop source of leak if safe to do so. Eliminate sources of ignition. Contain by diking or impounding. Absorbents can be used to contain small spills. After containment, emulsified asphalt can be collected for disposal. Advise authorities if product has entered a drainage sewer or a water source. Assure conformity with local, state, and federal government regulations for disposal.

7 HANDLING AND STORAGE

Handling Precautions:

When opening covers and outlet caps on storage tanks, monitor the vapor space for hydrogen sulfide levels. Use faceshield and gloves to avoid possible injury from pressurized asphalt. Long sleeved shirts and pants should be worn to minimize thermal burns. Stay upwind and vent storage tanks before unloading. Keep heating units and flues in storage tanks covered with at least 12 inches of asphalt. Do not overheat.

Empty Container Warning: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, OR OTHER SOURCES OF IGNITION; THEY MAY BURN OR EXPLODE AND CAUSE INJURY OR DEATH.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Local or general exhaust required if in an enclosed area to remain below the TLV. If workplace exposure limits are exceeded, a NIOSH/MSHA-approved air-supplied respirator is advised in the absence of proper environmental engineering controls.

Personal Protective Equipment:

Eye and Face Protection: Safety glasses or chemical splash goggles with faceshield if splashing is anticipated.

Skin Protection: Oil-impervious gloves, such as Neoprene, if frequent or prolonged contact is expected. Long-sleeve shirts and long pants should be worn at all times around asphalt to prevent thermal burns.

Respiratory Protection: Respiratory protection is not normally required under normal conditions and adequate ventilation. If high vapors and expected, use a respirator approved for organic vapors. Observe respirator protection factor criteria cited in ANSI Z88.2 (1980) and other OSHA requirements found in 29 CFR 1910.134. Use air-supplied respirators or self-contained breathing apparatus for fire fighting and in confined spaces when asphalt vapor or Hydrogen Sulfide gas exceends permissible limits.

Work/Hygienic Practices: Skin contact and the breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects. Thoroughly wash exposed skin areas after work to avoid dermatitis. Consider the use of lanolin skin treatments before handling or working around asphalt mixtures.

Other Protection: Wear body-covering clothes to avoid prolonged or repeated exposure. Launder before reuse.

PETROLEUM ASPHALT:

OSHA PEL: Not established for this material.
ACGIH TLV: 0.5 mg/m³ as benzene-extractable inhalable particulate (or equivalent method)
NIOSH REL: 5.0 mg/m³ as a 15-minute ceiling limit measured as total particulates.

ANTISTRIP ADHESION PROMOTER, Proprietary:

OSHA PEL: Not established for this material.

TALL OIL SODIUM SALT:

OSHA PEL: Not established for this material.

No. 2 FUEL OIL:

OSHA PEL: Not established for this material.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Brown Liquid		
Physical State:	Liquid	**Odor:**	Characteristic asphalt odor
Spec Grav./Density:	0.92 - 1.05	**Solubility:**	Completely
Boiling Point:	212°F	**Flash Point:**	Not Applicable
Flammability:	Aqueous, Non-Flammable	**Vapor Density:**	>1.0
Vapor Pressure:	1.9 E-9 psia	**Auto-Ignition Temp:**	>400°F
pH:	7 - 11	**UFL/LFL:**	Not Applicable
Molecular weight:	280		

10 STABILITY AND REACTIVITY

Chemical Stability:	Product is stable under normal conditions.
Conditions to Avoid:	Contact with oxidizers
Materials to Avoid:	Strong Oxidizing Agents.
Hazardous Decomposition:	Fumes, smoke, carbon monoxide, hydrogen sulfide, aldehydes, and hydrocarbons.
Hazardous Polymerization:	Will not occur.

11 TOXICOLOGICAL INFORMATION

International Agency for Research on Cancer Ruling

Occupational exposures to straight-run bitumens and their emissions during road paving:
On the basis of an earlier meta-analysis, the IARC multi-center study and several more recent independent studies, the Working Group concluded that there was inadequate evidence in humans for the carcinogenicity of occupational exposures during road paving with straight-run bitumens. Also, there was inadequate evidence in experimental animals for the carcinogenicity of extracts and of fume condensates of this type of bitumens. However, studies of workers exposed to bitumen emissions during paving with straight-run bitumens showed mutagenic and genotoxic/cytogenetic effects in these workers. Similar effects were also observed in experimental systems under controlled conditions. This strong mechanistic evidence led to the classification of occupational exposures to straight-run bitumens and their emissions during road paving as "possibly carcinogenic to humans" (Group 2B).

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- Currently classified as A4 (not classifiable as a human carcinogen). Asphalt Coal Tar Free
- Breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects.
- Asphalt and asphalt fumes contain trace levels of polynuclear aromatic hydrocarbons that are known carcinogens.
- Chronic health effects would not be expected as long as good hygiene and proper safety precautions are practiced and exposures are less than the TLVs/RELs.
- After using material or being around fumes, wash exposed areas thoroughly with soap and water. Showering immediately after work is a good personal hygiene practiced.

No. 2 FUEL OIL:
Lifetime skin painting studies in animals with similar distillate fuels have produced weak carcinogenic activity following prolonged and repeated exposure. Repeated dermal application has produced severe irritation and systematic toxicity in subacute toxicity studies. Some components of distillate fuels, i.e., paraffins and olefins, have been shown to produce a species-specific, sex hormonal dependent kidney lesion in male rats from repeated oral or inhalation exposure. Jet fuel and No. 1 fuel oil were found to be positive in a few mutagenicity tests while negative in the majority of others. The exact relationship between these results and human health is not known. Chronic human health effects would not be expected as long as good personal hygiene and proper safety precautions are practiced.

12 ECOLOGICAL INFORMATION

May cause fouling of water. May be toxic to aquatic animals. Once solidified, this product will no longer exhibit these characteristics.

13 DISPOSAL CONSIDERATIONS

Dispose in accordance with local, state, and federal regulations. After cooling, waste or contaminated asphalt mixtures may be scooped and stockpiled for later recycling into asphalt pavement mixtures, pugmilled into cold mix, or disposed in an approved special waste, industrial waste, or construction debris landfill.

RCRA Information:
This material, if discarded as produced, is not a RCRA "listed" hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261). Along with properly characterizing all waste materials, consult state and local regulations regarding proper disposal of this material.

14 TRANSPORT INFORMATION

This product as produced and shipped is not considered a hazardous material by the U.S. Department of Transportation.

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

Asphalt (typical) (8052-42-4) [25-40%] MASS, NRC, PA, TSCA, TXAIR

Antistrip Adhesion Promoter, Proprietary (0) [<2%]

Tall oil, sodium salt (65997-01-5) [1-5%] TSCA

Water (7732-18-5) [60-75%] TSCA

Fuel oil no. 2 (68476-30-2) [<25%] TSCA

Regulatory CODE Descriptions

MASS = MA Massachusetts Hazardous Substances List
NRC = Nationally Recognized Carcinogens
PA = PA Right-To-Know List of Hazardous Substances
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level

16 OTHER INFORMATION

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

Asphalt Materials, Inc.

SAFETY DATA SHEET

Section 1. Identification

Product name	Asphalt
Other means of identification	Covers all Paving, Emulsion Base and Modifed Binders and Olexobit branded Modifed Binders. This SDS is suitable for asphalts to be used in paving applications only. Refer to SDS 0000002908 for Industrial Asphalt applications.
SDS #	0000002913
Historic SDS #:	0472501(BP); 11158 (Amoco); 11159 (Amoco); 11661 (Amoco); 11662 (Amoco); 11773 (Amoco); 11774 (Amoco); 12260 (Amoco); 12261 (Amoco);
Code	0000002913

Relevant identified uses of the substance or mixture and uses advised against

Product use	Paving applications
Supplier	BP Products North America Inc. 150 West Warrenville Road Naperville, Illinois 60563-8460 USA
EMERGENCY HEALTH INFORMATION:	1 (800) 447-8735 Outside the US: +1 703-527-3887 (CHEMTREC)
EMERGENCY SPILL INFORMATION:	1 (800) 424-9300 CHEMTREC (USA)
OTHER PRODUCT INFORMATION	1 (866) 4 BP - MSDS (866-427-6737 Toll Free - North America) email: bpcares@bp.com

Section 2. Hazards identification

OSHA/HCS status	This material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	Not classified.

GHS label elements

Signal word	No signal word.
Hazard statements	No known significant effects or critical hazards.
Precautionary statements	
Prevention	Not applicable.
Response	Not applicable.
Storage	Not applicable.
Disposal	Not applicable.
Hazards not otherwise classified	This material can contain hydrogen sulfide (H_2S), a very toxic and extremely flammable gas. This product can be delivered, stored and used at temperatures above 100°C. Will cause burns if hot material contacts eyes. Will cause burns if hot material contacts skin. Mild irritation of the respiratory tract and eyes at high exposure concentrations

Section 2. Hazards identification

Section 3. Composition/information on ingredients

Substance/mixture Mixture

Ingredient name	CAS number	%
Asphalt	8052-42-4	100
Contains:		
Hydrogen Sulfide	7783-06-4	<1

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact

Hot product - Flood with water to dissipate heat. In the event of any product remaining, do not try to remove it other than by continued irrigation with water. Obtain medical attention immediately.
Cold product - Wash eye thoroughly with copious quantities of water, ensuring eyelids are held open. Obtain medical advice if any pain or redness develops or persists.

Skin contact

Hot Product - Flood skin with cold water to dissipate heat, cover with clean cotton or gauze, obtain medical advice immediately.
Cold Product - Wash contaminated skin with soap and water. Remove contaminated clothing and wash underlying skin as soon as reasonably practicable.

Inhalation

If inhaled, remove to fresh air. Get medical attention if symptoms occur.

EXPOSURE TO HYDROGEN SULFIDE (H2S):
Casualties suffering ill effects as a result of exposure to hydrogen sulfide should be immediately removed to fresh air and medical assistance obtained without delay. Unconscious casualties must be placed in the recovery position. Monitor breathing and pulse rate and if breathing has failed, or is deemed inadequate, respiration must be assisted, preferably by the mouth to mouth method. Administer external cardiac massage if necessary. Seek medical attention immediately.

Ingestion

Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Protection of first-aiders

No action shall be taken involving any personal risk or without suitable training.

Most important symptoms/effects, acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician

Treatment should in general be symptomatic and directed to relieving any effects. Inhalation of hydrogen sulfide may cause central respiratory depression leading to coma and death. It is irritant to the respiratory tract causing chemical pneumonitis and pulmonary edema. The onset of pulmonary edema may be delayed for 24 to 48 hours. Treat with oxygen and ventilate as appropriate. Administer broncho-dilators if indicated and consider administration of corticosteroids. Keep casualty under surveillance for 48 hours in case pulmonary edema develops.
Where skin burns occur the area should be immediately immersed in cold water until the bitumen is thoroughly cooled. Do not attempt to remove the bitumen from the skin as it provides an airtight sterile covering over the burn which will eventually fall away with the scab as the burn heals. If for any reason the bitumen must be removed, this can be done using a slightly warmed medicinal liquid paraffin. Kerosine and other solvents should never be used. All burns should receive medical attention. It should be noted that bitumen contracts on cooling and where a limb is encased care should be taken to avoid the development of a tourniquet effect.

Specific treatments

No specific treatment.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media — In case of fire, use water fog, foam, dry chemicals, or carbon dioxide.

Unsuitable extinguishing media — Do not use water jet.

Specific hazards arising from the chemical — Avoid spraying directly into storage containers because of the danger of boil-over. Do not allow hot molten product to come into contact with water or other liquids. Boil-over is the rapid increase in volume caused by the presence of water in hot product and the subsequent overflow from a tank.

Hazardous combustion products — Combustion products may include the following:
carbon oxides (CO, CO_2) (carbon monoxide, carbon dioxide)
sulfur oxides (SO, SO_2 etc.)
other hazardous substances.

Special protective actions for fire-fighters — Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters — Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel — Immediately contact emergency personnel. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling.

This material can contain hydrogen sulfide (H_2S), a very toxic and extremely flammable gas. Entry into a confined space or poorly ventilated area contaminated with vapor, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained positive pressure breathing apparatus (SCBA).

For emergency responders — If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions — Depending upon its temperature the product may be liquid, semi-solid or solid. Protect drains from spills and prevent entry of product, since this may result in blockage on cooling. Should blockage occur, notify the appropriate authority immediately.
In case of spillages in the water, the product will cool down rapidly and become solid. The solid product is denser than water and will slowly sink to the bottom, and usually no intervention will be feasible.
If possible, contain the product. Collect the product and contaminated materials with mechanical means. Transfer recovered product and other materials to suitable tanks or containers and store/dispose of according to relevant regulations.

Methods and materials for containment and cleaning up

Small spill — Eliminate all ignition sources. Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 6. Accidental release measures

Large spill

Eliminate all ignition sources. Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Dike spill area and do not allow product to reach sewage system and surface or ground water. Depending upon its temperature the product may be liquid, semi-solid or solid. Protect drains from spills and prevent entry of product, since this may result in blockage on cooling. Should blockage occur, notify the appropriate authority immediately. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Contact with hot product may cause burns. Put on appropriate personal protective equipment. Avoid contact with eyes. If splashing is likely to occur wear a full face visor or chemical goggles as appropriate. Do not spray onto wet road surfaces or when rain is forecast as any resultant run-off could contaminate ditches and drains.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

When product is heated to high temperatures, vapor, mists or fumes will be given off and may condense, contaminating the skin or clothing of operatives. Prolonged or repeated contact with this condensate may give rise to dermatitis. Regular periodic self inspection of the skin is recommended, especially those areas subject to contamination. In the event of any localised changes in appearance or texture of the skin being noticed, medical advice should be sought without delay.

Conditions for safe storage, including any incompatibilities

Do not use steam or compressed air to empty pipelines and hoses. Clean, dry and heat resistant hoses should be used. Do not use solvents to clear obstructions from pipelines. Gentle heat can be used to clear obstructions. This product can be delivered, stored and used at temperatures above 100°C. For quality, technical, and health, safety and environmental reasons, asphalt should not be overheated during handling and storage. Our company representative will provide advice on storage and application temperatures, which are grade specific. Operating temperatures should be kept as low as possible to minimise fume generation.

We recommend however that, as a general rule, asphalt temperature should be kept in the range 130°C to 200°C and never exceed the industry recommended maximum safe working temperature of 200°C.

At higher temperatures significant decomposition can occur, with an increased risk of generating flammable/hazardous atmospheres. Under such aberrant circumstances, measures must be taken to ensure skin and inhalation exposure is minimised through adequate workplace ventilation and the use of appropriate personal protective equipment.

When product is stored for a long period of time, deposits may form on the walls and roofs of storage tanks. These deposits (carbonaceous materials, iron sulphide) may be pyrophoric and auto-ignite when they come into contact with oxygen in the air, for example, when product is removed from the tank. The control of oxygen concentration in the vapour space of the tank will help to prevent the formation of pyrophoric deposits. Tanks containing product can be heated by heater tubes. Care should be taken when product is being pumped from a tank to avoid the risk of fire or explosion caused by exposing hot heater tubes. Unless the heat has been switched off for a period of time to allow sufficient cooling to occur, precautions should be taken to prevent the level of product above the heater tubes dropping below 150 mm.

This material can contain hydrogen sulfide (H_2S), a very toxic and extremely flammable gas. Vapors containing hydrogen sulfide may accumulate during storage or transport and may also be vented during filling of tanks. Hydrogen sulfide has a typical "bad egg" smell but at high concentrations the sense of smell is rapidly lost, therefore do not rely on sense of smell for detecting hydrogen sulfide. Use specially designed measuring instruments for determining its concentration. Entry into a confined space or poorly ventilated area contaminated with vapor, mist or fume is extremely hazardous without

Section 7. Handling and storage

the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Asphalt (Bitumen) fume as benzene-soluble aerosol	**NIOSH REL (United States).** CEIL: 5 mg/m³ 15 minutes. Issued/Revised: 6/1994 Form: Fume **ACGIH TLV (United States).** TWA: 0.5 mg/m³, (as benzene soluble aerosol) 8 hours. Issued/Revised: 3/2000 Form: Inhalable fraction
Contains:	
Hydrogen Sulfide	**ACGIH TLV (United States).** STEL: 5 ppm 15 minutes. Issued/Revised: 11/2009 TWA: 1 ppm 8 hours. Issued/Revised: 11/2009 **OSHA PEL Z2 (United States).** AMP: 50 ppm 10 minutes. Issued/Revised: 6/1993 CEIL: 20 ppm Issued/Revised: 6/1993 **NIOSH REL (United States).** CEIL: 10 ppm 10 minutes. Issued/Revised: 6/1994 CEIL: 15 mg/m³ 10 minutes. Issued/Revised: 6/1994

While specific OELs for certain components may be shown in this section, other components may be present in any mist, vapor or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

Appropriate engineering controls

All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.
Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.
The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

Eye/face protection

Hot material: to prevent thermal burns wear a helmet, full face visor and heat resistant neck flap / apron.
Cold material: wear safety glasses with side shields. Chemical splash goggles.

Skin protection

Hand protection

Hot material: to prevent thermal burns wear heat resistant and impervious gauntlets/ gloves.
Cold material: Wear chemical resistant gloves. Recommended: nitrile gloves.

Protective gloves must give suitable protection against mechanical risks (i.e. abrasion, blade cut and puncture). Do not re-use gloves. Protective gloves will deteriorate over time due to physical and chemical damage. Inspect and replace gloves on a regular basis. The frequency of replacement will depend upon the circumstances of use.

Consult your supervisor or Standard Operating Procedure (S.O.P) for special handling instructions.

Body protection

Cold material: Wear impervious coveralls covering the full body and limbs.
Cotton or polyester/cotton overalls will only provide protection against light superficial contamination.
Chemical resistant boots.
When the risk of skin exposure is high (from experience this could apply to the following tasks: cleaning work, maintenance and service, filling and transfer, taking samples and cleaning up spillages) then a chemical protective suit and boots will be required.
Work clothing / overalls should be laundered on a regular basis. Laundering of contaminated work clothing should only be done by professional cleaners who have been told about the hazards of the contamination. Always keep contaminated work clothing away from uncontaminated work clothing and uncontaminated personal clothes.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Use only with adequate ventilation. Avoid breathing vapor or mist. Air supplied respiratory protection approved by NIOSH should be worn whenever it is required for the worker's face to be within 3 feet of an open hatch.In case of insufficient ventilation, wear suitable respiratory equipment.
Suitable breathing apparatus (independent of ambient atmosphere) must be worn where there is a risk of hydrogen sulfide exposure limits being exceeded.
If there is a requirement for the use of a respiratory protective device, but the use of breathing apparatus (independent of ambient atmosphere) is not required, then a suitable filtering device must be worn.
The filter class must be suitable for the maximum contaminant concentration (gas/vapor/ aerosol/particulates) that may arise when handling the product.
The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Thermal hazards

Hot material: Wear impervious and heat resistant coveralls covering the full body and limbs. Wear suitable protective clothing to protect against heat and brief contact with flame. Precautions are required to prevent protective clothing from accidentally trapping product against the skin. Trouser legs should be worn over protective boots. The sleeve cuffs of protective clothing should be worn over protective gloves / gauntlets.

Protection should be provided for exposed areas of the neck and head. As appropriate, a heat resistant and impervious hood, a neck cover / apron or a neck flap can be used to protect from burns. Hard hat. Heat resistant boots. Footwear highly resistant to chemicals.

Section 9. Physical and chemical properties

Appearance

Physical state	Viscous liquid.
Color	Brown. and Black. (Dark.)
Odor	Amine. Characteristic. Petroleum
Odor threshold	Not available.
pH	Not available.
Melting point	(Softening Point)
Boiling point	Not available.
Flash point	Open cup: >230°C (>446°F) [ASTM D-92 Cleveland]
Evaporation rate	Not available.
Flammability (solid, gas)	
Lower and upper explosive (flammable) limits	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Density	1020 to 1040 kg/m³ (1.02 to 1.04 g/cm³) at Ambient temperature
Relative density	<1 at Handling temperature; (>1 Ambient temperature)
Solubility	Very slightly soluble in water
Solubility	Very slightly soluble in the following materials: cold water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Dynamic: 0.1 to 500 Pa·s (100 to 500000 cP) at 60°C

Section 10. Stability and reactivity

Reactivity	No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	Avoid excessive heat.
Incompatible materials	Reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Test	Species	Result	Exposure	Remarks

Section 11. Toxicological information

Asphalt	LC50 Inhalation Dusts and mists	Rat	>94.4 mg/m³	4 hours	Based on Oxidized Bitumen
	LD50 Dermal	Rabbit	>2000 mg/kg	-	Based on Vacuum residue
	LD50 Oral	Rat	>5000 mg/kg	-	Based on Vacuum residue

Conclusion/Summary Not classified. Based on available data, the classification criteria are not met.

Irritation/Corrosion

Product/ingredient name	Species	Result	Score	Exposure	Observation	Conc.	Remarks
Asphalt	Rabbit	Skin - Non-irritant to skin.	-	-	-	-	Based on Vacuum residue
	Rabbit	Eyes - Non-irritating to the eyes.	-	-	-	-	Based on Vacuum residue

Skin Not classified. Based on available data, the classification criteria are not met.

Eyes Not classified. Based on available data, the classification criteria are not met.

Sensitizer

Product/ingredient name	Route of exposure	Species	Result	Remarks
Asphalt	skin	Guinea pig	Not sensitizing	Based on Vacuum residue

Skin Not classified. Based on available data, the classification criteria are not met.

Mutagenicity

Product/ingredient name	Test	Experiment	Result	Remarks
Asphalt	Equivalent to OECD 474	Experiment: In vitro Subject: Mammalian-Animal Cell: Germ	Positive	Based on Asphalt, oxidized
	OECD 471	Experiment: In vitro Subject: Non-mammalian species	Positive	Based on Asphalt
	Equivalent to OECD 474	Experiment: In vivo Subject: Unspecified Cell: Germ	Negative	Based on Asphalt, oxidized
	not guideline	Experiment: In vivo Subject: Unspecified Cell: Germ	Negative	Based on Asphalt

Conclusion/Summary Not classified. Based on available data, the classification criteria are not met. Assessment was by using a weight of evidence approach.

Carcinogenicity

Product/ingredient name							
Asphalt	OECD	451	Rat	Inhalation	2 years	Negative - Inhalation - Unspecified	Based on Asphalt, oxidized
	not guideline	-	Mouse	Dermal	2 years	Negative - Dermal - Unspecified	Based on Asphalt

Conclusion/Summary Not classified. Based on available data, the classification criteria are not met.

Reproductive toxicity

Section 11. Toxicological information

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Result	Exposure
Asphalt	-	-	Negative	Rat	Inhalation	50 days
	-	Negative	-	Rat	Inhalation	50 days

Conclusion/Summary Development: Not classified. Based on available data, the classification criteria are not met.
Fertility: Not classified. Based on available data, the classification criteria are not met.
Effects on or via lactation: Not classified. Based on available data, the classification criteria are not met.

Information on the likely routes of exposure Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact Will cause burns if hot material contacts eyes.

Skin contact Will cause burns if hot material contacts skin.

Inhalation No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact No specific data.

Skin contact No specific data.

Inhalation No specific data.

Ingestion No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects May be harmful by inhalation if exposure to vapor, mists or fumes resulting from thermal decomposition products occurs. Vapor, mist or fume may irritate the nose, mouth and respiratory tract. Vapor, mist or fume may cause eye irritation. Exposure to vapor, mist or fume may cause stinging, redness and watering of the eyes.

Potential delayed effects Not available.

Long term exposure

Potential immediate effects When product is heated to high temperatures, vapor, mists or fumes will be given off and may condense, contaminating the skin or clothing of operatives. Prolonged or repeated contact with this condensate may give rise to dermatitis.

Potential delayed effects Vapor, mists or fumes may contain polycyclic aromatic hydrocarbons some of which are known to produce skin cancer.

Potential chronic health effects

General No known significant effects or critical hazards.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Teratogenicity No known significant effects or critical hazards.

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 11. Toxicological information

Additional information

Hydrogen sulfide (H2S) gas may accumulate in storage tanks of bulk transport compartments containing this material. Contact with eyes causes painful conjunctivitis, sensitivity to light, tearing and clouding of vision. Inhalation of low concentrations causes a runny nose with a loss of sense of smell, labored breathing and shortness of breath. Direct contact with skin causes pain and redness. Other symptoms of exposure include profuse salivation, nausea, vomiting, diarrhea, giddiness, headache, dizziness, confusion, rapid breathing, rapid heart rate, sweating, weakness, sudden collapse, unconsciousness and death due to respiratory paralysis.Cardiac neurological effects have also been reported. Prolonged breathing (greater than one hour) of concentrations of H2S around 50 ppm can produce eye and respiratory tract irritation. Levels of 250 to 600 ppm will result in fluid in the lungs, and concentrations around 1,000 ppm will cause unconsciousness and death in a short period of time. Since the sense of smell rapidly becomes insensitive to this toxic, colorless gas, odor cannot be relied upon as an indicator of concentrations of the gas. Always exercise caution when working around closed containers.

Asphalt fume condensate generated under laboratory conditions has produced positive results in the Ames mutagenicity test. However, asphalt fume condensate collected in the field under actual field conditions has tested negative.

Laboratory-generated asphalt fume condensate has been shown to produce skin tumors in mice when applied to their skin repeatedly for prolonged periods of time over the entire course of their lifetime. The fume condensate used in these studies was generated using unrealistically high temperatures and vacuum conditions.

A similar study in mice using fume condensate generated from paving grade asphalt under actual workplace conditions produced no skin tumors.

Further studies have shown that the chemical composition and physical properties of laboratory-generated fume differ markedly from the composition and properties of fume generated in the field under actual workplace conditions. These differences indicate that the health hazards attributed to laboratory-generated fume are not representative of actual workplace hazards.

There is no evidence that neat asphalt is carcinogenic. Therefore, intermittent or occasional skin contact with petroleum asphalt is not expected to have serious health effects as long as good personal hygiene measures, such as those outlined in this material safety data sheet, are followed.

No carcinogenic effects have been observed in laboratory animals during lifetime inhalation studies with asphalt aerosol or fume. Chronic inflammatory changes to the respiratory tract have been observed in exposed animals. These changes include bronchitis, pneumonitis, and pulmonary congestion, which are similar to the inflammatory effects seen following chronic inhalation exposure to other types of non-specific respiratory irritants.

Health monitoring studies of lung cancer among asphalt workers have yielded contradictory results. While some studies are negative, others are positive but confounded by worker co-exposure to other potential lung carcinogens such as cigarette smoke and coal tar.

The International Agency for Research on Cancer (IARC) has conducted its own large health monitoring study on workers. No evidence of an association between workplace exposure to asphalt fume and lung cancer was found.

The IARC has concluded that there is inadequate evidence to classify asphalt as carcinogenic to humans.

Section 12. Ecological information

Toxicity

No testing has been performed by the manufacturer.

Product/ingredient name	Species	Test/Result	Exposure	Effects	Remarks
Asphalt	Micro-organism	LL50 >1000 mg/l Nominal Fresh water	40 hours	growth inhibition	Based on Asphalt, oxidized
	Micro-organism	NOEL >1000 mg/l Nominal Fresh water	40 hours	growth inhibition	Based on Asphalt, oxidized
	Algae	Acute EL50 >1000 mg/l Nominal Fresh water	72 hours	(growth rate)	Based on Asphalt, oxidized
	Daphnia	Acute LL50 >1000 mg/l Nominal Fresh water	48 hours	Mobility	Based on Asphalt, oxidized
	Fish	Acute LL50 >1000 mg/l Nominal Fresh water	96 hours	Mortality	Based on Asphalt, oxidized
	Fish	Chronic LL50 >1000 mg/l Nominal Fresh water	28 days	Mortality	Based on Asphalt, oxidized
	Daphnia	Chronic NOEL >1000 mg/l Nominal Fresh water	21 days	Reproduction	Based on Asphalt, oxidized
	Fish	Chronic NOEL >1000 mg/l Nominal Fresh water	28 days	Mortality	Based on Asphalt, oxidized

Conclusion/Summary Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) Not available.

Mobility Spillages are unlikely to penetrate the soil.

Other ecological information Density (g/cm3): ~ 1
This product has a density close to that of water. Spills are unlikely to form a distinct film on the water surface, and may become dispersed as globules if mixed or agitated.

Density (g/cm3): > 1
If released to water the product will sink.

Density (g/cm3): < 1

Section 12. Ecological information

Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Hydrogen sulfide; Hydrogen sulfide H2S	7783-06-4	Listed	U135

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	UN3257	Not regulated.	UN3257	UN3257
UN proper shipping name	Elevated temperature liquid, n.o.s. (Asphalt)	-	Elevated temperature liquid, n.o.s. (Asphalt)	Elevated temperature liquid, n.o.s. (Asphalt)
Transport hazard class(es)	9 	-	9 	9 
Packing group	III	-	III	III
Environmental hazards	No.	No.	No.	No.
Additional information	Reportable quantity 10000 lbs / 4540 kg [1164.4 gal / 4407.8 L] The classification of the product is due solely to the presence of one or more US DOT-listed 'Hazardous substances' that are subject to reportable quantity requirements and only	Remarks Forbidden: Passenger and Cargo Aircraft	Remarks IMDG page: 9027-1	Remarks Forbidden: Passenger and Cargo Aircraft Note: Not regulated temperature < 100 C (212 F)

Section 14. Transport information

	applies to shipments of packages greater than, or equal to, the product reportable quantity. Package sizes less than the product reportable quantity are not regulated as hazardous materials. Remarks Forbidden for transport on passenger and cargo aircraft in molten state.			

Special precautions for user Not available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

Section 15. Regulatory information

U.S. Federal regulations

United States inventory (TSCA 8b) **United States inventory (TSCA 8b):** All components are listed or exempted.

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ (lbs)	SARA 302 TPQ (gallons)	SARA 304 RQ (lbs)	SARA 304 RQ (gallons)
Hydrogen Sulfide	0 - 1	Yes.	500	-	100	-

SARA 304 RQ 10000 lbs / 4540 kg [1164.4 gal / 4407.8 L]

SARA 311/312

Classification Immediate (acute) health hazard

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements	Hydrogen Sulfide	7783-06-4	0 - 1
Supplier notification	Hydrogen Sulfide	7783-06-4	0 - 1

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts **Massachusetts Substances**: The following components are listed: ASPHALT FUMES; HYDROGEN SULFIDE

Section 15. Regulatory information

New Jersey	**New Jersey Hazardous Substances**: The following components are listed: ASPHALT FUMES; HYDROGEN SULFIDE
Pennsylvania	**Pennsylvania RTK Hazardous Substances**: The following components are listed: ASPHALT; HYDROGEN SULFIDE (H2S)
California Prop. 65	**WARNING:** This product contains a chemical known to the State of California to cause cancer. naphthalene

Other regulations

Australia inventory (AICS)	At least one component is not listed.
Canada inventory	At least one component is not listed.
China inventory (IECSC)	At least one component is not listed.
Japan inventory (ENCS)	At least one component is not listed.
Korea inventory (KECI)	At least one component is not listed.
Philippines inventory (PICCS)	At least one component is not listed.
Taiwan inventory (CSNN)	
REACH Status	For the REACH status of this product please consult your company contact, as identified in Section 1.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	1
Flammability	1
Physical hazards	0
Personal protection	X

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

National Fire Protection Association (U.S.A.)

History

Date of issue/Date of revision	01/12/2015.
Date of previous issue	10/17/2014.
Key to abbreviations	ACGIH = American Conference of Industrial Hygienists ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor CAS Number = Chemical Abstracts Service Registry Number GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) OEL = Occupational Exposure Limit SDS = Safety Data Sheet STEL = Short term exposure limit TWA = Time weighted average

Section 16. Other information

UN = United Nations
UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.

◤ Indicates information that has changed from previously issued version.

Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.

Section 1 ~ **Identification**

Product Name: Asphalt Cement Performance Graded (PG)
PG 46-28
PG 46-34
PG 52-28
PG 52-34
PG 58-22
PG 58-28
PG 64-22
PG 64-28
PG 70-22
PG 76-22

SDS Number: PG141119
Product Description: Asphalt/Bitumen/Asphalt Blend Stock
Intended Use: Road paving and other industrial applications
Emergency Phone 1.800.424.9300 CHEMTREC (24 hours)

Manufacturer Information: Seneca Petroleum Company, Inc.
13301 South Cicero Ave
Crestwood, Illinois 60445
Phone 1.708.396.1100

Section 2 ~ **Hazard(s) Identification**

Classification Hazards:
No classified Hazards

Other Hazards:
Vapors may contain hydrogen sulfide gas (H_2S) which can be harmful or fatal if inhaled.
Heated material can cause thermal burns.
Contact with water may cause violent eruption.
Prolonged repeated contact with cold material or condensed
Vapors may produce skin irritation.

Label Elements: **WARNING**
Vapors may contain hydrogen sulfide gas (H_2S) which can be harmful or fatal if inhaled.
Heated material can cause thermal burns.
Contact with water may cause violent eruption.
Prolonged repeated contact with cold material or condensed
Vapors may produce skin irritation.

Avoid overheating to minimize fume production.
Avoid breathing fumes from hot material.

Section 3 ~ Composition / Information Ingredients

Component/Chemical Name	CAS #	Concentration Range
Asphalt	8052-42-4	100%
Hydrogen Sulfide (in the vapor space)	7783-06-4	< .2%

Section 4 ~ First-Aid Measures

General: Remove from exposure. Lie down. Remove outer layers of clothing, as necessary and as long as clothing is not adhering to person. Do not attempt to remove material in direct skin contact. Seek immediate medical attention.

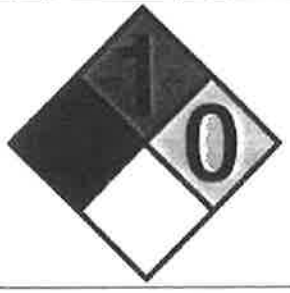
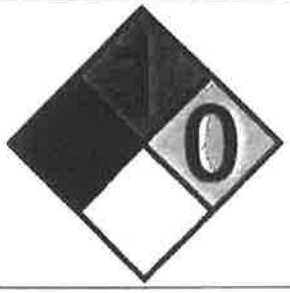
Eye: For contact with hot molten material, flush with plenty of water for 15 minutes holding eyelids apart and away from eyeball. Seek immediate medical attention.

Skin: For contact with hot molten material, cool area with water. Do not attempt to remove congealed solid material. Seek immediate medical attention. Clean skin with waterless hand cleaner. Do not use petroleum solvents to remove solid.

Inhalation: Remove exposed individual to fresh air; administer oxygen or artificial respiration as needed. Seek immediate medical attention.

Ingestion: DO NOT induce vomiting. Seek immediate medical attention. Clean mouth with water and drink afterwards plenty of water. If person vomits, sit person upright and notify medical attention.

Section 5 ~ Fire Fighting Measures

HMIS CODE: (Health:1) (Flammability:1) (Reactivity:0)	NFPA CODE: (Health:1) (Flammability:1) (Reactivity:0)
	

Extinguishing Media:

Small Fires: Any extinguisher suitable for Class B fires, dry chemical, or CO_2

Large Fires: Water spray, fog or fire fighting foam. Foam is the preferred medium.

Specific Hazards during Fire

Isolate hazard area and keep unauthorized personnel from entering. (If in use,) Request the disconnection of internal heat source (heating coils). Stop, control and contain any spills when it can be safely done. If water is applied to control fire, a violent eruption may occur, a boil over may occur, and/or material may float on surface creating the possibility of asphalt/oil sheen may occur. In the case of a major fire, it may be necessary to allow the fire to burn itself out.

Specific Protective Equipment for Fire Fighters

Use NIOSH/MSHA approved positive pressure self-contained breathing apparatus and fully protective clothing such as bunker gear. Withdraw from the fire when there is rising sound from venting safety device or discoloration of vessel, tanks, or pipelines. In addition, wear other appropriate protective equipment as conditions warrant.

Section 6 ~ Accidental Release Measures

Personal Precautions

ACTIVATE YOUR COMPANY'S SPILL OR EMERGENCY RESPONSE PLAN.
Carefully contain and stop the source of the spill, when safe to do so. Protect water by diking, absorbents, and/or absorbent boom. Remove by mechanical means. Authorities should be notified if reportable quantity release occurs.

Methods for clean up

Allow to solidify. Collect materials in a ventilated waste container for disposal.

Section 7 ~ Handling & Storage

Handling

Use only in ventilated areas.
Do not smoke near areas where material is handled or stored.
Vapors (from H_2S) may form explosive mixtures in air.

Storage

This material is stored at an elevated temperature in excess of 280°F.
Keep away from flame, sparks, excessive temperature change and open flames.
Keep containers closed when not in use and clearly labeled.
Maintain adequate ventilation.
Do not enter confined spaces without proper ventilating before entrance.
Do not mix with water as a violent eruption may occur, a boil over may occur, and/or material may float on surface creating the possibility of asphalt/oil sheen may occur.

Section 8 ~ Exposure Controls / Personal Protection

Exposure Guidelines

Chemical Name	ACGIH	OSHA
Asphalt	TWA: 0.5 mg/m^3	
Hydrogen Sulfide (H_2S)	TWA: 1 ppm STEL: 5 ppm	STEL 20 ppm

Engineering Controls

Engineering controls are generally required when handling elevated temperature products.
Provide adequate ventilation.
Ensure that an emergency wash station and emergency shower are located in the work station.

Eye/Face Protection

Use a full face shield when handling product.
Safety glasses meeting ANSI Z.87.1 are recommended as minimal protection when working in an industrial location.

Skin/Hand Protection

Wear long sleeved shirts and work pants preferably 100% cotton.
Wear work boots made of leather that cover the ankle.
Use insulated gloves when handling hot product.
Use work gloves when handling cooled product.

Respiratory Protection

Use adequate ventilation.
Contaminant air concentrations determine the level of respiratory protection required. Use only NOISH approved respiratory equipment within the limits of the appropriate protection factor(s). Use supplied air when H2S concentrations are expected to exceed workplace exposure limits.

Other Protections

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet facilities.
Use a full body heat resistant or internally cooled suit when work conditions dictate.

Section 9 ~ Physical & Chemical Properties

Appearance	Black, viscous
Physical Form	Semi-solid (ambient temp.) Liquid (elevated temp.)
Odor	Sour tar like, asphalt
Odor Threshold	No data
pH	Not applicable
Melting Point/Freezing Point	86-149°F, 30-130°C
Boiling Point	>752°F, >400°C
Flash Point	>446°F, >230°C
Evaporation Rate	Negligible
Flammability (solid/gas)	Not applicable
Lower Explosive Limit (LEL)	Not applicable
Upper Explosive Limit (UEL)	Not applicable
Vapor Pressure	Negligible
Vapor Destiny (air=1)	Not applicable
Specific Gravity (water=1)	1-1.1
Partition Coefficient	No data
Auto-Ignition Temperature	No data
Decomposition Temperature	No data
Viscosity, Kinematic	No data
Solubility in Water	Negligible

Section 10 ~ Stability & Reactivity

Reactivity

Not chemically reactive.

Chemical Stability

Stable under normal use.

Possibility of Hazardous Reactions

Stable under normal use.

Incompatible with strong acid and strong oxidizers. (Chlorine, hydrogen peroxide, organic peroxides, nitric acid, oxygen under pressure)

Do not mix with water as a violent eruption may occur, a boil over may occur, and/or material may float on surface creating the possibility of asphalt/oil sheen may occur.

Conditions to Avoid

Do not mix with water as a violent eruption may occur, a boil over may occur, and/or material may float on surface creating the possibility of asphalt/oil sheen may occur.

Incompatible Materials

Strong Acids and strong oxidizers. (Chlorine, hydrogen peroxide, organic peroxides, nitric acid, oxygen under pressure)

Hazardous decomposition Products

Thermal decomposition can produce toxic gases: oxides of carbon, nitrogen and sulfur.

Section 11 ~ Toxicological Information

We have not conducted specific toxicity tests on this product. Our hazard assessment is based upon information provided by our suppliers on similar products, other manufacturers, and scientific literature. The International Agency for Research on Cancer has found that there is limited evidence of carcinogenicity for undiluted steam-refined asphalts in laboratory animals, but inadequate evidence of carcinogenicity for undiluted steam-refined asphalts in humans.

Eye Irritation:

At an elevated temperature, this material can cause burns to the eyes. Mists, vapors or fumes may cause eye irritation with tearing, redness, or a stinging or burning feeling.

Ingestion:

Chronic –If consumed in large quantities, material may obstruct the intestine.

Acute – Contact with heated material may cause burns. If material is consumed at ambient temperature, no significant adverse health effects are anticipated

Inhalation:

Chronic - No significant health effects were observed during lifetime inhalation studies with laboratory animals, but lung damage was observed including bronchitis, pneumonitis, abcess formation, and other irritations.

Acute - Hydrogen sulfide (H_2S) can accumulate in the headspace of heated asphalt storage tanks or transport vessels. Inhalation of H_2S can produce eye and respiratory irritation, unconsciousness, and even death. Due to rapid fatigue of the olfactory senses you can not rely upon odor to detect this toxic gas. Use caution to avoid breathing of vapors when working around bulk containers of HOT liquid asphalt.

Skin Irritation:

Chronic -This material contains Polynuclear Aromatic Hydrocarbons, some of which may be types shown to induce skin cancer in mice in lifetime skin-painting tests at the site of application. Prolonged repeated exposure to condensed vapors can

cause skin irritation. Wash areas of exposed skin following contact and do not continue to wear contaminated clothing.

Acute – Heated asphalt may cause burns to the skin.

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Unlikely to be harmful	May contain or release poisonous H_2S gas	Not Applicable
Dermal	Unlikely to be harmful		>2 g/kg
Oral	Unlikely to be harmful		>5 g/kg

Section 12 ~ Ecological Information (Non-Mandatory)

No ecological studies are available for this product.

Section 13 ~ Disposal Considerations (Non-Mandatory)

Recovered spilled material may be reused or recycling.

Dispose only in accordance with federal, state, and/or local regulations. Recovered liquid may be incinerated at an approved facility. Contaminated solid absorbent or diking material(s) may be deposited in an approved landfill.

Section 14 ~ Transport Information (Non-Mandatory)

U.S. Department of Transportation (DOT)

Shipping Description:	***Shipping description is for bulk shipments that meet the Elevated temperature criteria, non-bulk is unregulated.*** UN3257, Elevated temperature liquid, n.o.s. (Asphalt), 9, III
Non-Bulk Packaging Marking:	None
Non-Bulk Packaging Labels:	None
Bulk Package/Placard Marking:	None/ 3257 & [HOT mark] or class 9/ 3257 & [HOT mark]
Hazardous Substance	None

Note: This material is regulated by the DOT when shipped in bulk packages at temperatures >212°F (100°C). The word **HOT** must be marked on the bulk package on two opposing sides.

If shipped by land in a package having a capacity of 3500 gallons or more, the provisions of 49 CFR, Part 130 apply.

International Maritime Dangerous Goods (IMDG)

Shipping Description:	UN3257, Elevated temperature liquid, n.o.s. (Asphalt), 9, III
Non-Bulk Packaging Marking:	Elevated temperature liquid, n.o.s., UN3257
Labels:	Class 9
Placard/Markings Bulk:	Class 9/3257 and [Elevated Temperature Mark]

EMS	F-A, S-P

Note: Not regulated as temperature below 100°C. If transported in bulk by marine vessel in international waters, product is being carried under the scope of MARPOL Annex I.

International Civil Aviation Org./International Air Transport Assoc. (ICAC/IATA)
Elevated temperature liquid, n.o.s. – is forbidden shipment.
Not regulated at temperatures below 100°C.

Section 15 ~ Regulatory Information (Non-Mandatory)

OSHA:

Hazardous by definition 29 CFR 1910.1299 (Hazard Communication Standard. Contains a component listed by ACGIH

TSCA:

All of the components of this product are listed on the TSCA inventory.

CERCLA:

This material is exempt from CERCLA reporting requirements under 40 CFR Part 302.4. There is no RQ for This material or any component greater than 1% or 0% (carcinogen). However, if spilled into the waters of the United States, it may be reportable under 33 CFR Part 153 if it produces a sheen..

SARA Title III Section 313:

This material is exempt from the reporting requirements of Section 313 SARA and 40 CFR Part 372.

Sara Title III Section 302:

There is no TQP for this material under 40 CFR Part 355, however, if heated, vapors may cause H2S which is on the Extremely Hazardous Substances List (TPQ 10,000 lbs., RQ 2,000lbs.).

RCRA:

This material is not subject to the 40 CFR Part 268.30 land ban on the disposal of certain hazardous wastes.

Canada:

This material has been classified in accordance with hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by regulations

WHMIS:

None

California:

Warning: This material contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject ti the warning requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5).

Section 16 ~ Other Information (Non-Mandatory)

The information provided in the Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Approved for use on: December 1, 2014 by Daryl Brown

K-TECH
SPECIALTY COATINGS, INC.

SAFETY DATA SHEET

1. IDENTIFICATION

Product Identifier	Asphalt Emulsion Hard Pen
Other means of identification:	
SDS Number:	15-005
Synonyms	AE-NT, CHIP LOCK
Recommended Uses	TACK BOND BETWEEN OLD AND NEW SURFACE, CHIP LOCK ON SUFACE OF NEW CHIP AND SEAL ROADS
Recommended Resrictions	NONE
Manufacturer/Importer/Supplier/ Distributor	K-TECH SPECIALTY COATINGS
Address	111 West Garfield St. Ashley, IN. 46705 Office: 260-587-3888 Fax: 260-587-3889
General Information	Office: 260-587-3888
24 hr Emergency Assistance	1-574-383-7061

2. HAZARD(S) IDENTIFICATION

GHS Classification(s)

Acute Toxicity (oral) Category 5
Skin corrosion/irritation Category 3
Serious eye damage/eye irritation Category 2B
Respiratory sensitizer Category 1B
Skin sensitizer Category 1B
Carcinogenicity Category 2
Aspiration hazard Category 2

Label Elements

Signal Word WARNING

Pictogram:

Hazard Statement	May be harmful if swallowed (oral). Causes mild skin irritation. Causes eye irritation. May cause allergy or asthma symtoms or breathing May cause an allegic skin reaction. Suspected of causing cancer. May be harmful if swallowed and enters airways.
Precautionary Statement **Prevention**	
	Wash any exposed skin that may have come in contact with product thoroughly after handling. To avoid getting product in eyes, wash any exposed skin that may have come in contact with product thoroughly after handling. Avoid breathing dust/fume/gas/mist/spray. Avoid breathing dust/fume/gas/mist/spray. Obtain special instructions before use. Use only in well ventilated space, if ventilation is not available, use a self contained breathing apparatus. Contaminated work clothes should not be allowed out of workplace. Wear protective gloves/protective clothing/eye protection/face protection.
Response	
	IF SKIN IRRITATION OCCURS:Wash any exposed skin that may have been in contact with product thoroughly. IF IN EYES:Gently flush immediately with cold water for 15 minutes. Do not attempt to remove solidified material from the eye, as this may further injury. Take the victim to obtain medical assistance. IF INHALED: Immediately remove victim from source to fresh air, if irritation occurs from over exposure, seek medical attention. IF ON SKIN:Wash any exposed skin that may have been in contact with product thoroughly after handling. IF EXPOSED OR CONCERNED:Seek medical attention/advice. Do NOT induce vomiting. IF SKIN IRRITATION OR RASH OCCURS:Get medical advice/attention. IF EYE IRRITATION OCCURS:Get medical advice/attention.

Response Continued	Asphalt Cement at elevated temperatures may produce Hydrogen Sulfide Gas. Inhalation of vapors, mist or fumes containing Hydrogen Sulfide(generated at high temperatures) may cause irritation to nose, throat and respiratory system. IF SKIN IRRITATION OR RASH OCCURS:Get medical advice/attention. Immediately call a physician if you believe victum has swallowed product and may have breathed it into lungs. Do not induce vomiting.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with relevent regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS:

Chemical Identity	CAS Number	%
Asphalt Cement	8052-42-4	25-60%
Emulsifier	Proprietary	1-3%
Water	7732-18-5	40-75%
Other	Proprietary	<1%

4. FIRST AID MEASURES

Eye	**Gently flush immediately with cold water for 15 minutes. Do not attempt to remove solidified material from the eye, as this may further injury. Take the victim to obtain medical assistance.**
Skin	**Hot Emulsified Material - Cool the affected body parts immediately by submerging in cold water until the material has cooled. Do not attempt to remove solidified material from the burn area as this may further tissue damage. Take the victim to obtain medical assistance immediately. Once product has cooled, remove emulsified asphalt by soaking dressing in mineral oil and place over affected area for 2-3 hours. If irritation occurs, call a physician. Never try to remove the material with solvents.**
Ingestion	**Ingestion is not likely. If large amounts are swallowed, do not induce vomiting and immediately call the Poison Information Center or a physician and seek medical attention.**
Inhalation	**If irritation occurs from inhalation overexposure, immediately remove victim from source to fresh air and seek medical attention**

First Aid Facilities:	**Eye wash facilities and safety showers are recommended.**

5. FIREFIGHTING MEASURES

Flash Point: N.A. °F

Boiling Point: >200°F

Lower Explosive Limit: N.A.

Upper Explosive Limit: N.A.

Suitable Extinguishing Media	**Foam, Carbon Dioxide, Dry Chemical, and Water Spray may all be suitable in extinguishing fires involving this product. Avoid using water streams to prevent frothing. Use water spray to cool exposed surfaces.**

6. ACCIDENTAL RELEASE MEASURES

Stop source of leak. Eliminate sources of ignition. Contain by diking or impounding. Absorbants can be used to contain spill. After containment, emulsified asphalt can be collected for disposal. Advise authorities if product has entered a sewer or water source. Assure conformity with local, state, and federal governmental regulations for disposal.

7. HANDLING AND STORAGE

Precautions for Safe Handling

When opening covers and outlet cap on storage tanks, use faceshield and gloves to avoid possible injury from pressurized asphalt. Hydrogen sulfide can be generated and accumulated in storage tanks and bulk transport compartments. Stay upwind and vent storage hatches before unloading. Keep heating units and flues in storage tanks covered with at least 12 inches of asphalt. Do not overheat.

Conditions for Safe Storage, Including any Incompatibilities

Empty Container Warning: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Work/Hygienic Practices

Skin contact and the breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects. Thoroughly wash exposed skin areas after work to avoid dermatitis. Consider the use of lanolin skin treatments before handling or working around asphalt mixtures.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Occupational Exposure Limits

US.OSHA Table Z-2 (29 CFR 1910.1000)

Components	OSHA	ACGIH	NIOSH
ASPHALT (CAS 8052-42-4)	PEL- Not established for this material.	TWA-0.5 mg/m3 Inhalable Particulate	CEILING-5.0 mg/m3
EMULSIFIER, Proprietary	PEL- Not established for this material.	-	-
WATER	PEL- Not established for this material.	TWA, STEL- Not established for this material	Exposure limits not established for this material

PERSONAL PROTECTION MEASURES

Eye/Face Protection

Safety goggles or chemical splash goggles if splashing is anticipated.

Skin Protection

Oil impervious gloves, such as Neoprene or PVC, if frequent or prolonged contact is expected.

Respiratory Protection

Respiratory protection is not normally required under normal conditions and adequate ventilation. If high vapors are expected, use respirator approved for organic vapors. Observe respirator protection factor criteria cited in ANSI Z88.2 (1980) and other OSHA requirements found in 29 CFR 1910.134. Use air-supplied respirators or self-contained breathing apparatus for firefighting and in confined spaces when asphalt vapor or Hydrogen Sulfide gas exceeds permissible limits.

Other/General Protection

Wear body covering clothes to avoid prolonged or repeated exposure. Launder before reuse.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION CONTINUED

ENGINEERING CONTROLS

Local or general exhaust required if in an enclosed area to remain below the TLV. If work place exposure limits are exceeded, a NIOSH/MSHA approved air supplied respirator is advised in the absence of proper environmental engineering controls.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	-Brown
PHYSICAL STATE:	-Liquid
ODOR:	-Characteristic Asphalt Odor
ODOR THRESHHOLD:	-N/A
PH:	7-11
FREEZE POINT:	32°F (0°C)
BOILING POINT/RANGE	212 °F (100°C)
FLASH POINT	N/A
EVAPORATION RATE	N/A
FLAMMABILITY(SOLID, GAS)	N/A
UPPER/LOWER FLAMMABILITY/EXPLOSIVE LIMITS	N/A
VAPOR PRESSURE	Vapor Pressure: <1mm-10mm Hg @ 77 F
VAPOR DENSITY	Vapor Density: >1.0
RELATIVE DENSITY	1-1.15
SOLUBILITY WITH WATER	Completely
PARTITION COEFFICIENT:N-OCTANE/WATER	N/A
AUTO-IGNITION TEMPERATURE	N/A
DECOMPOSITION TEMPERATURE	N/A
SPECIFIC GRAVITY:	0.92-1.05

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY	**This Product is stable at ambient temperatures.**
POSSIBLITY OF HAZARDOUS REACTIONS	**Low**
CONDITIONS TO AVOID	**Avoid extreme temperatures**
INCOMPATIBLE MATERIALS	**Avoid contact with strong bases.**
HAZARDOUS DECOMPOSTION PRODUCTS	**-Fumes, Smoke, Carbon Monoxide, Hydrogen Sulfide, Sulfur Dioxide, Aldehydes, and Hydrocarbons**

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Ingestion	May be harmful if swallowed (oral).
Inhalation	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Contact	May cause mild skin irritation.
Eye Contact	Causes eye irritation

Symptoms related to the physical, chemical and toxicological characteristics

Information on toxicological effects:

Vapor may contain Hydrogen Sulfide (H2S) Gas. Exposure to lower concentrations of H2S can result in eye irritation, sore throat and cough, nausea, shortness of breath, and fluid in the lungs. Long term exposure may result in fatique, loss of appetite, headaches, irritability, poor memory, and dizziness.

Numerical measures of toxicity:

.02 ppm	Odor threshold.
10 ppm	8-hour per day exposure limit to Hydrogen Sulfide.
10-20 ppm	Borderline concentration for eye irritation.
10-100 ppm	Leads to eye damamge.
100-150 ppm	Olfactory nerve paralyzed after a few minutes, sense of smell disappears, and often unawareness of danger.
320-530 ppm	Leads to pulmonary edema with possibility of death.
530-1,000 ppm	Causes strong stimulation of the central nervous system and rapid breathing.
800 ppm	Lethal concentration of 50% of humans for 5-minute exposure (LC50).
>1,000 ppm	immediate collapse with ioss of breathing, evenafter inhaiation of a single breath.

12. ECOLOGICAL INFORMATION

Ecotoxicity-Aquatic and Terrestrial: Not listed as a marine pollutant on HMT 172.101

Persistence and Degradability: No testing has been performed by the manufacturer.

Bioaccumulative potential: No testing has been performed by the manufacturer.

Mobility in soil: No testing has been performed by the manufacturer.

Other adverse effects: N/A

13.DISPOSAL CONSIDERATIONS

Waste or contaminated asphalt is normally disposed in a special waste or industrial landfill. Consider recycling into pavement mixtures whenever possible.

RCRA Information

This material, if discarded as produced, is not a RCRA "listed" hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261). Along with properly characterizing all waste materials, consult state and local regulations regarding proper disposal of this material.

14. TRANSPORT INFORMATION

UN Number:	**NON HAZARDOUS**
Proper Shipping Name:	**NON-REGULATED**
Hazardous Classification:	**NON-REGULATED**
Packing Group:	**NON-REGULATED**
Environmental Hazards:	**N/A**
Transport in Bulk:	**N/A**
Special Provisions:	**N/A**
Special Precautions:	**N/A**
Packaging Exceptions:	**N/A**
Packaging Non-Bulk:	**N/A**

15. REGULATORY INFORMATION

U.S. Regulatory Information

Toxic Substances Control Act: This product is listed on the US TSCA Chemical Inventory Section 8(b).

Clean Water Act: Petroleum hydrocarbons are considered hazardous if released into navigable waters.

OSHA Hazard Communication: See individual state requirements for Right-To-Know lists.

SARA Hazard Classes

-Acute Health Hazard

NFPA RATING:

HEALTH: 1

FLAMABILITY:0

REACTIVITY:0

16. OTHER INFORMATION

When in storage, avoid freezing temperatures or heating in excess of 212°F. Both extremes will cause separation of the water from the asphalt, and will render the product unusable and result in a disposal situation. Do not contaminate with cationic emulsions or other asphalt materials such as asphalt cement or cutback asphalts. All of these materials are incompatable and will

This material safety data sheet and the information herein is offered in good faith as accurate. The information has been compiled from sources considered to be reliable and accurate to the best of our knowledge, but is not guaranteed to be so. Health and safety precautions in this data sheet may not be adequate for all individuals under all circumstances. It is the users obligation to evaluate and use this product safely and to comply with all applicable laws and regulations whether they be federal, state, or local. No warranty is made, either expressed or implied through the issuance of this MSDS.

SDS PREPARED:	**5/27/2015**
REVISION DATE:	**5/27/2015**

SAFETY DATA SHEET

SDS ID NO.: 0108MAR019
Revision Date: 09/05/2015

1. IDENTIFICATION

Product Name: Marathon Petroleum Asphalt

Synonym: Asphalt Cement (ACs); Asphalt Flux; Penetration Grade Asphalts (Pen); Roofing Flux; **Recycling Agents (RAs); Marathon PERFORMAC™ Asphalt Binder; PERFORMAC™ PG82-22PM; PERFORMAC™ 500; PG46-28; Performance Graded Asphalt Binder ;** PG46-34; PG52-28; PG52-28PM; PG52-34; PG58-22;PG58-28; PG58-34; PG58-34PM; PG64-22; PG64-28; PG64-28PM; PG64-34PM;PG67-22; PG70-22; PG70-22PM; PG70-28PM; PG76-22; PG76-22 PM; PG76-28PM; PG64-22PM; PG82-22PM; Asphalt; PG 58H-28; PG 64H-22; PG 67H-22;PG 58V-28 ; PG 64V-22 ; PG 67V-22;PG 58E-28; PG 64E-22 ; PG 67E-22; Marathon 0-10 Pen Asphalt; S-180 Hard Pen Asphalt; Marathon SDA Bottoms; Solvent Deasphalted Residuum; 0 Pen Asphalt; 3 Pen Asphalt; 10 Pen Asphalt; Vacuum Tower Bottoms; VTB; VB; Residuum Extract; Petroleum Asphaltenes; Residual Oil Solvent Extract; Residuum Extract; Cylinder Stock; Slop Wax

Chemical Family: Asphalt

Recommended Use: Road Building & Other Service.
Use Restrictions: All others.

Supplier Name and Address:
MARATHON PETROLEUM COMPANY LP
539 South Main Street
Findlay, OH 45840

SDS information: 1-419-421-3070

Emergency Telephone: 1-877-627-5463

2. HAZARD IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Skin sensitization	Category 1A
Carcinogenicity	Category 2
Acute aquatic toxicity	Category 3

Hazards Not Otherwise Classified (HNOC)
Hot liquid may cause thermal burns
May release hydrogen sulfide gas

Label elements

EMERGENCY OVERVIEW

Warning

Contact with product at elevated temperatures can result in thermal burns
May release highly toxic hydrogen sulfide gas that quickly fatigues the sense of smell
Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
Suspected of causing cancer
Harmful to aquatic life

Appearance Black-brown solid or semi-solid at room temperature. Liquid at temperatures >70°C.

Physical State Liquid

Odor Tar

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing fume/gas/vapors
Wash hands and any possibly exposed skin thoroughly after handling
Contaminated work clothing should not be allowed out of the workplace
Avoid release to the environment

Precautionary Statements - Response
IF exposed or concerned: Get medical attention
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical attention
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical attention
Take off contaminated clothing and wash before reuse

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container at an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Petroleum Asphalt is a solid carbon material produced from high temperature vacuum distillation of crude oil. Composition varies depending on source of crude and specifications of final product. Can contain minor amounts of sulfur, nitrogen and oxygen compounds as well as trace amounts of heavy metals such as nickel, vanadium and lead. Composition varies depending on source of crude. Polycyclic aromatic hydrocarbons (3-7 ring) have been found to be present in trace concentrations (<0.01%). Different **asphalt grades may also contain an anti-strip additive. Asphalt is considered "air-rectified" as defined by Eurobitume rather than "oxidized" if its Penetration Index is < +2 that is calculated from the values of Penetration and the Softening Point (Asphalt Institute,** IS-230).

Composition Information:

Name	CAS Number	% Concentration
Asphalt	8052-42-4	100

Styrene/butadiene Copolymer	9003-55-8	0-9
Sulfur Compounds	Mixture	1-5
Polyphosphoric Acids	8017-16-1	0-1
Polyamine	Proprietary	0-1
Naphthalene	91-20-3	0.01-0.15
Hydrogen sulfide	7783-06-4	<0.1
Polycyclic Aromatic Hydrocarbons	Mixture	<0.01

All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

4. FIRST AID MEASURES

First Aid Measures

General advice

Immediately address any airway, breathing, or circulation concerns. Contact EMS if the person is having trouble breathing, moving, or staying awake. Perform a quick assessment for other injuries that may be present including falls or from falling objects.

REMEMBER ABCC (AIRWAY, BREATHING, CIRCULATION, COOLING).

Inhalation:

If symptoms of overexposure to asphalt fume develop, move to fresh air in a position comfortable for breathing. If symptoms or irritation occur, call a poison control center or doctor.

Skin Contact:

Hot material: DO NOT DELAY. Immediately immerse or place the affected skin under a water stream for at least 20 minutes. Urgent medical attention is required for burns to the face, eyes, hands, feet, genitalia, and for circumferential or large burn areas. GET MEDICAL ATTENTION IMMEDIATELY.
Do not attempt to remove solidified asphalt if not a physician. Leave burn uncovered. Ice (or **"cold packs") may be used in the event that water is unavailable. Only remove clothing if not** adhering to the skin. Be aware that although it is very important to cool the burn thoroughly and completely, the overuse of ice may increase the risk of hypothermia.

Cold material: To remove cold asphalt not associated with a burn, wash with soap and water or waterless cleaner. If symptoms or irritation or rash occur, call a poison control center or doctor.

Eye Contact:

Hot material: After contact with hot asphalt, lay the person flat on their back, remove contact lenses if easy to do, and flush with water from a continuous stream for at least 20 minutes by allowing the water to flow over the bridge of the nose to the eyes. GET MEDICAL ATTENTION IMMEDIATELY.

Cold material: If irritation develops, flush eyes with water. If irritation or redness persists call a poison control center or a doctor.

Ingestion:

Ingestion not likely. Small amounts of ingested asphalt usually require no treatment. If large amounts are swallowed, call a poison control center or doctor.

Most important signs and symptoms, both short-term and delayed with overexposure

Adverse Effects:

Frequent or prolonged contact with cold material may cause irritation. Additional effects may include skin sensitization. Exposure to hot melted material can cause thermal burns.

Indication of any immediate medical attention and special treatment needed

Notes To Physician:

Immediately address any airway, breathing, or circulation concerns.

SKIN & EYE CONTACT: Prolonged flushing/cooling is necessary if the patient is treated on scene or soon after asphalt contact. Topical antibiotics should be liberally applied to the adhered asphalt-skin interface to aid in asphalt removal. A non-adherent material, such as Adaptic®, can then be applied and covered with sterile gauze. If topical antibiotics are not available, other materials that may be effective include mineral oil, baby oil, petroleum jelly (e.g. Vaseline®), mayonnaise, or butter. Do not use organic solvents such as kerosene, gasoline, or ethanol, as these can result in tissue damage or a fire hazard. Dressings should be changed every 4 hours until natural separation occurs. Initiate standard burn management at that time. Once cooled, adhered asphalt is not harmful to the skin, and in fact, provides a sterile cover over the affected area. The asphalt will detach itself within a few days as healing occurs. If it is necessary to remove the asphalt, only medically approved solvents or warm paraffin should be used to prevent further skin damage. Circumferential asphalt contact can have a tourniquet effect and impair distal circulation and nerve function. Create a longitudinal split or cut (analogous to an escharotomy) may be required completely across the residual asphalt to relieve pressure in the underlying tissue. For eye exposures with adherent asphalt, consult with an ophthalmologist. If hot material has caused burns to the eye, early ophthalmologic evaluation is recommended.

INHALATION: Inhalation exposure can produce toxic effects. Treat intoxications as hydrogen sulfide exposures. At high concentrations hydrogen sulfide may produce pulmonary edema, respiratory depression, and/or respiratory paralysis. The first priority in treatment should be the establishment of adequate ventilation and the administration of 100% oxygen. Monitor for respiratory distress. If cough or difficulty inbreathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water fog can be used. For larg fires, water spray, fog or foam (AFFF/ATC) can be used. Firefighting should be attempted only by those who are adequately traine and equipped with proper protective equipment.

Unsuitable extinguishing media
Do not use straight streams. Water contact can cause violent eruption of hot asphalt.

Specific hazards arising from the chemical
This product is not a combustible liquid per the OSHA Hazard Communication Standard, but will ignite and burn at temperatures exceeding the flash point.

Hazardous combustion products
Smoke, carbon monoxide, and other products of incomplete combustion.

Explosion data
Sensitivity to Mechanical Impact No.
Sensitivity to Static Discharge No.

Special protective equipment and precautions for firefighters
Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Avoid using straight water streams. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Keep run-off water out of sewers and water sources.

NFPA:	Health 2	Flammability 1	Instability 0	Special Hazards -

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Keep public away. Isolate and evacuate area. Shut off source if safe to do so.

Protective Equipment: Use personal protection measures as recommended in Section 8.

Emergency Procedures: Advise authorities and National Response Center (800-424-8802) if the product has entered a water course or sewer. Notify local health and pollution control agencies, if appropriate.

Environmental precautions: Avoid release to the environment. Avoid subsoil penetration.

Methods and materials for containment: Contain liquid with sand or soil.

Methods and materials for cleaning up: Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids. Recover and return free product to proper containers.

7. HANDLING AND STORAGE

Safe Handling Precautions: Avoid contact with skin, eyes and clothing. Avoid breathing fumes, gas, or vapors. Use only with adequate ventilation. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment. Comply with all applicable EPA, OSHA, NFPA and consistent state and local requirements.

Harmful concentrations of hydrogen sulfide (H2S) gas can accumulate in excavations and low-lying areas as well as the vapor space of storage and bulk transport compartments. Stay upwind and vent open hatches before unloading. Sulfur containing products may cause polysulfide deposits (iron sulfide) to form inside iron storage tanks. These pyrophoric deposits, upon exposure to air, can ignite spontaneously. Keep heating coils and flues in storage tanks, trucks and kettles covered with product (8"). Do not overheat.

Storage Conditions: Store in properly closed containers that are appropriately labeled and in a cool, well-ventilated area.

Incompatible materials Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	ACGIH TLV	OSHA PELS:	OSHA - Vacated PELs	NIOSH IDLH
Asphalt 8052-42-4	0.5 mg/m³ TWA	-	-	-
Styrene/butadiene Copolymer 9003-55-8	-	-	-	-
Sulfur Compounds Mixture	-	-	-	-
Polyphosphoric Acids 8017-16-1	-	-	-	-
Polyamine Proprietary	-	-	-	-
Naphthalene 91-20-3	10 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm TWA: 50 mg/m³	10 ppm TWA 50 mg/m³ TWA 15 ppm STEL 75 mg/m³ STEL	250 ppm
Hydrogen sulfide 7783-06-4	1 ppm TWA 5 ppm STEL	Ceiling: 20 ppm	10 ppm TWA 14 mg/m³ TWA 15 ppm STEL 21 mg/m³ STEL	100 ppm
Polycyclic Aromatic Hydrocarbons Mixture	-	-	-	-

Notes: The manufacturer has voluntarily elected to provide exposure limits contained in OSHA's 1989 air contaminants standard in its SDSs, even though certain of those exposure limits were vacated in 1992.

Engineering measures: Local or general exhaust required in an enclosed area or when there is inadequate ventilation.

Personal protective equipment

Eye protection: Wear goggles and faceshield when handling hot material.

Skin and body protection: Wear insulated gloves when handling hot material. Contact the glove manufacturer for specific advice on glove selection and breakthrough times. Wear the appropriate thermal resistant clothing and footwear when handling and applying hot asphalt. Rubberized suits or coats may be needed for some maintenance operations with hot material.

Respiratory protection: Where there is potential for airborne exposure to hydrogen sulfide (H2S) above exposure limits, a NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used. When H2S vapors exceed permissible limits, i.e., in confined spaces or bulk transport loading/unloading, a positive-pressure atmosphere supplying respirator is recommended. Self-contained breathing apparatus should be used for fire fighting.

Provided hydrogen sulfide (H2S) is not detected: if there is potential to exceed the exposure limits for asphalt fumes a NIOSH certified air purifying respirator equipped with organic vapor cartridges/canisters with R or P95 filters should be used. A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed when conditions warrant the use of a respirator.

Note: Air purifying respirators are not to be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient atmospheres, (less than 19.5 percent oxygen) or under conditions that are immediately dangerous to life and health (IDLH).

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Black-brown solid or semi-solid at room temperature. Liquid at temperatures >70°C.
Color	Dark brown to black
Odor	Tar
Odor Threshold	No data available

Property	**Values (Method)**
Melting Point / Freezing Point	> 15.5 °C / > 60 °F (ASTM D36)
Initial Boiling Point / Boiling Range	176-593 °C / 350-1100 °F (ASTM D2887)
Flash Point	> 232 °C / > 450 °F (ASTM D92)
Evaporation Rate	No data available
Flammability (solid, gas)	Not applicable.
Flammability Limit in Air (%)	
Upper Flammability Limit:	No data available
Lower Flammability Limit:	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity / Relative Density	0.95-1.13 @ 15.6°C (ASTM D70)
Water Solubility	No data available
Solubility in other solvents	No data available
Partition Coefficient	No data available
Decomposition temperature:	No data available
pH:	Not applicable.
Autoignition Temperature	No data available
Kinematic Viscosity	No data available
Dynamic Viscosity	>50 P @ 60°C (ASTM D2171)

Explosive Properties	No data available
Softening Point	No data available
VOC Content (%)	No data available
Density	No data available
Bulk Density	Not applicable.

10. STABILITY AND REACTIVITY

Reactivity	The product is non-reactive under normal conditions.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	None under normal processing.
Hazardous polymerization	Will not occur.
Conditions to avoid	Sources of heat or ignition.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	None known under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

Potential short-term adverse effects from overexposures

Inhalation	Fumes or vapors from the heated material may be irritating to the respiratory tract. May release highly toxic hydrogen sulfide gas that quickly fatigues the sense of smell.
Eye contact	Vapors may cause eye irritation and sensitivity to light. Contact with hot material may cause thermal burns.
Skin contact	May cause skin irritation. May cause an allergic skin reaction. Contact with hot material may cause thermal burns.
Ingestion	If swallowed at ambient temperature no significant adverse effects are expected. Ingestion of large amounts may cause gastrointestinal blockage. Swallowing hot material may cause burns to the mouth, throat, and stomach.

Acute Toxicological data

Name	Oral LD50	Dermal LD50	Inhalation LC50
Asphalt 8052-42-4	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	>94.4 mg/m³ (Rat) 4 h
Styrene/butadiene Copolymer 9003-55-8	-	-	-
Sulfur Compounds Mixture	-	-	>5 mg/l (Rat) 4 h
Polyphosphoric Acids 8017-16-1	-	-	-
Polyamine Proprietary	-	-	-
Naphthalene 91-20-3	490 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 340 mg/m³ (Rat) 1 h
Hydrogen sulfide 7783-06-4	-	-	444 ppm (Rat) 4 h
Polycyclic Aromatic Hydrocarbons Mixture	-	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

PETROLEUM ASPHALT: Eye and upper respiratory tract irritation has been reported in some asphalt workers (paving and roofing operations) but they are typically mild and transient. Some studies indicate that asphalt paving workers may experience lower respiratory tract symptoms (e.g., coughing, wheezing, and shortness of breath) and pulmonary function changes. Other studies of asphalt workers found no consistent relationship between exposure to asphalt fumes and pulmonary function. Increased levels of 1-hydroxypyrene (a marker for exposure to polycyclic aromatic hydrocarbons) have been observed in the urine of asphalt workers. Genotoxicity studies (e.g., DNA adducts in the urine) of asphalt workers have been largely inconclusive.
A slight increase in lung cancer mortality was reported in a study of European workers exposed to paving and mastic asphalt, but conclusions were equivocal. A follow-up case-control epidemiology study of asphalt paving workers sponsored by the International Association for Research in Cancer (IARC) concluded that there was no evidence that asphalt exposure was linked to lung cancer.
An increase in skin tumors was observed in lifetime studies of laboratory rodents exposed to extracts of asphalt (bitumen). The relevance of these studies to humans is not clear. No increase in skin tumors was observed in a lifetime bioassay where laboratory mice were treated with paving fume condensates. No increase in lung or other tumors were observed in a lifetime inhalation study in laboratory rats exposed to fumes from paving asphalt.

ASPHALTS USED IN ROOFING OPERATIONS: Some asphalts including roofing flux are further processed (oxidized/air-rectified) by the user or customer before use. An increased incidence of skin tumors was observed in a mouse skin carcinogenicity study where animals were exposed to condensed fumes collected from an oxidized roofing asphalt (BURA Type III) at above 450°F. Additional studies where mice were exposed to oxidized roofing asphalt fume condensates both as a tumor initiator and as a tumor promoter indicate that roofing fume condensate caused tumors as a result of initiation.

HYDROGEN SULFIDE: Hydrogen sulfide gas has an unpleasant odor that diminishes with increased exposure. Eye irritation may occur at levels above 4 ppm. Olfactory fatigue occurs rapidly at levels of 50 ppm or higher. Odor is not a reliable warning property. Respiratory effects include irritation with possible pulmonary edema at levels above 50 ppm. At 500 ppm immediate loss of consciousness and death can occur. NIOSH has determined that 100 ppm hydrogen sulfide is immediately dangerous to life and health (IDLH).

Adverse effects related to the physical, chemical and toxicological characteristics

Signs & Symptoms Frequent or prolonged contact with cold material may cause irritation. Additional effects may include skin sensitization. Rash. Contact with hot material may cause thermal burns.

Sensitization May cause sensitization by skin contact. Not expected to be a respiratory sensitizer.

Mutagenic effects None known.

Carcinogenicity Cancer designations are listed in the table below

Name	ACGIH (Class)	IARC (Class)	NTP	OSHA
Asphalt 8052-42-4	Not classifiable (A4)	Emissions of straight-run asphalt from paving operations - Possible human carcinogen (2B)	Not Listed	Not Listed
Styrene/butadiene Copolymer 9003-55-8	Not Listed	Not classifiable (3)	Not Listed	Not Listed
Sulfur Compounds Mixture	Not Listed	Not Listed	Not Listed	Not Listed
Polyphosphoric Acids 8017-16-1	Not Listed	Not Listed	Not Listed	Not Listed
Polyamine Proprietary	Not Listed	Not Listed	Not Listed	Not Listed
Naphthalene 91-20-3	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not Listed

Hydrogen sulfide 7783-06-4	Not Listed	Not Listed	Not Listed	Not Listed
Polycyclic Aromatic Hydrocarbons Mixture	Suspected human carcinogen (A2)	Carcinogenic to humans (1)	Reasonably anticipated to be a human carcinogen	Not Listed

Reproductive toxicity None known.

Specific Target Organ Toxicity (STOT) - single exposure Not classified.

Specific Target Organ Toxicity (STOT) - repeated exposure Not classified.

Aspiration hazard Potential for aspiration if swallowed.

12. ECOLOGICAL INFORMATION

Ecotoxicity This product should be considered harmful to aquatic organisms.

Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
Asphalt 8052-42-4	-	-	-	-
Styrene/butadiene Copolymer 9003-55-8	-	-	-	-
Sulfur Compounds Mixture	-	-	-	-
Polyphosphoric Acids 8017-16-1	-	-	-	-
Polyamine Proprietary	-	-	-	-
Naphthalene 91-20-3	-	96-hr LC50 = 0.91-2.82 mg/l Rainbow trout (static) 96-hr LC50 = 1.99 mg/l Fathead minnow (static)	-	48-hr LC50 = 1.6 mg/l Daphnia magna
Hydrogen sulfide 7783-06-4	-	96-hr LC50 = 0.016 mg/l Fathead minnow 96-hr LC50 = 0.013 mg/l Rainbow trout	-	-
Polycyclic Aromatic Hydrocarbons Mixture	-	-	-	-

Persistence and degradability Not expected to be readily biodegradable.

Bioaccummulation Not expected to bioaccumulate in aquatic organisms.

Mobility in soil Not likely to move rapidly with surface or groundwater flows because of its low water solubility.

Other adverse effects No information available

13. DISPOSAL CONSIDERATIONS

Description of Waste Residues
No information available

Safe Handling of Wastes
Handle in accordance with applicable local, state, and federal regulations. Use personal protection measures as required.

Disposal of Wastes / Methods of Disposal
The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). Dispose of in accordanc with federal, state and local regulations.

Methods of Contaminated Packaging Disposal
Empty containers should be completely drained and then discarded or recycled, if possible. Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT (49 CFR 172.101):

UN Proper shipping name:	Elevated Temperature Liquid, N.O.S.
UN/Identification No:	UN 3257
Transport Hazard Class(es):	9
Packing group:	III
DOT reportable quantity (lbs):	Not applicable

Comments: (Hot Petroleum Asphalt) This material must not be transported when heated at or above its flash point.

TDG (Canada):

UN Proper shipping name:	Elevated Temperature Liquid, N.O.S.
UN/Identification No:	UN 3257
Transport Hazard Class(es):	9
Packing group:	III
Regulated substances:	Not applicable

15. REGULATORY INFORMATION

US Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product may contain component(s) that have been listed on EPA's Extremely Hazardous Substance (EHS) List:

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Asphalt	NA
Styrene/butadiene Copolymer	NA
Sulfur Compounds	NA
Polyphosphoric Acids	NA
Polyamine	NA
Naphthalene	NA
Hydrogen sulfide	500 lb TPQ
Polycyclic Aromatic Hydrocarbons	NA

SARA Section 304: This product may contain component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	CERCLA/SARA - Hazardous Substances and their Reportable Quantities
Asphalt	NA
Styrene/butadiene Copolymer	NA
Sulfur Compounds	NA
Polyphosphoric Acids	NA

Polyamine	NA
Naphthalene	100 lb final RQ 45.4 kg final RQ
Hydrogen sulfide	100 lb final RQ 45.4 kg final RQ
Polycyclic Aromatic Hydrocarbons	1 lb final RQ 0.454 kg final RQ

SARA: The following EPA hazard categories apply to this product:

Acute Health Hazard
Chronic Health Hazard

SARA Section 313: This product may contain component(s), which if in exceedance of the de minimus threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R).

Name	CERCLA/SARA 313 Emission reporting:
Asphalt	None
Styrene/butadiene Copolymer	None
Sulfur Compounds	None
Polyphosphoric Acids	None
Polyamine	None
Naphthalene	0.1 % de minimis concentration
Hydrogen sulfide	1.0 % de minimis concentration
Polycyclic Aromatic Hydrocarbons	0.1 % Supplier notification limit

State and Community Right-To-Know Regulations:
The following component(s) of this material are identified on the regulatory lists below:

Asphalt

Louisiana Right-To-Know:	Not Listed
California Proposition 65	Not Listed
New Jersey Right-To-Know:	SN 0170
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present (cutback, liquid rapid-curing, fumes)
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Styrene/butadiene Copolymer

Louisiana Right-To-Know:	Not Listed
California Proposition 65	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed

New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Sulfur Compounds

Louisiana Right-To-Know:	Not Listed
California Proposition 65	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Polyphosphoric Acids

Louisiana Right-To-Know:	Not Listed
California Proposition 65	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Polyamine

Louisiana Right-To-Know:	Not Listed
California Proposition 65	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right To Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed

New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
Naphthalene	
Louisiana Right-To-Know:	Not Listed
California Proposition 65	Carcinogen, initial date 4/19/02
New Jersey Right-To-Know:	SN 1322 SN 3758
Pennsylvania Right-To-Know:	Environmental hazard Present (particulate)
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen
New Jersey - Environmental Hazardous Substances List:	SN 1322 TPQ: 500 lb (Reportable at the de minimis quantity of >0.1%)
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	100 lb RQ (air); 1 lb RQ (land/water)
Hydrogen sulfide	
Louisiana Right-To-Know:	Not Listed
California Proposition 65	Not Listed
New Jersey Right-To-Know:	SN 1017
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Extraordinarily hazardous
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Extraordinarily hazardous
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 1017 TPQ: 500 lb
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	100 lb RQ (air); 100 lb RQ (land/water)
Polycyclic Aromatic Hydrocarbons	
Louisiana Right-To-Know:	Not Listed
California Proposition 65	Carcinogen
New Jersey Right-To-Know:	SN 3758
Pennsylvania Right-To-Know:	Environmental hazard; Special hazardous substance
Massachusetts Right-To Know:	Carcinogen; Extraordinarily hazardous
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Present
Michigan Critical Materials Register List:	10 lb Annual usage threshold
Massachusetts Extraordinarily Hazardous Substances:	Carcinogen; extraordinarily hazardous
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Present
New Jersey - Special Hazardous Substances:	Carcinogen; mutagen; teratogen
New Jersey - Environmental Hazardous Substances List:	SN 3758 TPQ: 500 lb (If you have >500 lbs in combination of any of the listed chemicals, you are to report them under the category heading - N590 (that is, do not report the individual chemicals or their CAS numbers))
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1 lb RQ (air); 1 lb RQ (land/water)

Canada DSL/NDSL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

Canadian Regulatory Information: "This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the (M)SDS contains all the information required by the Controlled Products Regulations."

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
Asphalt	Uncontrolled product according to WHMIS classification criteria	-
Styrene/butadiene Copolymer	Uncontrolled product according to WHMIS classification criteria	-
Sulfur Compounds	Uncontrolled product according to WHMIS classification criteria	-
Polyphosphoric Acids	E	1%
Polyamine	D2B,E	1%
Naphthalene	B4,D2A	0.1%
Hydrogen sulfide	A,B1,D1A,D2B	1%
Polycyclic Aromatic Hydrocarbons	D2A,D2B	0.1%

NOTE: Not applicable.

16. OTHER INFORMATION

Prepared By Toxicology and Product Safety

Revision Date: 09/05/2015

Revision Note:
The following sections (§) have been updated:
§ 3. COMPOSITION/INFORMATION ON INGREDIENTS

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is intended as guidance for safe handling, use, processing, storage, transportation, accidental release, clean-up and disposal and is not considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

BIT-MAT INDIANA
Quality Asphalt Products

SAFETY DATA SHEET

1. IDENTIFICATION

Product Identifier	MC CUTBACK ASPHALT
Other means of identification:	
SDS Number:	15-112
Synonyms	BMP, MC-0, MC-30, MC-70, MC-250, MC-800, MC-3000, MCMA, SC-250, SEALING ASPHALT
Recommended Uses	COLD MIX, PRIME COAT, CHIP AND SEAL, TACK COAT
Recommended Resrictions	NONE
Manufacturer/Importer/Supplier/ Distributor	BIT MAT PRODUCTS INDIANA
Address	24359 SR 23 South Bend, IN. 46614 Office: 574-287-2828 Fax: 574-233-7363
General Information	Office: 574-287-2828
24 hr Emergency Assistance	1-574-383-7061

2. HAZARD(S) IDENTIFICATION

GHS Classification(s)

Flammable Liquids: Category 3
Acute Toxicity (respiratory) Category 5
Skin corrosion/irritation Category 1
Serious eye damage/eye irritation Category 1
Respiratory sensitizer Category 1
Carcinogenicity Category 2
Long-term hazard to the aquatic environment Category 2

Label Elements

Signal Word DANGER

Pictogram:

Hazard Statement	Flammmable liquid and vapour. May be harmful if inhaled (gas, vapour, dust, mist). Causes severe skin burns and eye damage. Causes serious eye damage. May cause allergy or asthma symtoms or breathing Suspected of causing cancer. Toxic to aquatic life with long term effects
Precautionary Statement Prevention	
	Wash any exposed skin that may have come in contact with product thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing dust/fume/gas/mist/spray. Obtain special instructions before use. Avoid release to the environment. Use only in well ventilated space, if ventilation is not Do not handle until all safety precautions have been read and Wear protective gloves/protective clothing/eye protection/face protection.
Response	
	Asphalt Cement at elevated temperatures may produce Hydrogen Sulfide Gas. Inhalation of vapors, mist or fumes containing Hydrogen Sulfide(generated at high temperatures) may cause irritation to nose, throat and respiratory system. Hot Asphalt Material - Cool the affected body parts immediately by submerging in cold water until the material has cooled. Do not attempt to remove solidified material from the burn area as this may further tissue damage. Take the victim to obtain medical assistance immediately. Once product has cooled, remove asphalt by soaking dressing in mineral oil and place over affected area for 2-3 hours. If irritation occurs, call a physician. Never try to remove the material with solvents. IF IN EYES:Gently flush immediately with cold water for 15 minutes. Do not attempt to remove solidified material from the eye, as this may further injury. Take the victim to obtain medical assistance.

Response Continued	IF INHALED: Immediately remove victim from source to fresh air, if irritation occurs from over exposure, seek medical attention. IF EXPOSED OR CONCERNED:Seek medical attention/advice. Asphalt Cement at elevated temperatures may produce Hydrogen Sulfide Gas. Inhalation of vapors, mist or fumes containing Hydrogen Sulfide(generated at high temperatures) may cause irritation to nose, throat and respiratory system.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with relevent regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS:

Chemical Identity	CAS Number	%
Asphalt Cement	8052-42-4	50-92%
Kerosene	8008-20-6	0-45%
No. 2 FUEL OIL	68334-30-5	0-45%
Hydrogen Sulfide	7783-06-4	<1.0%

4. FIRST AID MEASURES

Eye	**Gently flush immediately with cold water for 15 minutes. Do not attempt to remove solidified material from the eye, as this may further injury. Take the victim to obtain medical assistance.**
Skin	**Hot Asphalt Material - Cool the affected body parts immediately by submerging in cold water until the material has cooled. Do not attempt to remove solidified material from the burn area as this may further tissue damage. Take the victim to obtain medical assistance immediately. Once product has cooled, remove asphalt by soaking dressing in mineral oil and place over affected area for 2-3 hours. If irritation occurs, call a physician. Never try to remove the material with solvents.**
Ingestion	**Ingestion is not likely. If large amounts are swallowed, do not induce vomiting and immediately call a physician.**
Inhalation	**If irritation occurs from inhalation overexposure, immediately remove victim from source to fresh air and seek medical attention**
First Aid Facilities:	**Eye wash facilities and safety showers are recommended.**

5. FIREFIGHTING MEASURES

Flash Point: >80°F(>26°C)

Autoignition Point: >300 °F (149°C)

Lower Explosive Limit: 0.7

Upper Explosive Limit: 7.5

Suitable Extinguishing Media	**Foam, Carbon Dioxide, Dry Chemical, and Water Spray may all be suitable in extinguishing fires involving this product. Avoid using water streams to prevent frothing. Use water spray to cool exposed surfaces.**

6. ACCIDENTAL RELEASE MEASURES

Stop source of leak. Eliminate sources of ignition. Contain by diking or impounding. Absorbants can be used to contain spill. After containment, emulsified asphalt can be collected for disposal. Advise authorities if product has entered a sewer or water source. Assure conformity with local, state, and federal governmental regulations for disposal.

7. HANDLING AND STORAGE

Handling And Storage Precautions

When opening covers and outlet cap on storage tanks, use faceshield and gloves to avoid possible injury from pressurized asphalt. Hydrogen sulfide can be generated and accumulated in storage tanks and bulk transport compartments. Stay upwind and vent storage hatches before unloading. Keep heating units and flues in storage tanks covered with at least 12 inches of asphalt. Do not overheat.

Conditions for Safe Storage, Including any Incompatibilities

Empty Container Warning: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Work/Hygienic Practices

Skin contact and the breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects. Thoroughly wash exposed skin areas after work to avoid dermatitis. Consider the use of lanolin skin treatments before handling or working around asphalt mixtures.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Occupational Exposure Limits

US.OSHA Table Z-2 (29 CFR 1910.1000)

Components		OSHA	ACGIH	NIOSH
ASPHALT (CAS 8052-42-4)		PEL- Not established for this material.	TWA-0.5 mg/m3 Inhalable Particulate	CEILING-5.0 mg/m3
No. 2 FUEL OIL (CAS 68334-30-5)		PEL- Not established for this material.	-	-
Kerosene (CAS 8008-20-6)		PEL- Not established for this material.	-	-
Hydrogen Sulfide (CAS 7783-06-4)		CEILING-20ppm	STEL-5PPM	CEILING-15mg/m3

PERSONAL PROTECTION MEASURES

Eye/Face Protection

Safety goggles or chemical splash goggles if splashing is anticipated.

Skin Protection

Themal resistant, Oil impervious gloves to protect hands, such as PVC, All cotton, long sleeve shirt. All cotton full length pants. Leather work boots.

Respiratory Protection

Asphalt cement at elevated temperatures may release Hydrogen Sulfide vapors. Respiratory protection is not normally required under normal conditions and adequate ventilation. If high vapors are expected, use respirator approved for organic vapors. Observe respirator protection factor criteria cited in ANSI Z88.2 (1980) and other OSHA requirements found in 29 CFR 1910.134. Use air-supplied respirators or self-contained breathing apparatus for firefighting and in confined spaces when asphalt vapor or Hydrogen Sulfide gas exceeds permissible limits.

Other/General Protection

Wear body covering clothes to avoid prolonged or repeated exposure. Launder before reuse.

ENGINEERING CONTROLS

Local or general exhaust required if in an enclosed area to remain below the TLV. If work place exposure limits are exceeded, a NIOSH/MSHA approved air supplied respirator is advised in the absence of proper environmental engineering controls.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Black, brown Liquid
PHYSICAL STATE:	Liquid at Elevated Temperatures
ODOR:	Characteristic Asphalt Odor
ODOR THRESHHOLD:	.02 PPM
PH:	pH Factor: 7-11
FREEZE POINT:	100-150°F (38-66°C) (Softening point)
BOILING POINT/RANGE	700-1100°F (371-593°C)
FLASH POINT	Open Cup: >26.6°C(>80°F)[ATSM D-92 Cleveland]
EVAPORATION RATE	N/A
FLAMMABILITY(SOLID, GAS)	N/A
UPPER/LOWER FLAMMABILITY/EXPLOSIVE LIMITS	N/A
VAPOR PRESSURE	<1mm-10mm Hg @ 77 F
VAPOR DENSITY	Vapor Density: >1.0
RELATIVE DENSITY	1-1.15
SOLUBILITY WITH WATER	N/A
PARTITION COEFFICIENT:N-OCTANE/WATER	N/A
AUTO-IGNITION TEMPERATURE	>300°F (>149°C)
DECOMPOSITION TEMPERATURE	N/A
SPECIFIC GRAVITY:	0.92-1.05

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY	**Stable**
POSSIBLITY OF HAZARDOUS REACTIONS	**Hazardous Polymerization: Will not occur**
CONDITIONS TO AVOID	**Flames, sparks and other ignition sources. Contact with incompatable materials.**
INCOMPATIBLE MATERIALS	**Strong Oxidizers**
HAZARDOUS DECOMPOSTION PRODUCTS	**Fumes, Smoke, Carbon Monoxide, Hydrogen Sulfide, Sulfur Dioxide, Aldehydes, and Hydrocarbons**

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Ingestion	May be harmful if swallowed.
Inhalation	Vapor may contain Hydrogen Sulfide(H2S) Gas which can be harmful or fatal if inhaled. May cause respiratory tract irrratation.
Skin Contact	Product at elevated temperature may cause severe burns.
Eye Contact	Vapor may contain Hydrogen Sulfide(H2S) Gas which cause eye irrratation. Product at elevated temperature may cause severe burns.

Symptoms related to the physical, chemical and toxicological characteristics

Information on toxicological effects:

Vapor may contain Hydrogen Sulfide (H2S) Gas. Exposure to lower concentrations of H2S can result in eye irritation, sore throat and cough, nausea, shortness of breath, and fluid in the lungs. Long term exposure may result in fatique, loss of appetite, headaches, irritability, poor memory, and dizziness.

Numerical measures of toxicity:

.02 ppm	Odor threshold.
10 ppm	8-hour per day exposure limit to Hydrogen Sulfide.
10-20 ppm	Borderline concentration for eye irritation.
10-100 ppm	Leads to eye damamge.
100-150 ppm	Olfactory nerve paralyzed after a few minutes, sense of smell disappears, and often unawareness of danger.
320-530 ppm	Leads to pulmonary edema with possibility of death.
530-1,000 ppm	Causes strong stimulation of the central nervous system and rapid breathing.
800 ppm	Lethal concentration of 50% of humans for 5-minute exposure (LC50).
>1,000 ppm	Immediate collapse with loss of breathing, evenafter inhalation of a single breath.

12. ECOLOGICAL INFORMATION

Ecotoxicity-Aquatic and Terrestrial:	This product has components that have been found to be toxic to aquatic life with long lasting effects.
Persistence and Degradability:	No testing has been performed by the manufacturer.
Bioaccumulative potential:	No testing has been performed by the manufacturer.
Mobility in soil:	No testing has been performed by the manufacturer.
Other adverse effects:	N/A

13.DISPOSAL CONSIDERATIONS

Waste or contaminated asphalt is normally disposed in a special waste or industrial landfill. Consider recycling into pavement mixtures whenever possible. Disposal of this product should at all times comply with the requirements of environmental protection and waste disposal guidelines of all applicable local, state, or federal regulatory agencies.

RCRA Information

This material, if discarded as produced, is not a RCRA "listed" hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261). Along with properly characterizing all waste materials, consult state and local regulations regarding proper disposal of this material.

14. TRANSPORT INFORMATION

UN Number:	**UN 1999**
Proper Shipping Name:	**Asphalt (Cutback)**
Hazardous Classification:	**3**
Packing Group:	**III**
Environmental Hazards:	**Marine Pollutant**
Transport in Bulk:	**247**
Special Provisions:	**IB3, T1, TP3**
Special Precautions:	**HOT**
Packaging Exceptions:	**None**
Packaging Non-Bulk:	**None**

15. REGULATORY INFORMATION

U.S. Regulatory Information

Toxic Substances Control Act: This product is listed on the US TSCA Chemical Inventory Section 8(b).

Clean Water Act: Petroleum hydrocarbons are considered hazardous if released into navigable waters.

OSHA Hazard Communication: See individual state requirements for Right-To-Know lists.

SARA Hazard Classes

-Acute Health Hazard

NFPA RATING:

HEALTH: 2

FLAMABILITY:2

REACTIVITY:0

16. OTHER INFORMATION

VAPOR MAY CONTAIN HYDROGEN SULFIDE(H2S) GAS WHICH CAN BE HARMFUL OR FATAL IF INHALED. MAY CAUSE RESPIRATORY TRACT AND EYE IRRITATION. ELEVETED TEMPERATURE PRODUCT CAN CAUSE THERMAL BURNS.

This material safety data sheet and the information herein is offered in good faith as accurate. The information has been compiled from sources considered to be reliable and accurate to the best of our knowledge, but is not guaranteed to be so. Health and safety precautions in this data sheet may not be adequate for all individuals under all circumstances. It is the users obligation to evaluate and use this product safely and to comply with all applicable laws and regulations whether they be federal, state, or local. No warranty is made, either expressed or implied through the issuance of this MSDS.

SDS PREPARED:	**5/29/2015**
REVISION DATE:	**5/29/2015**

ASPHALT PAVEMENT MIX

SAFETY DATA SHEET

OSHA HCS (29 CFR 1910.1200)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier	Asphalt Pavement Mix
Chemical Name	Mixture
CAS No.	Mixture
Trade Name(s)	Petroleum Asphalt / Road Paving Asphalt / Hot Mix Asphalt / Blacktop / Bitumen / Warm Mix Asphalt
Relevant identified uses of the substance or mixture and uses advised against	
Identified Use(s)	Road Paving Asphalt
Uses Advised Against	None.
Details of the supplier of the safety data sheet	
Company Identification	Brooks Construction Co., Inc. PO Box 9560, 6525 Ardmore Ave. Fort Wayne, IN 46899
Telephone	(260) 478-1990
Emergency telephone number	
Emergency Phone No.	Not classified as dangerous for supply/use. Please contact the supplier above during normal business hours.

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

OSHA HCS (29 CFR 1910.1200) / GHS Classification: Not classified as dangerous for supply/use.

Label elements	
Hazard Symbol	None
Signal Word(s)	None
Hazard Statement(s)	None
Precautionary Statement(s)	None
Other hazards	Contact with hot liquid causes skin burns. Molten material can cause severe burns. May cause eye irritation. Fumes may cause upper respiratory irritation (nose & throat). Skin contact may increase susceptibility to sunburn. Poisonous hydrogen sulfide gas can accumulate in the head-space of containers of certain asphalt products. Mechanical disruption (e.g., milling, cutting, chipping) of cured asphalt pavement may release crystalline silica dust from the aggregate.
Additional Information	Avoid breathing dust/fume/gas/mist/vapors/spray. As necessary, Wear protective gloves/protective clothing/eye protection/face protection. Wash hands and exposed skin after use.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Composition/information on ingredients	% wt.	CAS No.
Aggregate (crushed stone, sand, gravel, slag)	65-80	Various
Petroleum asphalt / bitumen^	3 – 6.5	8052-42-4
Reclaimed Asphalt Pavement (RAP)	20-35	Mixture
Reclaimed Asphalt Shingles (RAS)	0-5	Mixture
Polymers and Natural Rubbers	< 0.5	Various
Process oils (inherent in refined petroleum asphalt)	< 0.1	Various

^Contains: <0.05% of 3 - 7 ring Polycyclic Aromatic Hydrocarbons (PAHs).

Other Substances in the product which may present a health or environmental hazard, or which have been assigned occupational exposure limits, are detailed below. Please see Section 8 of SDS for more details.

- Contains: <0.1% airborne crystalline silica (inherent in aggregate) and <0.1% hydrogen sulfide.
- Hydrogen sulfide gas can accumulate in the head space of containers of certain asphalt products.
- Heated product releases asphalt fume.

Additional Information - None

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Inhalation	Not normally required. Move person to fresh air. Apply artificial respiration if necessary. If symptoms persist, obtain medical attention.
Skin Contact	Gently wash with plenty of soap and water. If irritation (redness, rash, blistering) develops, get medical attention.
Eye Contact	Flush eyes with water for at least 15 minutes while holding eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation develops and persists, get medical attention.
Ingestion	Not normally required. Do not induce vomiting. Do not give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.
Most important symptoms and effects, both acute and delayed	None known
Indication of any immediate medical attention and special treatment needed	None known

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

-Suitable Extinguishing Media	Extinguish with carbon dioxide, dry chemical, foam or water spray.
-Unsuitable Extinguishing Media	None anticipated.
Special hazards arising from the substance or mixture	Combustion causes toxic fumes. Combustion products: Carbon monoxide, Carbon dioxide, Nitrogen oxides, Sulfur oxides

Advice for fire-fighters — A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Avoid contact with skin and eyes.
Environmental precautions	Not normally required.
Methods and material for containment and cleaning up	Allow product to cool/solidify and pick up as a solid.
Reference to other sections	None
Additional Information	None.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling — Avoid contact with skin and eyes.

Conditions for safe storage, including any incompatibilities

-Storage temperature	Store at temperatures not exceeding the product's flash point.
-Incompatible materials	Strong oxidizing agents.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Occupational Exposure Limits

SUBSTANCE.	CAS No.	(8hr TWA)		(STEL)		Note:
		PEL (OSHA) *	TLV (ACGIH)	PEL (OSHA)	TLV (ACGIH)	
Asphalt fume	-----	----	0.5 mg/m3 (I)	----	----	See below
Crystalline Silica (respirable particulate)	-----	$\frac{10\ mg/m^3}{\%SiO_2 + 2}$	0.025 mg/m3 ^	----	----	See below
Hydrogen sulfide	7783-06-4	----	1 ppm	20 ppm ceiling	5 ppm	50 ppm peak

(I) Inhalable benzene-soluble fraction; ^Suspected Human Carcinogen; *Refer to OSHA 29 CFR 1910.1000 & 29 CFR 1926.55; 8hr TWA = 8 hour time-weighted average; STEL = Short Term Exposure Limit.

Recommended monitoring method — NIOSH 5042 (Asphalt Fume), NIOSH 7500 (Crystalline Silica), Electrochemical sensor (hydrogen sulfide).

Exposure controls

Appropriate engineering controls — Use only outdoors or in a well-ventilated area.

Personal protection equipment

Eye/face protection — The following to be used as necessary: Safety Glasses

Skin protection (Hand protection/ Other) — The following to be used as necessary: Leather or thick textile gloves.

Respiratory protection 	In case of inadequate ventilation wear respiratory protection. Use NIOSH approved respiratory protection. Air-purifying respirator with combination organic vapor cartridge / particulate filter may be sufficient. Check with protective equipment manufacturer's data.
Thermal hazards	Use gloves with insulation for thermal protection, when needed.
Environmental Exposure Controls	Do not discharge waste and/or cleaning water via public sewer system. Ensure waste is collected and contained.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Solid
Color.	Dark brown / Black
Odor	Asphalt / Bitumen
Odor Threshold (ppm)	Not available.
pH (Value)	Not available.
Melting Point (°C) / Freezing Point (°C)	Not available.
Boiling point/boiling range (°C):	> 371 (>700 °F)
Flash Point (°C)	> 232 (> 450 °F)
Evaporation Rate	Not available.
Flammability (solid, gas)	Not applicable.
Explosive Limit Ranges	Not applicable.
Vapor pressure (Pascal)	Not determined.
Vapor Density (Air=1)	Not determined.
Density (g/ml)	2.2 - 2.7
Solubility (Water)	Negligible
Solubility (Other)	Not known
Partition Coefficient (n-Octanol/water)	Not available.
Auto Ignition Point (°C)	Not available.
Decomposition Temperature (°C)	Not available.
Kinematic Viscosity (cSt) @ 40°C	Not available
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Other information	Not available.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable.
Possibility of hazardous reactions	May react violently with: Strong oxidizing agents
Conditions to avoid	Incompatible materials
Incompatible materials	Oxidizers
Hazardous decomposition product(s)	Combustion causes toxic fumes. Combustion products: Carbon monoxide, Carbon dioxide, Nitrogen oxides, Sulfur oxides

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes: Inhalation, Skin Contact, Eye Contact

Information on toxicological effects

Acute toxicity	LD50 (rat): >5000 mg/kg bw LD50 (dermal): >2000 mg/kg bw LC50 (inhalation, fume): >94.4 mg/m^3
Irritation/Corrosivity	May cause irritation to skin, eyes and respiratory system.
Sensitization	Not to be expected

Repeated dose toxicity	NOAEL(rat): 28 mg/m³ LOAEL (rat): 149 mg/m³
Carcinogenicity	Not to be expected at typical road paving temperatures.

NTP	IARC	ACGIH	OSHA
No.	Yes.*	No.	No.

Mutagenicity	Not to be expected.
Reproductive toxicity	Not to be expected.

Other information * IARC (2013, volume 103) identifies that "occupational exposures to straight-run bitumens and their emissions during road paving are possibly carcinogenic to humans (Group 2B)." However, classification as a carcinogen under OSHA 29 CFR 1910.1200 is not warranted given the absence of positive cancer findings in human epidemiological studies and in cancer studies with laboratory animals when exposed dermally or by inhalation to asphalt products or fume condensates that are typical of road paving applications. IARC (2013, volume 103) also identifies that "occupational exposures to oxidized bitumens and their emissions during roofing are probably carcinogenic to humans (Group 2A)." Roofing shingles, which are considered an article under OSHA 29 CFR 1910.1200, are sometimes recycled into road paving asphalt mix. Emissions from oxidized bitumen, e.g., from shingles, at road paving temperatures are not expected to be qualitatively different than emissions from straight-run bitumens, and therefore would not warrant a carcinogen classification under OSHA 29 CFR 1910.1200.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Short term	LL50 (48 hour): >1000 mg/l (Fish) LL50 (48 hour): >1000 mg/L (Aquatic Invertebrates) EL50 (48 hour): >1000 mg/L (Aquatic Plants)
Long Term	No data
Persistence and degradability	The product is poorly biodegradable.
Bioaccumulative potential	The product has low potential for bioaccumulation.
Mobility in soil	The product has low mobility in soil.
Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods	Disposal should be in accordance with local, state or national legislation.Consult an accredited waste disposal contractor or the local authority for advice.
Additional Information	None known.

SECTION 14: TRANSPORT INFORMATION

Ground or Water Domestic Voyage (DOT): Not regulated when transported below 240°C (464 °F).

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

TSCA (Toxic Substance Control Act) - Inventory Status: All components listed or polymer exempt.

RCRA Hazardous Waste Number (40 CFR 261.33): None

US RCRA Hazard Class: Not applicable.

Designated Hazardous Substances and Reportable Quantities (40 CFR 302.4):

Chemical Name	CAS No.	Typical %wt.	RQ (Pounds)
None	—	—	—

SARA 311/312 - Hazard Categories: None

☐ Fire ☐ Sudden Release ☐ Reactivity ☐ Immediate (acute) ☐ Chronic (delayed)

SARA 313 - Toxic Chemicals (40 CFR 372):

Chemical Name	CAS No.	Typical %wt.
None	—	—

SARA 302 - Extremely Hazardous Substances(40 CFR 355):

Chemical Name	CAS No.	Typical %wt.	TPQ (pounds)
None	—	—	—

SECTION 16: OTHER INFORMATION

Additional Information

The following sections contain revisions or new statements: 1-16.

Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. The manufacturer gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. The manufacturer accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed.

SOLUTIONS FOR YOUR ENVIRONMENT®

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 07/13/2015 *Reviewed on 08/10/2015*

1 Identification

· ***Product identifier***

· ***Trade name: Electric Arc Steel Furnace Slag***
· ***CAS Number:***
91722-10-0
· ***Relevant identified uses of the substance or mixture and uses advised against***
No further relevant information available.

· ***Details of the supplier of the safety data sheet***
· ***Manufacturer/Supplier:***
Edward C. Levy Company
9300 Dix Avenue
Dearborn, Michigan 48120
Phone - (313) 429-2200
Fax - (219) 465-7313
www.edwclevy.com
· ***Emergency telephone number:***
John J. Yzenas Jr.
Director of Technical Services
Phone - (219) 741-6098
jyzenas@levyco.net

2 Hazard(s) identification

· ***Classification of the substance or mixture***

GHS07

Acute Tox. 4	H332	Harmful if inhaled.
Skin Irrit. 2	H315	Causes skin irritation.
STOT SE 3	H335	May cause respiratory irritation.
Eye Irrit. 2B	H320	Causes eye irritation.

· ***Label elements***
· ***GHS label elements***
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· ***Hazard pictograms***

GHS07

· ***Signal word*** Warning

· ***Hazard-determining components of labeling:***
Electric Arc Furnace Slag (EAF)
· ***Hazard statements***
Harmful if inhaled.
Causes skin and eye irritation.
May cause respiratory irritation.
· ***Precautionary statements***
Avoid breathing dust/fume/gas/mist/vapors/spray.

(Contd. on page 2)

Use only outdoors or in a well-ventilated area.
Wear protective gloves.
Wash thoroughly after handling.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a poison center/doctor if you feel unwell.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
If on skin: Wash with plenty of water.
Take off contaminated clothing and wash it before reuse.
Store in a well-ventilated place. Keep container tightly closed.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· ***Classification system:***

· ***NFPA ratings (scale 0 - 4)***

Health = 2
Fire = 0
Reactivity = 0

· ***HMIS-ratings (scale 0 - 4)***

Health = 2
Fire = 0
Reactivity = 0

· ***Hazard(s) not otherwise classified (HNOC):*** None known

* **3 Composition/information on ingredients**

Larnite, beta-dicalcium-silicate [Beta - Ca_2SiO_4]
Srebrodolskite, calcium-iron-oxide [$Ca_2Fe_2O_5$]
Brownmillerite, calcium-aluminum-iron-oxide [Ca_2AlFeO_5]
Spinel [$Me_2+Me_3+2O_5$]
Wuestite, Solid solution of iron(II)-oxide with MgO and MnO
Gehlenite, calcium-aluminum-silicate [$Ca_2Al_2SiO_7$] Bredigite, calcium-magnesium-silicate

· ***Chemical characterization: Substance***

· ***CAS No. Description***

91722-10-0

· ***Description:*** Mixture of substances listed below with nonhazardous additions.

· ***Dangerous Components:***

91722-10-0 Electric Arc Furnace Slag (EAF) 100%
◇! Acute Tox. 4, H332; Skin Irrit. 2, H315; STOT SE 3, H335; Eye Irrit. 2B, H320

(Contd. on page 3)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 07/13/2015 Reviewed on 08/10/2015

Trade name: Electric Arc Steel Furnace Slag

* 4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:**
Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Seek medical attention for discomfort or if coughing or other symptoms do not subside.
· **After skin contact:**
Wash with cool water and a pH neutral soap or a mild skin detergent. Seek medical attention for rash, burns, irritation and prolonged unprotected exposure.
· **After eye contact:**
Flush with water immediately for at least 15 minutes, including under the lids to remove all particles. Seek medical attention for abrasions and burns.
· **After swallowing:**
Do not induce vomiting. If conscious, have person drink plenty of water. Seek medical attention or contact poison control center immediately.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed:** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

* 5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO_2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:**
As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

* 6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:** None
· **Methods and material for containment and cleaning up:**
Pick up mechanically or by hand tools and reuse or dispose of as a common non-hazardous material in accordance with applicable federal, state and local regulations. Wetting the material prior to clean up may be necessary to suppress dust.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

* 7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Use personal protection equipment as outlined in section 8.
Respirable dust may be generated during processing, handling, and storage.

(Contd. on page 4)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 07/13/2015 Reviewed on 08/10/2015

Trade name: Electric Arc Steel Furnace Slag

· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **Specific end use(s)** No further relevant information available.

* **Exposure controls/personal protection**

· **Additional information about design of technical systems:** No further data; see section 7.

Exposure Limits:

ACGIH TLV's for "Nulsance Dusts	
Total Dust:	10mg/M^3 < 1% quartz max.
Respirable dust:	5mg/M^3 < 1% quartz max.

· **Control parameters**
· **Components with occupational exposure limits:**
· **Additional information:** The lists that were valid during the creation of this SDS were used as basis.

· **Exposure controls**
Provide general ventilation in processing and storage. Provide local exhaust if necessary to reduce dust levels below acceptable limits.
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Immediately remove all soiled and contaminated clothing and wash before reuse.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· **Breathing equipment:**

NIOSH/OSHA or EN approved respiratory protection is recommended for use in airborne concentrations exceeding exposure limits.

· **Protection of hands:**

Protective gloves

· **Material of gloves** Waterproof or water resistant material
· **Eye protection:**
Wear ANSI approved glasses or goggles to prevent eye contact. Splash shields should be worn in wet conditions. Wearing contact lenses in dusty conditions is not recommended.
· **Body protection:**
Wear hard hats, protective clothing and hard toed shoes to protect from impact and abrasion. In wet conditions, impervious PPE should be worn to protect the skin.

* **Physical and chemical properties**

· **Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	Granulate
Color:	Grey
· **Odor:**	Mild Sulfur
· **Odor threshold:**	Not determined

Trade name: Electric Arc Steel Furnace Slag

· ***pH-value:***	9.5-12.5 (in water)
· ***Change in condition***	
Melting point/Melting range:	Not determined.
Boiling point/Boiling range:	Not determined.
· ***Flash point:***	Not applicable.
· ***Flammability (solid, gaseous):***	Not determined.
· ***Ignition temperature:***	
Decomposition temperature:	Not determined.
· ***Auto igniting:***	Product is not self-igniting.
· ***Danger of explosion:***	Product does not present an explosion hazard.
· ***Explosion limits:***	
Lower:	Not determined.
Upper:	Not determined.
· ***Vapor pressure:***	Not applicable.
· ***Density:***	3.4-3.8 (Bulk)
· ***Relative density***	Not determined.
· ***Vapor density***	Not applicable.
· ***Evaporation rate***	Not applicable.
· ***Solubility in / Miscibility with***	
Water:	Insoluble.
· ***Partition coefficient (n-octanol/water):***	Not determined.
· ***Viscosity:***	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· ***Other information***	No further relevant information available.

* **10 Stability and reactivity**

· ***Reactivity*** No further relevant information available.
· ***Chemical stability*** Un-weathered steel slag may contain potentially expansive compounds (Free Lime)
· ***Thermal decomposition / conditions to be avoided:*** No decomposition if used according to specifications.
· ***Possibility of hazardous reactions*** No dangerous reactions known.
· ***Conditions to avoid*** No further relevant information available.
· ***Incompatible materials:*** No further relevant information available.

* **11 Toxicological information**

· ***Information on toxicological effects***
· ***Acute toxicity:***
- ***Corrosivity:***
- *Non-Corrosive (OECD 403/431)*
· ***Primary irritant effect:***
· Elevated pH in moist conditions may cause irritation to the skin, and eyes or aggravate existing conditions. Can cause serious eye irritation.
· ***Additional toxicological information:***
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful / Irritant

(Contd. on page 6)

· **Carcinogenic categories**
· **IARC (International Agency for Research on Cancer)**
Iron and steel furnace slag is not listed as a carcinogen by IARC; however, slag contains trace amounts of crystalline silica which is classified by IARC as known human carcinogens.
None of the ingredients are listed.
· **NTP (National Toxicology Program)**
Substance is not listed.
· **OSHA-Ca (Occupational Safety & Health Administration)**
Substance is not listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:** Not known to be hazardous to water.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

* 13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Observe all federal, state and local environmental regulations when disposing of this material.
· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

* 14 Transport information

· **UN-Number**
· **DOT, ADR, ADN, IMDG, IATA** Non-Regulated Material
· **UN proper shipping name**
· **DOT, ADR, ADN, IMDG, IATA** Non-Regulated Material
· **Transport hazard class(es)**
· **DOT, ADR, ADN, IMDG, IATA**
· **Class** Non-Regulated Material
· **Packing group**
· **DOT, ADR, IMDG, IATA** Non-Regulated Material
· **Environmental hazards:** Not applicable.
· **Special precautions for user** Some areas require the use of tarps on trucks for containment of dust.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
· **UN "Model Regulation":** -

(Contd. on page 7)

* 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**
· **Section 355 (extremely hazardous substances):**
Substance is not listed.
· **Section 313 (Specific toxic chemical listings):**
Substance is not listed.
· **TSCA (Toxic Substances Control Act):**
Substance is not listed.
· **California Proposition 65**
· **Chemicals known to cause cancer:**
Substance is not listed.
· **Chemicals known to cause reproductive toxicity for females:**
Substance is not listed.
· **Chemicals known to cause reproductive toxicity for males:**
Substance is not listed.
· **Chemicals known to cause developmental toxicity:**
Substance is not listed.
· **Carcinogenic categories**
· **EPA (Environmental Protection Agency)**
Substance is not listed.
· **TLV (Threshold Limit Value established by ACGIH)**
Substance is not listed.
· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
Substance is not listed.
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS07

· **Signal word** Warning
· **Hazard-determining components of labeling:**
Electric Arc Furnace Slag (EAF)
· **Hazard statements**
Harmful if inhaled.
Causes skin and eye irritation.
May cause respiratory irritation.
· **Precautionary statements**
Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.

(Contd. on page 8)

Wear protective gloves.
Wash thoroughly after handling.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a poison center/doctor if you feel unwell.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
If on skin: Wash with plenty of water.
Take off contaminated clothing and wash it before reuse.
Store locked up.
Store in a well-ventilated place. Keep container tightly closed.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· ***National regulations:***

Non-Regulated Material

· ***State Right to Know***

91722-10-0 Electric Arc Furnace Slag (EAF) 100%

◇! Acute Tox. 4, H332; Skin Irrit. 2, H315; STOT SE 3, H335; Eye Irrit. 2B, H320

None of the ingredients are listed

· ***Chemical safety assessment:*** A Chemical Safety Assessment has not been carried out.

16 Other Information

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

· ***Date of last revision*** 08/10/2015 Rev-1

· ***Abbreviations and acronyms:***

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity, Hazard Category 4
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2B: Serious eye damage/eye irritation, Hazard Category 2B
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

· **** Data compared to the previous version altered. Previous Version 07/13/2015***

USED OIL

SAFETY DATA SHEET

FUEL SOURCE LLC

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: EPA on Spec Fuel Oil

SYNONYMS: Waste oil; Used lubricating oil; Oil and water mixture

PRODUCT PART NUMBER(S): Not applicable.

PRODUCT USE: Industrial Burner Fuel

These numbers are for emergency use only. If you desire non-emergency product information, please call a phone number listed below.

24-HOUR EMERGENCY PHONE NUMBERS MEDICAL AND TRANSPORTATION (SPILL):

1-313-506-0448

MANUFACTURER/ SUPPLIER:

Fuel Source LLC
441414 Yost Rd
Belleville MI 48111

TECHNICAL INFORMATION: Call 313-506-0448 or email lab@fuelsourcellc.com

MSDS FORM NUMBER: 2459 **ISSUE:** June 1, 2015

PREPARED BY: Product MSDS Coordinator **APPROVED BY:** MSDS Task Force

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE
Liquid, black and viscous (thick), petroleum odor.

WARNING!
PHYSICAL HAZARDS
Combustible liquid.

HEALTH HAZARDS
May be harmful if inhaled.
May be harmful if absorbed through skin.
May be harmful or fatal if swallowed.
May irritate the respiratory tract (nose, throat, and lungs), eyes, and skin.
Suspect cancer hazard. Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.
Contains material which can cause birth defects.
Contains material which can cause central nervous system damage.

ENVIRONMENTAL HAZARDS
Product may be toxic to fish, plants, wildlife, and/or domestic animals.

POTENTIAL HEALTH EFFECTS

Effects may vary depending on material composition. Typical effects may include:

INHALATION (BREATHING): High concentrations of vapor or mist may be harmful if inhaled. High concentrations of vapor or mist may irritate the respiratory tract (nose, throat, and lungs). High concentrations of vapor or mist may cause nausea, vomiting, headaches, dizziness, loss of coordination, numbness, and other central nervous system effects. Massive acute overexposure may cause rapid central nervous system depression, sudden collapse, coma, and/or death.

EYES: May cause irritation.

SKIN: May cause irritation. Product may be absorbed through the skin and cause harm as noted under **INHALATION (BREATHING)**.

INGESTION (SWALLOWING): May be harmful or fatal if swallowed. May cause throat irritation, nausea, vomiting, and central nervous system effects as noted under **INHALATION (BREATHING)**. Breathing product into the lungs during ingestion or vomiting may cause lung injury and possible death.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Individuals with pre-existing cardiovascular, liver, kidney, respiratory tract (nose, throat, and lungs), central nervous system, eye, and/or skin disorders may have increased susceptibility to the effects of exposure.

CHRONIC: Prolonged or repeated inhalation may cause oil pneumonia, lung tissue inflammation, fibrous tissue formation, and/or toxic effects as noted under **INHALATION (BREATHING)**. Prolonged or repeated eye contact may cause inflammation of the membrane lining the eyelids and covering the eyeball (conjunctivitis). Prolonged or repeated skin contact may cause drying, cracking, redness, itching, and/or swelling (dermatitis).

CANCER INFORMATION: This product contains mineral oils, untreated or mildly treated, which can cause cancer. This product may contain hydrocarbon and chlorinated solvents; metals, and polynuclear aromatics which can cause cancer. Risk of cancer depends on duration and level of exposure. For more information, see **SECTION 11: CARCINOGENICITY**.

POTENTIAL ENVIRONMENTAL EFFECTS
Product may be toxic to fish, plants, wildlife, and/or domestic animals.
Also see **SECTION 12: ECOLOGICAL INFORMATION**.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

				OSHA PEL		ACGIH TLV®			
WT%	NAME	SYNONYM	CAS NO.	TWA	STEL	TWA	STEL	LD[a]	LC[b]
80 to 100	Lubricating oils, used	Used oil	70514-12-4	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.
0 to 2	Water/solids	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.

SECTION 4: FIRST AID MEASURES

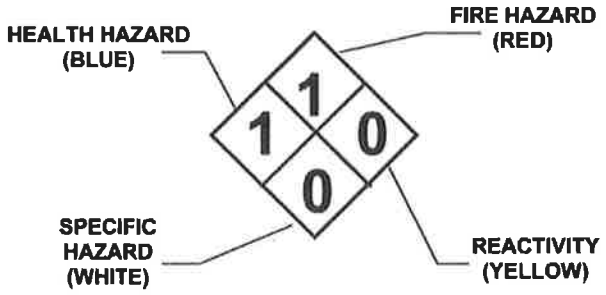
INHALATION: (BREATHING)	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Oxygen should only be administered by qualified personnel. Someone should stay with victim. Get medical attention if breathing difficulty persists.
EYES:	If irritation or redness from exposure to vapor develops, move away from exposure into fresh air. Upon contact, immediately flush eyes with plenty of lukewarm water, holding eyelids apart, for 15 minutes. Get medical attention.
SKIN:	Remove affected clothing and shoes. Wash skin thoroughly with soap and water. Get medical attention if irritation or pain develops or persists.
INGESTION: (SWALLOWING)	Do NOT induce vomiting. Immediately get medical attention. Call 1-313-506-0448 for additional information. If spontaneous vomiting occurs, keep head below hips to avoid breathing the product into the lungs. Never give anything to an unconscious person by mouth.
NOTE TO PHYSICIANS:	Treat symptomatically and supportively. Treatment may vary with condition of victim and specifics of incident. Call 1-313-506-0448 for additional information.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT:	>200°F (93°C) (minimum) Pensky-Martens Closed Cup
FLAMMABLE LIMITS IN AIR:	Not available.
AUTOIGNITION TEMPERATURE:	Not available.
HAZARDOUS COMBUSTION PRODUCTS:	Decomposition and combustion materials may be toxic. Burning may produce phosgene gas, nitrogen oxides, carbon monoxide, and unidentified organic compounds.
CONDITIONS OF FLAMMABILITY:	Heat, sparks, or flame. Product may burn but does not ignite readily.
EXTINGUISHING MEDIA:	Use carbon dioxide, regular foam, dry chemical, water spray, or water fog.

NFPA 704 HAZARD IDENTIFICATION:

This information is intended solely for the use by individuals trained in this system.



FIRE FIGHTING INSTRUCTIONS:

Keep storage containers cool with water spray. A positive-pressure, self-contained breathing apparatus (SCBA) and full-body protective equipment are required for fire emergencies.

FIRE AND EXPLOSION HAZARDS:

Heated containers may rupture. "Empty" containers may retain residue and can be dangerous. Product is not sensitive to mechanical impact. Product may be sensitive to static discharge, which could result in fire or explosion.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Remove all ignition sources. Do not touch or walk through spilled product. Stop leak if you can do it without risk. Wear protective equipment and provide engineering controls as specified in **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**.. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Ventilate area and avoid breathing vapor or mist. A vapor suppressing foam may be used to reduce vapors. Contain spill away from surface waters and sewers. Contain spill as a liquid for possible recovery, or sorb with compatible sorbent material and shovel with a clean, sparkproof tool into a sealable container for disposal.

Additionally, for large spills: Water spray may reduce vapor, but may not prevent ignition in closed spaces. Dike far ahead of liquid spill for collection and later disposal.

There may be specific federal regulatory reporting requirements associated with spills, leaks, or releases of this product. Also see **SECTION 15: REGULATORY INFORMATION.**

SECTION 7: HANDLING AND STORAGE

HANDLING: Keep away from heat, sparks, or flame. Where flammable mixtures may be present, equipment safe for such locations should be used. Use clean, sparkproof tools and explosion-proof equipment. When transferring product, storage tanks, tanker trucks, and rail tank cars should be grounded and bonded. Do not breathe vapor or mist. Use in a well ventilated area. Avoid contact with eyes, skin, clothing, and shoes. Do not smoke while using this product.

SHIPPING AND STORING: Keep container tightly closed when not in use and during transport. Do not pressurize, cut, weld, braze, solder, drill, or grind containers. Keep containers away from heat, flame, sparks, static electricity, or other sources of ignition. Empty product containers may retain product residue and can be dangerous. See **SECTION 14: TRANSPORT INFORMATION** for Packing Group information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Use general ventilation, process enclosures, local exhaust ventilation, or other engineering controls to control air-borne levels. Where explosive mixtures may be present, equipment safe for such locations should be used.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: A respiratory protection program which meets USA's OSHA General Industry Standard 29 CFR 1910.134 or Canada's CSA Standard Z94.4-M1982 requirements must be followed whenever workplace conditions warrant a respirator's use. Consult a qualified Industrial Hygienist or Safety Professional for respirator selection guidance.

EYE PROTECTION: Wearing chemical goggles is recommended.
Contact lens may be worn with eye protection.

SKIN PROTECTION: Where prolonged or repeated skin contact is likely, wear neoprene, nitrile (4 mil minimum), PVC (polyvinyl chloride), or equivalent protective gloves; wearing natural rubber or equivalent gloves is not recommended.

When product is heated and skin contact is likely, wear heat-insulating gloves, boots, and other protective clothing.

To avoid prolonged or repeated contact with product where spills and splashes are likely, wear appropriate chemical-resistant faceshield, boots, apron, whole body suits, or other protective clothing.

PERSONAL HYGIENE:	Wash thoroughly with soap and water after handling product and before eating, drinking, or using tobacco products. Clean affected clothing, shoes, and protective equipment before reuse. Discard affected clothing, shoes, and/or protective equipment if they cannot be thoroughly cleaned. Discard leather articles, such as shoes, saturated with the product.
OTHER PROTECTIVE EQUIPMENT:	Where spills and splashes are likely, facilities storing or using this product should be equipped with an emergency eyewash and shower, both equipped with clean water, in the immediate work area.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE, APPEARANCE, AND ODOR:	Liquid, black and viscous (thick), petroleum odor.
ODOR THRESHOLD:	Not available.
MOLECULAR WEIGHT:	Not applicable.
SPECIFIC GRAVITY:	0.8 to 1.0 at 60°F (15.6°C) (water = 1)
DENSITY:	6.7 to 8.3 LB/US gal (800 to 1000 g/l) (approximately)
VAPOR DENSITY:	greater than 1 (air = 1) (based on kerosene)
VAPOR PRESSURE:	Not available.
BOILING POINT:	Not available.
FREEZING/MELTING POINT:	Not available.
pH:	Not applicable.
EVAPORATION RATE:	less than 1 (butyl acetate = 1)
SOLUBILITY IN WATER:	Slight.
FLASH POINT:	>200°F (93°C) (minimum) Pensky-Martens Closed Cup
FLAMMABLE LIMITS IN AIR:	Not available.
AUTOIGNITION TEMPERATURE:	Not available.

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable under normal temperatures and pressures. Avoid heat, sparks, or flame.

INCOMPATIBILITY: Avoid acids, alkalies, oxidizing agents, reducing agents, reactive halogens, or reactive metals.

REACTIVITY: Polymerization is not known to occur under normal temperatures and pressures. Not reactive with water.

HAZARDOUS DECOMPOSITION PRODUCTS: None under normal temperatures and pressures. Also see **SECTION 5: HAZARDOUS COMBUSTION PRODUCTS**.

SECTION 11: TOXICOLOGICAL INFORMATION

SENSITIZATION: Based on best current information, there may be known human sensitization associated with this product.

MUTAGENICITY: Based on best current information, there may be mutagenicity associated with this product.

CARCINOGENICITY: Mineral oils, untreated or mildly treated are listed by IARC as a known carcinogen. Mineral oils, untreated or mildly treated are classified by NTP as having limited evidence of carcinogenicity in humans or sufficient evidence of carcinogenicity in experimental animals.

There may be hydrocarbon and chlorinated solvents; metals, and polynuclear aromatics present in this product which are listed by OSHA as known carcinogens. There may be hydrocarbon and chlorinated solvents; metals, and polynuclear aromatics present in this product which are listed by IARC as known, probable, or possible carcinogens. There may be hydrocarbon and chlorinated solvents; metals, and polynuclear aromatics present in this product which are classified by NTP as known carcinogens or as having limited evidence of carcinogenicity in humans or sufficient evidence of carcinogenicity in experimental animals. There may be hydrocarbon and chlorinated solvents; metals, and polynuclear aromatics present in this product which are recognized by ACGIH as confirmed or suspected human carcinogens.

Also see **SECTION 3: CANCER INFORMATION**.

REPRODUCTIVE TOXICITY:	Based on best current information, there may be reproductive toxicity associated with this product.
TERATOGENICITY:	Based on best current information, there may be teratogenicity associated with this product.
TOXICOLOGICALLY SYNERGISTIC PRODUCT(S):	Based on best current information, there may be toxicologically synergistic products associated with this product.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY:	Not available.
OCTANOL/WATER PARTITION COEFFICIENT:	Not available.
VOLATILE ORGANIC COMPOUNDS:	Not available. As per 40 CFR Part 51.100(s).

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose in accordance with federal, state, provincial, and local regulations. Regulations may also apply to empty containers. The responsibility for proper waste disposal lies with the owner of the waste. Contact Fuel Source regarding proper recycling or disposal.

SECTION 14: TRANSPORT INFORMATION

DOT:	Not regulated.
TDG:	Not regulated.
EMERGENCY RESPONSE GUIDE NUMBER:	Not applicable. Reference *North American Emergency Response Guidebook*

SECTION 15: REGULATORY INFORMATION

USA REGULATIONS SARA SECTIONS 302 AND 304:	Based on the ingredient(s) listed in **SECTION 2**, this product does not contain any "extremely hazardous substances" listed pursuant to Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) Section 302 or Section 304 as identified in 40 CFR Part 355, Appendix A and B.

SARA SECTIONS 311 AND 312:	This product poses the following physical and health hazards as defined in 40 CFR Part 370 and is subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard
SARA SECTION 313:	This product may contain "toxic" chemicals subject to the requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.
CERCLA:	This product may contain "hazardous substances" listed pursuant to Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) in 40 CFR Part 302, Table 302.4.
TSCA:	Not available.
CALIFORNIA:	This product is not for sale or use in the State of California.
CANADIAN REGULATIONS WHMIS:	Not regulated
CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):	Not available.

SECTION 16: OTHER INFORMATION

REVISION INFORMATION: Change from MSDS to SDS

LABEL/OTHER INFORMATION: Not available.

Safety Data Sheet

Westlake Chemical

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name **Epolene® Polyethylene (oxidized) Polymers**

Synonyms Ethene polymer; Ethylene Homopolymer; Polyethylene wax; Polyethylene, oxidized

Product Grades E-10, E-10J, E-14, E-14E, E-16, E-20, EE-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified use(s) Plastic modification, wax

1.3 Details of the supplier of the safety data sheet

Manufacturer
Westlake Polymers LLC
2801 Post Oak Blvd.
Houston, TX 77056
United States
www.westlake.com

Telephone (General) 713-960-9111

1.4 Emergency telephone number

800-424-9300 – CHEMTREC

Section 2: Hazards Identification

EU/EEC

According to Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP • Not classified

DSD/DPD • Not classified

2.2 Label Elements

CLP	**Hazard**	• No label element(s) required
DSD/DPD	**Risk phrases**	• No label element(s) required

2.3 Other Hazards

CLP
- May form combustible dust concentrations in air.
  According to Regulation (EC) No. 1272/2008 (CLP) this material is not considered hazardous.

DSD/DPD
- May form combustible dust concentrations in air.
  According to European Directive 1999/45/EC this material is not considered dangerous.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012 • Not classified

2.2 Label elements

OSHA HCS 2012 **Hazard statements**
- No label element(s) required

2.3 Other hazards

OSHA HCS 2012
- As shipped, product is not hazardous. Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is not considered hazardous.

Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS
- Not classified

2.2 Label elements

WHMIS
- No label element(s) required.

2.3 Other hazards

WHMIS
- May form combustible dust concentrations in air.
  In Canada, the product mentioned above is not considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

3.1 Substances

Composition		
Chemical Name	**Identifiers (CAS)**	**%**
Polyethylene, oxidized	68441-17-8	100%

3.2 Mixtures

- Material does not meet the criteria of a mixture in accordance with Regulation (EC) No 1272/2008.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation
- IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.

Skin
- For thermal burns, flush or submerge effected area in cold water to dissipate heat. Cover with clean bandage material. Do not peel material from skin. Get medical attention. For contact at ambient temperatures, wash with soap and water.

Eye
- If dust or molten material contacts the eye, immediately flush with plenty of water for at least 15 minutes. If irritation persists, get medical attention immediately.

Ingestion
- First aid is not expected to be necessary if material is used under ordinary conditions and as recommended.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician
- Burns should be treated as thermal burns. The material will come off as healing occurs; therefore, immediate removal from the skin is not necessary.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media
- Water fog, dry chemical, foam, carbon dioxide.

Unsuitable Extinguishing Media
- None known.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
- Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Hazardous Combustion Products
- Carbon dioxide, carbon monoxide, formaldehyde, acetaldehyde, irritating smoke.

5.3 Advice for firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment, and emergency procedures

Personal Precautions
- Do not walk through spilled material. Do not breathe dust. Avoid contact with skin and eyes. Wear appropriate personal protective equipment, avoid direct contact.

Emergency Procedures
- Contain spill and monitor for excessive dust accumulation. Avoid unnecessary personnel and equipment traffic in the spill area. Ventilate closed spaces before entering.

6.2 Environmental precautions

- No special environmental precautions necessary.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures
- Avoid generating dust.
- Use clean nonsparking tools to collect material.
- Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling
- Avoid contact with molten material; do not breathe fumes, vapors, dust or sprays from molten or burning material. When processing at > 600°F (315°C), consider use of a respirator to avoid breathing decomposition products.
- Do not use in areas without adequate ventilation. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.
- Use appropriate Personal Protective Equipment (PPE) Avoid contact with skin and eyes. Do not breathe dust. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

Storage
- Keep container closed and in ventilated area, away from ignition sources, heat, open flames, and direct sunlight. Do not store with incompatible materials.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses

7.4 Other Information

- For prevention of fire and explosion, keep from contact with incompatible materials. Minimize dust generation and accumulation. Because product may accumulate a static charge, use proper bonding and/or grounding procedures prior to transfer. In the United States of America, refer to NFPA® Pamphlet No. 654, "Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, 2006 edition."

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines			
	Result	**ACGIH**	**NIOSH**
Oxidized Polyethylene as Particulates not otherwise classified (PNOC)	TWAs	10 mg/m3 TWA (inhalable particles, recommended); 3 mg/m3 TWA (respirable particles, recommended) *as Particulates not otherwise classified (PNOC)*	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) *as Particulates not otherwise classified (PNOC)*

8.2 Exposure controls

Engineering Measures/Controls

- Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Supplementary local exhaust ventilation, closed systems, or respiratory and eye protection may be needed in special circumstances; such as poorly ventilated spaces, very hot processing, evaporation of liquids from large surfaces, spraying of mists, mechanical generation of dusts, drying of solids, etc.

Personal Protective Equipment

Respiratory

- For limited exposure use an N95 dust mask. For prolonged exposure use an air-purifying respirator with high efficiency particulate air (HEPA) filters. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear safety goggles.

Hands

- Wear thermally resistant gloves and long sleeves when handling molten product.

Skin/Body

- Wear long sleeves and/or protective coveralls.

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

STEL = Short Term Exposure Limits are based on 15 minute exposures

TWA = Time Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	**Appearance/Description**	White solid with no odor or a mild odor.
Color	White	**Odor**	Odorless to mild.
Odor Threshold	NDA		

General Properties			
Boiling Point	NDA	**Softening Point**	100 to 114 C(212 to 237.2 F)
Decomposition Temperature	>300 C (573 F) (estimated)	**pH**	NDA
Specific Gravity/Relative Density	0.93 to 0.96 Water=1	**Water Solubility**	Negligible.
Viscosity	NDA	**Explosive Properties**	Not Explosive.
Oxidizing Properties:	Not an oxidizer.		
Volatility			
Vapor Pressure	NDA	**Vapor Density**	NDA
Evaporation Rate	NDA		
Flammability			
Flash Point	NDA	**UEL**	NDA
LEL	NDA	**Autoignition**	NDA
Flammability (solid, gas)	Not Flammable.		
Environmental			
Octanol/Water Partition coefficient	NDA		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization not indicated.

10.4 Conditions to avoid

- Heat, sparks, open flame.

10.5 Incompatible materials

- Strong oxidizing agents, fluorine.

10.6 Hazardous decomposition products

- No data available

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Component Name	CAS	Data
Epolene® Polyethylene (oxidized) Polymers	68441-17-8	**Acute Toxicity:** Ingestion/Oral-Rat • >6400 mg/kg; Skin-Rabbit • >2000 mg/kg; **Irritation:** Skin-Guinea Pig • Mild irritation

GHS Properties	Classification
Acute toxicity	**EU/CLP**•NDA **OSHA HCS 2012**•NDA
Aspiration Hazard	**EU/CLP**•NDA **OSHA HCS 2012**•NDA

Carcinogenicity	**EU/CLP**•NDA **OSHA HCS 2012**•NDA
Germ Cell Mutagenicity	**EU/CLP**•NDA **OSHA HCS 2012**•NDA
Skin corrosion/Irritation	**EU/CLP**•NDA **OSHA HCS 2012**•NDA
Skin sensitization	**EU/CLP**•NDA **OSHA HCS 2012**•NDA
STOT-RE	**EU/CLP**•NDA **OSHA HCS 2012**•NDA
STOT-SE	**EU/CLP**•NDA **OSHA HCS 2012**•NDA
Toxicity for Reproduction	**EU/CLP**•NDA **OSHA HCS 2012**•NDA
Respiratory sensitization	**EU/CLP**•NDA **OSHA HCS 2012**•NDA
Serious eye damage/Irritation	**EU/CLP**•NDA **OSHA HCS 2012**•NDA

Route(s) of entry/exposure
- Inhalation, Skin, Eye, Ingestion

Medical Conditions Aggravated by Exposure
- Disorders of the lungs.

Potential Health Effects

Inhalation

Acute (Immediate)
- Exposure to dust may cause irritation. Processes such as cutting, grinding, crushing, or impact may result in generation of excessive amounts of airborne dusts in the workplace. Nuisance dust may affect the lungs but reactions are typically reversible.

Chronic (Delayed)
- Prolonged exposure to the dust may cause wheezing, chest tightness, productive cough nasal irritation and symptoms of chronic respiratory disease.

Skin

Acute (Immediate)
- Exposure to dust may cause mechanical irritation.

Chronic (Delayed)
- No data available.

Eye

Acute (Immediate)
- Exposure to dust may cause mechanical irritation. Excessive concentrations of nuisance dust in the workplace may reduce visibility and may cause unpleasant deposits in eyes.

Chronic (Delayed)
- No data available.

Ingestion

Acute (Immediate)
- Excessive concentrations of nuisance dust in the workplace may cause mechanical irritation to mucous membranes.

Chronic (Delayed)
- No data available

Key to abbreviations

LD = Lethal Dose
MLD = Mild
TC = Toxic Concentration
TD = Toxic Dose

Section 12 - Ecological Information

12.1 Toxicity

- NDA

12.2 Persistence and degradability

- NDA

12.3 Bioaccumulative potential

- NDA

12.4 Mobility in Soil

- NDA

12.5 Results of PBT and vPvB assessment

- PBT and vPvB assessment has not been carried out.

12.6 Other adverse effects

- NDA

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	NDA	Not regulated	NDA	NDA	NDA
TDG	NDA	Not regulated	NDA	NDA	NDA
IMO/IMDG	NDA	Not regulated	NDA	NDA	NDA
IATA/ICAO	NDA	Not regulated	NDA	NDA	NDA

14.6 Special precautions for user
- None known.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
- Not relevant.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications
- None

Inventories
- These products comply with the following inventories:

Australia AICS	**Canada DSL/NDSL**	**China**	**EU EINECS/ELNICS**
Japan ENCS	**Korea KECL**	**New Zealand**	**Philippines PICCS**
USA TSCA			

California Prop 65
- In compliance, no reportable substances

CERCLA
- In the event of a spill, the end user should verify whether reporting is required under local, state, and/or federal regulations.

CONEG
- These products are in compliance with the heavy metals requirements of the Coalition of Northeastern Governors and California Toxics in Packaging Prevention Act (AB2021).

Ozone Depleting Substances	• In compliance with 40 CFR 82, no reportable substances.
RCRA	• In the form delivered by Westlake, these products are not considered as hazardous waste, and are not subject to reporting under the Resource Conservation and Recovery Act.

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date	10/February/2015
Preparation Date	04/September/2014
For Other Information	Contact Westlake Polymers LLC Customer Service 1-800-545-9577 (Monday-Friday, 7:30am-5:00pm - central standard time)

Disclaimer/Statement of Liability

It is your responsibility to determine that our product is safe, lawful, and technically suitable for your intended uses. This material safety data sheet cannot cover all possible situations which the user may experience during processing. Each aspect of the user's operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this material safety data sheet should be provided to employees and/or customers. Westlake Polymers LLC must rely on the user to use this information to develop appropriate work practice guidelines and employee instructional programs specific to the user's operation.

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The information in this sheet is valid for cited regulations published as of the date this document was prepared, as shown herein. Updates may be prepared as the regulations are amended or pending revised information about the resin. It is the customer's responsibility to seek updated regulatory information on any specific resin.

Key to abbreviations
NDA = No data available

Conforms to HazCom 2012/United States

Lehigh Hanson
HEIDELBERGCEMENT Group

Safety Data Sheet Limestone

Section 1. Identification

GHS product identifier: Limestone
Other means of identification: Crushed Stone, Calcium Carbonate, Aggregate
Relevant identified uses of the substance or mixture and uses advised against: Limestone may be used in the manufacture of bricks, mortar, cement, concrete, plasters, paving materials, and other construction materials. Limestone aggregate may be distributed in bags, totes, and bulk shipments. No known recommended restrictions.

Supplier's details:
300 E. John Carpenter Freeway, Suite 1645
Irving, TX 75062
(972) 653-5500

Emergency telephone number (24 hours): **CHEMTREC: (800) 424-9300**

Section 2. Hazards Identification

GHS Classification:
CARCINOGENICITY – Category 1A
SPECIFIC TARGET ORGAN TOXICITY – Category 2
REPEATED EXPOSURE
SKIN CORROSION/IRRITATION – Category 2
EYE DAMAGE/IRRITATION – Category 2A

GHS label elements

Hazard pictograms:

Signal word: Danger
Hazard statements:
May cause cancer
May cause damage to organs (lung) through prolonged or repeated exposure
Causes skin irritation
Causes serious eye irritation

Precautionary statements:
Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash any exposed body parts. Wear protective gloves/protective clothing/eye protection/face protection.
Response: If exposed or concerned: Get medical advice/attention. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If in eyes: Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do.
Storage: Restrict or control access to stockpile areas (store locked up). Engulfment hazard: To prevent burial or suffocation, do not enter a confined space, such as a silo, bulk truck or other storage container or vessel that stores or contains aggregates without an effective procedure for assuring safety.
Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazards not otherwise classified (HNOC): None known

Supplemental Information: Respirable Crystalline Silica (RCS) may cause cancer. Limestone is a naturally occurring mineral complex that contains varying quantities of quartz (crystalline silica). In its natural bulk state, limestone is not a known health hazard. Limestone may be subjected to various natural or mechanical forces that produce small particles (dust) which may contain respirable crystalline silica (particles less than 10 micrometers in aerodynamic diameter). Repeated inhalation of respirable crystalline silica (quartz) may cause lung cancer according to IARC and NTP; ACGIH states that it is a suspected cause of cancer. Other forms of RCS (e.g., tridymite and cristobalite) may also be present or formed under certain industrial processes.

Section 3. Composition/information on ingredients

CAS number/other identifiers

Substance/mixture: Limestone, Calcium Carbonate, Quartz

Ingredient name	%	CAS number
Limestone	> 50	1317-65-3
Crystalline Silica (Quartz)	> 1	14808-60-7

Any concentration shown as a range is to protect confidentiality or is due to process variation. There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. These materials are mined from the earth. Trace amounts of naturally occurring elements might be detected during chemical analysis of these materials.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye Contact: Dust: Immediately flush with plenty of water for at least 15 minutes. Hold eyelids apart. Remove contacts is present and easy to do. Occasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from the eye(s). Get medical attention if irritation develops or persists.

Inhalation: Dust: Move to fresh air. Call a physician if symptoms develop or persist.

Skin Contact: Dust: Wash off with soap and water. Get medical attention if irritation develops and persists.

Ingestion: Dust: Rinse mouth and drink plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.

Most important symptoms/effects, acute and delayed

Inhaling dust may cause discomfort in the chest, shortness of breath, and coughing. Prolonged inhalation may cause chronic health effects. This product contains crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica liberated from this product can cause silicosis, and may cause cancer.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

Specific treatments: Not Applicable

Protection of first-aiders: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

General information: Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and lung (including asthma and other breathing disorders). If addicted to tobacco, smoking will impair the ability of the lungs to clear themselves of dust.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media: Not flammable. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: No unusual fire or explosion hazards noted. Not a combustible dust.

Hazardous thermal decomposition Products: None known

Special protective equipment for fire-fighters:	Use protective equipment appropriate for surrounding materials. No specific precautions.
General fire hazards:	Contact with powerful oxidizing agents may cause fire and/or explosions (see section 10 of SDS). No unusual fire or explosion hazards.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear appropriate protective equipment and clothing during clean-up of materials that contain or may liberate dust.

Methods and materials for containment, cleaning up and Environmental precautions

Spilled material, where dust is generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust. Do not dry sweep or use compressed air for clean-up. Wetting of spilled material and/or use of respiratory protective equipment may be necessary.
Avoid discharge of fine particulate matter into drains or water courses.

Section 7. Handling and storage

Precautions for safe handling

Protective measures:	Do not handle until all safety precautions have been read and understood. Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment.
Advice on general occupational hygiene:	Observe good industrial hygiene practices. Promptly remove dusty clothing and launder before reuse.
Conditions for safe storage, including any incompatibilities:	Avoid dust formation or accumulation.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits:
1 – Value equivalent to OSHA formulas (29 CFR 1910.1000; 29 CFR 1917; 29 CFR 1918)
2 – Value also applies to MSHA metal/Non-Metal (1973 TLVs at 30 CFR 56/57.5001)
3 – OSHA enforces 0.250 mg/m³ in construction and shipyards (CPL-03-00-007)
4 – Value also applies to OSHA construction (29 CRF 1926.55 Appendix A) and shipyards (29 CFR 1915.1000 Table Z)
5 – MSHA limit = 10 mg/m³

Ingredient name	Exposure limits
Particulates not otherwise classified (CAS SEQ250)	**ACGIH TLV (United States, 3/2012)** TWA: 3 mg/m³. Form: Respirable particles (2) TWA: 10 mg/m³. Form: Inhalable particles (2) **OSHA PEL (United States, 6/2010)** PEL: 5 mg/m³. Form: Respirable fraction PEL: 15 mg/m³. Form: Total dust (4) TWA: 5 mg/m³. Form: Respirable fraction (1) TWA: 15 mg/m³. Form: Total dust (1, 4, 5)
Limestone (Calcium Carbonate) (CAS 1317-65-3)	**OSHA PEL (United States, 6/2010)** TWA: 5 mg/m³. Form: Respirable fraction (4) TWA: 15 mg/m³. Form: Total dust (5) **NIOSH REL (United States, 6/2009)** TWA: 5 mg/m³. Form: Respirable fraction TWA: 10 mg/m³. Form: Total dust

Crystalline Silica (Quartz) (CAS 14808-60-7)	**OSHA PEL (United States, 6/2010)** TWA: 0.3 mg/m³. Form: Total dust (1,2) TWA: 0.1 mg/m³. Form: Respirable (1,2,3)
Crystalline Silica (all forms; CAS mixture)	**ACGIH TLV (United States, 3/2012)** TWA: 0.025 mg/m³. Form: Respirable fraction **NIOSH REL (United States, 6/2009)** TWA: 0.05 mg/m³. Form: Respirable dust
Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)	**OSHA PEL (United States, 6/2010)** TWA: 0.15 mg/m³. Form: Total dust (1) TWA: 0.05 mg/m³. Form: Respirable (1,2)

Appropriate engineering controls: Good general ventilation (typically 10 air changes per hour indoors) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Exposure guidelines: OSHA PELs, MSHA PELs, and ACGIH TLVs are 8-hr TWA values. NIOSH RELs are for TWA exposures up to 10-hr/day and 40-hr/wk. Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled. Terms including "Particulates Not Otherwise Classified," "Particulates Not Otherwise Regulated," Particulates Not Otherwise Specified," and "Inert or Nuisance Due" are often used interchangeably; however, the user should review each agency's terminology for differences in meanings.

Biological limit values: No biological exposure limits noted for the ingredient(s)

Individual protection measures

Hygiene measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Eye/face protection: Wear safety glasses with side shields (or goggles).

Hand protection: Use personal protective equipment as required.

Body protection: Use personal protective equipment as required.

Other skin protection: Use personal protective equipment as required.

Respiratory protection: When handling or performing work that produces dust or respirable crystalline silica in excess of applicable exposure limits, wear a NIOSH-approved respirator that is properly fitted and is in good condition. Respirators must be used in accordance with all applicable workplace regulations.

Thermal hazards: Not anticipated. Wear appropriate thermal protective clothing if necessary.

Section 9. Physical and chemical properties

Appearance

Physical State:	Solid, particles of granular and angular mixture	**Lower and Upper explosive flammable limits**	Not applicable
Color:	Various colors	**Vapor pressure:**	Not applicable
Odor:	Not applicable	**Vapor density:**	Not applicable
Odor threshold:	Not applicable	**Relative density:**	Not available
pH:	Not available	**Solubility:**	Not available
Melting point:	Not applicable	**Solubility in water:**	Insoluble
Boiling point:	Not applicable	**Partition coefficient: n-octanol/water:**	Not applicable
Flash point:	Non-combustible	**Auto-ignition temperature:**	Not applicable
Burning time:	Not applicable	**Decomposition temperature:**	Not applicable
Burning rate:	Not applicable	**SADT:**	Not available
Evaporation Rate:	Not applicable	**Viscosity:**	Not applicable
Flammability (solid, gas):	Not applicable		

Section 10. Stability and reactivity

Reactivity:	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	No dangerous reaction known under conditions of normal use.
Conditions to avoid:	Avoid contact with strong oxidizing agents.
Incompatible materials:	Crystalline silica may react violently with strong oxidizing agents, causing fire and explosions.
Hazardous decomposition products:	Silica dissolves in hydrofluoric acid producing a corrosive gas-silicon tetrafluoride.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity:	Not expected to be acutely toxic.
Irritation/Corrosion:	**Skin:** Dust: May cause irritation through mechanical abrasion. This product is not expected to be a skin hazard. **Eyes:** Direct contact with eyes may cause temporary irritation through mechanical abrasion. **Inhalation:** Repeated inhalation of respirable crystalline silica (quartz) may cause silicosis, a fibrosis (scarring) of the lungs. Silicosis is irreversible and may be fatal. Silicosis increases the risk of contracting pulmonary tuberculosis. Some studies suggest that repeated inhalation of respirable crystalline silica may cause other adverse health effects including lung and kidney cancer. **Ingestion:** Not likely due to product form. However accidental ingestion may cause discomfort.
Sensitization:	**Respiratory sensitization:** No respiratory sensitizing effects known. **Skin sensitization:** Not known to be a dermal irritant or sensitizer.
Mutagenicity:	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Aspiration Hazard:	Not expected to be an aspiration hazard.
Reproductive toxicity:	Not expected to be a reproductive hazard.
Symptoms related to physical, chemical and toxicological characteristics:	Dust: discomfort in the chest. Shortness of breath. Coughing.
Carcinogenicity:	Respirable crystalline silica has been classified by IARC and NTP as a known human carcinogen, and classified by ACGIH as a suspected human carcinogen.

Product/ingredient name	OSHA	IARC	ACGIH	NTP
Crystalline Silica (Quartz) CAS 14808-60-7)	Not listed	1 Carcinogenic to humans	A2	Known to be human Carcinogen
Respirable Tridymite and Cristobalite (Other forms of Crystalline) (CAS Mixture)	Not listed	1 Carcinogenic to humans	-	-

Specific target organ toxicity (acute exposure)

Name	Category	Route of Exposure	Target Organs
Crystalline Silica (Quartz) CAS 14808-60-7)	-	Inhalation	Not reported to have effects
Respirable Tridymite and Cristoballite (Other forms of Crystalline) (CAS Mixture)	-	Inhalation	Not reported to have effects

Specific target organ toxicity (chronic exposure)

Name	Category	Route of Exposure	Target Organs
Crystalline Silica (Quartz) CAS 14808-60-7)		Inhalation	May cause damage to organs (lung through prolonged or repeated exposure.
Respirable Tridymite and Cristobalite (Other forms of Crystalline) (CAS Mixture)		Inhalation	May cause damage to organs (lung through prolonged or repeated exposure.

Potential chronic health effects: General: Prolonged inhalation of respirable crystalline silica may be harmful. May cause damage to organs (lungs) through prolonged or repeated exposure. There are reports in the literature suggesting that excessive crystalline silica exposure may be associated with autoimmune disorders and other adverse health effects involving the kidney. In particular, the incidence of scleroderma (thickening of the skin caused by swelling and the thickening of fibrous tissue) appears to be higher in silicotic individuals. To date, the evidence does not conclusively determine a causal relationship between silica exposure and these adverse health effects.

Section 12. Ecological Information

Ecotoxicity

Not expected to be harmful to aquatic organisms. Discharging sand and gravel dust and fines into waters may increase total suspended particulate (TSP) levels that can be harmful to certain aquatic organisms.

Persistence and degradability:	Not applicable.
Bioaccumulative potential:	Not applicable.
Mobility in soil:	Not applicable.
Other adverse effects:	No other adverse environmental effects (e.g., ozone depletion, photochemical ozone creation potential, global warming potential) are expected from this component.

Section 13. Disposal considerations

Disposal methods:	Do not allow fine particulate matter to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with fine particulates. Dispose of contents in accordance with local/regional/national/international regulations.
Hazardous waste code:	Not regulated.
Waste from residues/unused products:	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
Contaminated packaging:	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty packaging materials should be recycled or disposed of in accordance with applicable regulations and practices.

Section 14. Transportation information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	-	-	-
Additional information	-	-	-

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Section 15. Regulatory Information

U.S. Federal regulations:	
OSHA Hazard Communication Standard, 29 CFR 1910.1200	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200
TSCA Section 12(b) Export Notification (40 CFR 707, Subpart. D):	Not regulated
OSHA Specifically Regulated	

Substances (29 CFR 1910.1001-1050):	Not listed
CERCLA Hazardous Substance List (40 CFR 302.4):	Not listed
Clean Air Act Section 112 (b): Hazardous Air Pollutants (HAPs):	Not regulated
Clean Air Act Section 112 (r) Accidental Release Prevention (40 CFR 68.130):	Not regulated
Safe Drinking Water Act (SDWA):	Not regulated

SARA 311/312

Classification: Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire Hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Crystalline Silica (Quartz) CAS 14808-60-7	>1	No	No	No	No	Yes

SARA 313 (TRI)

	Product name	CAS number	%
Form R-Report requirements	Crystalline Silica (Quartz)	14808-60-7	Not regulated

State regulations

Massachusetts RTK:	The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)
New Jersey RTK:	The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS mixture)
Pennsylvania RTK:	The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)
Rhode Island RTK:	Not regulated.

California Prop. 65

WARNING: This product contains crystalline silica and chemicals (trace metals) known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Crystalline Silica (Quartz) CAS 14808-60-7	Yes	No	No	No

International regulations

Ingredient name	CAS #	TSCA	Canada	WHMIS	EEC
Crystalline Silica (Quartz)	14808-60-7	Yes	DSL	D2A	EINECS
Limestone	1317-65-3	Yes	NDSL	N/Ap	EINECS

WHMIS Classification:

D2A "Materials Causing Other Toxic Effects"

Section 16. Other Information

Date of issue: 06/01/2015
Version: 06/01/2015
Revised Section(s): N/Ap

Notice to reader

While the information provided in this safety data sheet is believed to provide a useful summary of the hazards of limestone as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product. In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with limestone to produce limestone products. Users should review other relevant material safety data sheets before working with this limestone or working on limestone products.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY Lehigh Hanson, except that the product shall conform to contracted specifications. The information provided herein was believed by the Lehigh Hanson to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as to product delivered or for non-delivery of product, and whether based on contract, breach of warranty, negligence, or otherwise shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise.

Abbreviations

ACGIH — American Conference of Governmental Industrial Hygienists
CAS — Chemical Abstract Service
CERCLA — Comprehensive Emergency Response and Comprehensive Liability Act
CFR — Code of Federal Regulations
DOT — Department of Transportation
GHS — Globally Harmonized System
HEPA — High Efficiency Particulate Air
IATA — International Air Transport Association
IARC — International Agency for Research on Cancer
IMDG — International Maritime Dangerous Goods
NIOSH — National Institute of Occupational Safety and Health
NOEC — No Observed Effect Concentration
NTP — National Toxicology Program
OSHA — Occupational Safety and Health Administration
PEL — Permissible Exposure Limit
REL — Recommended Exposure Limit
RQ — Reportable Quantity
SARA — Superfund Amendments and Reauthorization Act
SDS — Safety Data Sheet
TLV — Threshold Limit Value
TPQ — Threshold Planning Quantity
TSCA — Toxic Substances Control Act
TWA — Time-Weighted Average
UN — United Nations

1 PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Vendor

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Product Name:	PG 52-28, PG 52-34, PG 58-22, PG 58-28, PG 58-34, PG 64-16, PG 64-22
Revision Date:	6/1/2015
SDS Number:	AMI-101
Common Name:	Petroleum Asphalt
CAS Number:	Mixture
Chemical Family:	Complex Petroleum Hydrocarbon
Synonyms:	Asphalt Cement, CM Base, Paving Asphalt, Straight Run Bitumen, SuperPave Asphalt
Product Use:	Highway and Hot-Mix Paving Mixtures

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

Health, Acute toxicity, 5 Inhalation

GHS Label elements, including precautionary statements

GHS Signal Word: WARNING

GHS Hazard Pictograms:

no GHS pictograms indicated for this product

GHS Hazard Statements:

H333 - May be harmful if inhaled

GHS Precautionary Statements:

P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Hazards not otherwise classified (HNOC) or not covered by GHS

Inhalation:

Breathing vapors, fumes, or mists may cause irritation to nasal and respiratory tract and central nervous system effects. Symptoms may include labored breathing, sore throat, coughing, wheezing, headache, and nausea. Some asphalts may contain sulfur compounds, which may form Hydrogen Sulfide when heating.

Exposure to lower concentrations of Hydrogen Sulfide can result in eye irritation, sore throat and cough, nausea, shortness of breath, and fluid in the lungs. Long-term, low level exposure may result in fatigue, loss of appetite, headaches, irritability, poor memory, and dizziness.

0.02 ppm	Odor threshold.
10 ppm	8-hour per day exposure limit to Hydrogen Sulfide.
10-20 ppm	Borderline concentration for eye irritation.
10-100 ppm	Leads to eye damage.
100-150 ppm	Olfactory nerve paralyzed after a few minutes, sense of smell disappears, and often

awareness of danger.

320-530 ppm	Leads to pulmonary edema with the possibility of death.
530-1,000 ppm	Causes strong stimulation of central nervous system and rapid breathing.
800 ppm	Lethal concentration of 50% of humans for a 5-minute exposure (LC50).
>1,000 ppm	Immediate collapse with loss of breathing, even after inhalation of a single breath.

Do not depend on sense of smell for warning. Hydrogen Sulfide causes rapid olfactory fatigue (deadens sense of smell).

Skin Contact: Contact with hot asphalt can cause thermal burns. Prolonged exposure to vapors, fumes, or mists may cause irritation and redness.

Eye Contact: Contact with hot asphalt can cause thermal burns to the eyes. Prolonged exposure to vapors, fumes, or mists may cause irritation, redness, and tearing.

Ingestion: Ingestion is not likely. Ingestion may cause thermal burns. If ingestion of molten material occurs, keep victim's head below their hips to prevent asphalt from reaching the lungs. Take victim to obtain medical assistance immediately.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
8052-42-4	98-100%	Asphalt (typical)
0	0-2%	Antistrip Adhesion Promoter, Proprietary

Asphalt: Asphalt is a complex mixture of high molecular weight hydrocarbons produced from crude petroleum. Composition varies depending on the source of the crude and the specifications of the final product.

ACGIH: The American Conference of Governmental Industrial Hygienists recommends an exposure limit of 0.5 mg/m^3 as benzene-extractable inhalable particulate (or equivalent method) to avoid irritation of the conjunctive mucous membranes. Historical information on exposure of asphalt workers used methods different than those recommended by ACGIH, so comparisons to the recommended exposure limits are not known.

Hydrogen Sulfide: Trace amounts of Hydrogen Sulfide may be present as a naturally-occurring constituent in the petroleum stream and are not added separately to the product.

4 FIRST AID MEASURES

Inhalation: If irritation occurs from inhalation overexposure, immediately remove victim from source to fresh air and seek medical attention.

Skin Contact: Hot Molten Material: Cool the affected body parts immediately by submerging in cold water until the material has cooled. Do not attempt to remove solidified material from burn area as this may further tissue damage. Take the victim to obtain medical assistance immediately.

Cold Material: Remove cold asphalt by soaking dressing in mineral oil and place over affected area for 2-3 hours. If irritation occurs, call a physician.

Never try to remove material with solvents.

Eye Contact: Gently flush immediately with cold water for 15 minutes. Do not attempt to remove solidified material from the eye, as this may further injury. Take victim to obtain medical assistance.

Ingestion: Ingestion is not likely. If large amounts are swallowed, do not induce vomiting and immediately call a physician.

5 FIRE FIGHTING MEASURES

Flammability:	NFPA Class IIIB
Flash Point:	>500°F
Flash Point Method:	ASTM D-92
Autoignition Temp:	>800°F
LEL:	1.0%
UEL:	6.0%

Fire and Explosion Hazards:

May produce severe burns on contact.
May produce Hydrogen Sulfide (H2S) gas in confined spaces, closed containers, and tank headspaces.
Vapors can explode.

Extinguishing Media:

Foam, Carbon Dioxide, Dry Chemical, and water spray may all be suitable in extinguishing fires involving this product.

Fire Fighting Instructions:

Avoid water streams to prevent frothing. Use water spray to cool exposed surfaces and to assist in solidifying hot asphalt material.

6 ACCIDENTAL RELEASE MEASURES

Stop source of leak if safe to do so. Eliminate sources of ignition. Contain by diking or impounding. Absorbents can be used to contain small spills. After containment and solidification, asphalt can be collected for disposal. Advise authorities if product has entered a drainage sewer or a water source. Assure conformity with local, state, and federal government regulations for disposal.

7 HANDLING AND STORAGE

Handling Precautions:

When opening covers and outlet caps on storage tanks, use faceshield and gloves to avoid possible injury from pressurized hot asphalt. Long sleeved shirts and pants should be worn to minimize thermal burns. Hydrogen Sulfide can be generated and accululated in storage tanks and bulk transport compartments. Stay upwind and vent storage tanks before unloading. Keep heating units and flues in storage tanks covered with at least 12 inches of asphalt. Do not overheat.

Empty Container Warning: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, OR OTHER SOURCES OF IGNITION; THEY MAY BURN OR EXPLODE AND CAUSE INJURY OR DEATH.

Hot Material Warning: Hot material (above 212°F) contact with water results in a violent expansion as water turns to steam. This can lead to a dangerous boilover and a pressurized container or cargo tank, which can cause damage, rupture of the container or cargo tank, and thermal burn injuries. Never load hot asphalt product into cargo tanks with water condensation or emulsion residue from the previous load without servicing the cargo tank. Keep away from incompatible materials.

Wear body covering clothes to avoid prolonged or repeated exposure. Launder soiled clothing before reuse.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Local or general exhaust required if in an enclosed area to remain below the TLV. If workplace exposure limits are exceeded, a NIOSH/MSHA-approved air-supplied respirator is advised in the absence of proper environmental engineering controls.

Personal Protective Equipment: Eye and Face Protection: Safety glasses or chemical splash goggles should be worn with faceshield if splashing is anticipated.

Skin Protection: Insulated, oil-impervious gloves for hot asphalt or cloth gloves for cold asphalt. Long-sleeve shirts and long pants should be worn at all times around hot asphalt to prevent thermal burns.

Respiratory Protection: Respiratory protection is not normally required under normal conditions and adequate ventilation. If high vapors and expected, use a respirator approved for organic vapors. Observe respirator protection factor criteria cited in ANSI Z88.2 (1980) and other OSHA requirements found in 29 CFR 1910.134. Use air-supplied respirators or self-contained breathing apparatus for fire fighting and in confined spaces when asphalt vapor or Hydrogen Sulfide gas exceends permissible limits.

Work/Hygienic Practices: Skin contact and the breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects. Thoroughly wash exposed skin areas after work to avoid dermatitis. Consider the use of lanolin skin treatments before handling or working around asphalt mixtures.

Other Protection: Wear body-covering clothes to avoid prolonged or repeated exposure. Launder before reuse.

PETROLEUM ASPHALT:

OSHA PEL:	Not established for this material.
ACGIH TLV:	0.5 mg/m³ as benzene-extractable inhalable particulate (or equivalent method)
NIOSH REL:	5.0 mg/m³ as a 15-minute ceiling limit measured as total particulates.

HYDROGEN SULFIDE:

ACGIH TLV:	1 ppm (1.4 mg/m³) for 8 hours
ACGIH STEL:	5 ppm (7 mg/m³) for 15 minutes

ANTISTRIP ADHESION PROMOTER, Proprietary:

OSHA PEL:	Not established for this material.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Black/Brown viscous solid. Liquid when hot.		
Physical State:	Solid when cold, Liquid when hot.	**Odor:**	Characteristic asphalt odor
Spec Grav./Density:	0.95 - 1.10	**Solubility:**	Negligible
Viscosity:	Thin fluid when hot. Solid when cold.	**Softening Point:**	110 degrees F and above
Boiling Point:	>750°F	**Heat Value:**	18,000 BTU per pound
Flammability:	Class IIIB Combustible	**Freezing/Melting Pt.:**	115 - 130°F
Vapor Pressure:	1.9 E-9 psia	**Flash Point:**	>500°F
Evap. Rate:	Negligible	**Vapor Density:**	Lighter than air
Molecular weight:	320	**VOC:**	Negligible
Decomp Temp:	>750 F	**Bulk Density:**	8.46 lb./gallon
		Auto-Ignition Temp:	>800°F
		UFL/LFL:	6.0% / 1.0%

10 STABILITY AND REACTIVITY

Chemical Stability:	Product is stable under normal conditions.
Conditions to Avoid:	Contact with oxidizers
Materials to Avoid:	Strong Oxidizing Agents.
Hazardous Decomposition:	Fumes, smoke, carbon monoxide, hydrogen sulfide, aldehydes, and hydrocarbons.
Hazardous Polymerization:	Will not occur.

11 TOXICOLOGICAL INFORMATION

International Agency for Research on Cancer Ruling

Occupational exposures to straight-run bitumens and their emissions during road paving:
On the basis of an earlier meta-analysis, the IARC multi-center study and several more recent independent studies, the Working Group concluded that there was inadequate evidence in humans for the carcinogenicity of occupational exposures during road paving with straight-run bitumens. Also, there was inadequate evidence in experimental animals for the carcinogenicity of extracts and of fume condensates of this type of bitumens. However, studies of workers exposed to bitumen emissions during paving with straight-run bitumens showed mutagenic and genotoxic/cytogenetic effects in these workers. Similar effects were also observed in experimental systems under controlled conditions. This strong mechanistic evidence led to the classification of occupational exposures to straight-run bitumens and their emissions during road paving as "possibly carcinogenic to humans" (Group 2B).

Health Hazard Characterization:

Uncertainties exist in the hazard characterization of asphalt fumes by many factors including its chemical complexity, limitation of the information, the inclusion of coal tar in asphalts in past decades, other confounders and mixed results of human studies. **Concise International Chemical Assessment Documents** relating to asphalt and fumes can be obtained on the internet at http://inchem.org/documents/cicads/cicads/cicad59.htm. Despite conflicting reports, the following bullet points should be noted:

- Currently classified as A4 (not classifiable as a human carcinogen). Asphalt Coal Tar Free
- Breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects.
- Asphalt and asphalt fumes contain trace levels of polynuclear aromatic hydrocarbons that are known carcinogens.
- Chronic health effects would not be expected as long as good hygiene and proper safety precautions are practiced and exposures are less than the TLVs/RELs.
- After using material or being around fumes, wash exposed areas thoroughly with soap and water. Showering immediately after work is a good personal hygiene practice.

12 ECOLOGICAL INFORMATION

May cause fouling of water. Once solidified, this product will no longer exhibit these characteristics.

13 DISPOSAL CONSIDERATIONS

Dispose in accordance with local, state, and federal regulations. After cooling, waste or contaminated asphalt mixtures may be scooped and stockpiled for later recycling into asphalt pavement mixtures, pugmilled into cold mix, or disposed in an approved special waste, industrial waste, or construction debris landfill.

RCRA Information:
This material, if discarded as produced, is not a RCRA "listed" hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261). Along with properly characterizing all waste materials, consult state and local regulations regarding proper disposal of this material.

14 TRANSPORT INFORMATION

UN3257, Elevated temperature liquid, n.o.s., at or above 100 C and below its flash point (including molten metals, molten salts, etc.), 9, PGIII, (Contains Petroleum Asphalt)

Packaging Requirements - Bulk:	49 CFR 173.247
Packaging Requirements - Non-Bulk:	None
Packaging Exceptions:	None

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

Asphalt (typical) (8052-42-4) [98-100%] MASS, NRC, PA, TSCA, TXAIR

Antistrip Adhesion Promoter, Proprietary (0) [0-2%]

Regulatory CODE Descriptions

MASS = MA Massachusetts Hazardous Substances List
NRC = Nationally Recognized Carcinogens
PA = PA Right-To-Know List of Hazardous Substances
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level

SARA Section 313 Notification:

This product contains the following toxic chemicals that are subject to the reporting requirements of Section 313 of the Emergency Planninig and Community Right-To-Know Act (EPCRA) of 1986 and 40 CFR 372:

Polycyclic Aromatic Compounds (PACs) (Category N590) = <178 ppm (US EPA default concentration)

Hydrogen Sulfide (CASRN 7783-06-4) is found in varying trace amounts 0-1% depending on temperature, source of crude, etc.

This information must be included on all SDSs that are copied and distributed for this material.

16 OTHER INFORMATION

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

Asphalt Materials, Inc.

1 PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Vendor

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Product Name:	PG 64-28, PG 70-22
Revision Date:	6/1/2015
SDS Number:	AMI-102
Common Name:	Petroleum Asphalt
CAS Number:	Mixture
Chemical Family:	Complex Petroleum Hydrocarbon
Synonyms:	Asphalt Cement, Paving Asphalt, SuperPave Asphalt
Product Use:	Highway and Hot-Mix Paving Mixtures

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

Health, Acute toxicity, 5 Inhalation

GHS Label elements, including precautionary statements

GHS Signal Word: WARNING

GHS Hazard Pictograms:

no GHS pictograms indicated for this product

GHS Hazard Statements:

H333 - May be harmful if inhaled

GHS Precautionary Statements:

P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Hazards not otherwise classified (HNOC) or not covered by GHS

Inhalation:

Breathing vapors, fumes, or mists may cause irritation to nasal and respiratory tract and central nervous system effects. Symptoms may include labored breathing, sore throat, coughing, wheezing, headache, and nausea. Some asphalts may contain sulfur compounds, which may form Hydrogen Sulfide when heating.

Exposure to lower concentrations of Hydrogen Sulfide can result in eye irritation, sore throat and cough, nausea, shortness of breath, and fluid in the lungs. Long-term, low level exposure may result in fatigue, loss of appetite, headaches, irritability, poor memory, and dizziness.

0.02 ppm	Odor threshold.
10 ppm	8-hour per day exposure limit to Hydrogen Sulfide.
10-20 ppm	Borderline concentration for eye irritation.
10-100 ppm	Leads to eye damage.
100-150 ppm	Olfactory nerve paralyzed after a few minutes, sense of smell disappears, and often

awareness of danger.

320-530 ppm	Leads to pulmonary edema with the possibility of death.
530-1,000 ppm	Causes strong stimulation of central nervous system and rapid breathing.
800 ppm	Lethal concentration of 50% of humans for a 5-minute exposure (LC50).
>1,000 ppm	Immediate collapse with loss of breathing, even after inhalation of a single breath.

Do not depend on sense of smell for warning. Hydrogen Sulfide causes rapid olfactory fatigue (deadens sense of smell).

Skin Contact: Contact with hot asphalt can cause thermal burns. Prolonged exposure to vapors, fumes, or mists may cause irritation and redness.

Eye Contact: Contact with hot asphalt can cause thermal burns to the eyes. Prolonged exposure to vapors, fumes, or mists may cause irritation, redness, and tearing.

Ingestion: Ingestion is not likely. Ingestion may cause thermal burns. If ingestion of molten material occurs, keep victim's head below their hips to prevent asphalt from reaching the lungs. Take victim to obtain medical assistance immediately.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
8052-42-4	>95%	Asphalt (typical)
0	<2%	Antistrip Adhesion Promoter, Proprietary
0	<1%	Asphalt Additive C, Proprietary
0	<5%	Polymer Modifier, Proprietary
0	<0.2%	Vulcanizing Agent, Proprietary

Asphalt: Asphalt is a complex mixture of high molecular weight hydrocarbons produced from crude petroleum. Composition varies depending on the source of the crude and the specifications of the final product.

ACGIH: The American Conference of Governmental Industrial Hygienists recommends an exposure limit of 0.5 mg/m^3 as benzene-extractable inhalable particulate (or equivalent method) to avoid irritation of the conjunctive mucous membranes. Historical information on exposure of asphalt workers used methods different than those recommended by ACGIH, so comparisons to the recommended exposure limits are not known.

Hydrogen Sulfide: Trace amounts of Hydrogen Sulfide may be present as a naturally-occurring constituent in the petroleum stream and are not added separately to the product.

4 FIRST AID MEASURES

Inhalation: If irritation occurs from inhalation overexposure, immediately remove victim from source to fresh air and seek medical attention.

Skin Contact: Hot Molten Material: Cool the affected body parts immediately by submerging in cold water until the material has cooled. Do not attempt to remove solidified material from burn area as this may further tissue damage. Take the victim to obtain medical assistance immediately.

Cold Material: Remove cold asphalt by soaking dressing in mineral oil and place over affected area for 2-3 hours. If irritation occurs, call a physician.

Never try to remove material with solvents.

Eye Contact: Gently flush immediately with cold water for 15 minutes. Do not attempt to remove solidified material from the eye, as this may further injury. Take victim to obtain medical assistance.

Ingestion: Ingestion is not likely. If large amounts are swallowed, do not induce vomiting and immediately call a physician.

5 FIRE FIGHTING MEASURES

Flammability:	NFPA Class IIIB
Flash Point:	>450°F
Flash Point Method:	ASTM D-92
Autoignition Temp:	>800°F
LEL:	1.0%
UEL:	6.0%

Fire and Explosion Hazards:
May produce severe burns on contact.
May produce Hydrogen Sulfide (H2S) gas in confined spaces, closed containers, and tank headspaces.
Vapors can explode.

Extinguishing Media:
Foam, Carbon Dioxide, Dry Chemical, and water spray may all be suitable in extinguishing fires involving this product.

Fire Fighting Instructions:
Avoid water streams to prevent frothing. Use water spray to cool exposed surfaces and to assist in solidifying hot asphalt material.

6 ACCIDENTAL RELEASE MEASURES

Stop source of leak if safe to do so. Eliminate sources of ignition. Contain by diking or impounding. Absorbents can be used to contain small spills. After containment and solidification, asphalt can be collected for disposal. Advise authorities if product has entered a drainage sewer or a water source. Assure conformity with local, state, and federal government regulations for disposal.

7 HANDLING AND STORAGE

Handling Precautions:

When opening covers and outlet caps on storage tanks, use faceshield and gloves to avoid possible injury from pressurized hot asphalt. Long sleeved shirts and pants should be worn to minimize thermal burns. Hydrogen Sulfide can be generated and accululated in storage tanks and bulk transport compartments. Stay upwind and vent storage tanks before unloading. Keep heating units and flues in storage tanks covered with at least 12 inches of asphalt. Do not overheat.

Empty Container Warning: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, OR OTHER SOURCES OF IGNITION; THEY MAY BURN OR EXPLODE AND CAUSE INJURY OR DEATH.

Hot Material Warning: Hot material (above 212°F) contact with water results in a violent expansion as water turns to steam. This can lead to a dangerous boilover and a pressurized container or cargo tank, which can cause damage, rupture of the container or cargo tank, and thermal burn injuries. Never load hot asphalt product into cargo tanks with water condensation or emulsion residue from the previous load without servicing the cargo tank. Keep away from incompatible materials.

Wear body covering clothes to avoid prolonged or repeated exposure. Launder soiled clothing before reuse.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Local or general exhaust required if in an enclosed area to remain below the TLV. If workplace exposure limits are exceeded, a NIOSH/MSHA-approved air-supplied respirator is advised in the absence of proper environmental engineering controls.

Personal Protective Equipment: Eye and Face Protection: Safety glasses or chemical splash goggles should be worn with faceshield if splashing is anticipated.

Skin Protection: Insulated, oil-impervious gloves for hot asphalt or cloth gloves for cold asphalt. Long-sleeve shirts and long pants should be worn at all times around hot asphalt to prevent thermal burns.

Respiratory Protection: Respiratory protection is not normally required under normal conditions and adequate ventilation. If high vapors and expected, use a respirator approved for organic vapors. Observe respirator protection factor criteria cited in ANSI Z88.2 (1980) and other OSHA requirements found in 29 CFR 1910.134. Use air-supplied respirators or self-contained breathing apparatus for fire fighting and in confined spaces when asphalt vapor or Hydrogen Sulfide gas exceends permissible limits.

Work/Hygienic Practices: Skin contact and the breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects. Thoroughly wash exposed skin areas after work to avoid dermatitis. Consider the use of lanolin skin treatments before handling or working around asphalt mixtures.

Other Protection: Wear body-covering clothes to avoid prolonged or repeated exposure. Launder before reuse.

PETROLEUM ASPHALT:

OSHA PEL:	Not established for this material.
ACGIH TLV:	0.5 mg/m³ as benzene-extractable inhalable particulate (or equivalent method)
NIOSH REL:	5.0 mg/m³ as a 15-minute ceiling limit measured as total particulates.

HYDROGEN SULFIDE:

ACGIH TLV:	1 ppm (1.4 mg/m³) for 8 hours
ACGIH STEL:	5 ppm (7 mg/m³) for 15 minutes

ANTISTRIP ADHESION PROMOTER, Proprietary:

OSHA PEL: Not established for this material.

ASPHALT ADDITIVE, Proprietary

OSHA PEL: Not established for this material.

POLYMER MODIFIER, Proprietary

OSHA PEL: Not established for this material.

VULCANIZING AGENT, Proprietary

OSHA PEL: Not established for this material.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Black/Brown viscous solid. Liquid when hot.		
Physical State:	Solid when cold, Liquid when hot.	**Odor:**	Characteristic asphalt odor
Spec Grav./Density:	0.95 - 1.10	**Solubility:**	Negligible
Viscosity:	Thin fluid when hot. Solid when cold.	**Softening Point:**	110 degrees F and above
Boiling Point:	>750°F	**Heat Value:**	18,000 BTU per pound
Flammability:	Class IIIB Combustible	**Freezing/Melting Pt.:**	115 - 130°F
Vapor Pressure:	1.9 E-9 psia	**Flash Point:**	>450°F
Evap. Rate:	Negligible	**Vapor Density:**	Lighter than air
Molecular weight:	320	**VOC:**	Negligible
Decomp Temp:	>750 F	**Bulk Density:**	8.46 lb./gallon
		Auto-Ignition Temp:	>800°F
		UFL/LFL:	6.0% / 1.0%

10 STABILITY AND REACTIVITY

Chemical Stability:	Product is stable under normal conditions.
Conditions to Avoid:	Contact with oxidizers
Materials to Avoid:	Strong Oxidizing Agents.
Hazardous Decomposition:	Fumes, smoke, carbon monoxide, hydrogen sulfide, aldehydes, and hydrocarbons.
Hazardous Polymerization:	Will not occur.

11 TOXICOLOGICAL INFORMATION

International Agency for Research on Cancer Ruling

Occupational exposures to straight-run bitumens and their emissions during road paving:
On the basis of an earlier meta-analysis, the IARC multi-center study and several more recent independent studies, the Working Group concluded that there was inadequate evidence in humans for the carcinogenicity of occupational exposures during road paving with straight-run bitumens. Also, there was inadequate evidence in experimental animals for the carcinogenicity of extracts and of fume condensates of this type of bitumens. However, studies of workers exposed to bitumen emissions during paving with straight-run bitumens showed mutagenic and genotoxic/cytogenetic effects in these workers. Similar effects were also observed in experimental systems under controlled conditions. This strong mechanistic evidence led to the classification of occupational exposures to straight-run bitumens and their emissions during road paving as "possibly carcinogenic to humans" (Group 2B).

Health Hazard Characterization:

Uncertainties exist in the hazard characterization of asphalt fumes by many factors including its chemical complexity, limitation of the information, the inclusion of coal tar in asphalts in past decades, other confounders and mixed results of human studies. **Concise International Chemical Assessment Documents** relating to asphalt and fumes can be obtained on the internet at http://inchem.org/documents/cicads/cicads/cicad59.htm. Despite conflicting reports, the following bullet points should be noted:

- Currently classified as A4 (not classifiable as a human carcinogen). Asphalt Coal Tar Free
- Breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects.
- Asphalt and asphalt fumes contain trace levels of polynuclear aromatic hydrocarbons that are known carcinogens.
- Chronic health effects would not be expected as long as good hygiene and proper safety precautions are practiced and exposures are less than the TLVs/RELs.
- After using material or being around fumes, wash exposed areas thoroughly with soap and water. Showering immediately after work is a good personal hygiene practice.

12 ECOLOGICAL INFORMATION

May cause fouling of water. Once solidified, this product will no longer exhibit these characteristics.

13 DISPOSAL CONSIDERATIONS

Dispose in accordance with local, state, and federal regulations. After cooling, waste or contaminated asphalt mixtures may be scooped and stockpiled for later recycling into asphalt pavement mixtures, pugmilled into cold mix, or disposed in an approved special waste, industrial waste, or construction debris landfill.

RCRA Information:
This material, if discarded as produced, is not a RCRA "listed" hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261). Along with properly characterizing all waste materials, consult state and local regulations regarding proper disposal of this material.

14 TRANSPORT INFORMATION

UN3257, Elevated temperature liquid, n.o.s., at or above 100 C and below its flash point (including molten metals, molten salts, etc.), 9, PGIII, (Contains Petroleum Asphalt)

Packaging Requirements - Bulk:	49 CFR 173.247
Packaging Requirements - Non-Bulk:	None
Packaging Exceptions:	None

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

Asphalt (typical) (8052-42-4) [98-100%] MASS, NRC, PA, TSCA, TXAIR

Antistrip Adhesion Promoter, Proprietary (0) [0-2%]

Polymer Modifier, Proprietary (0) [<6%]

Regulatory CODE Descriptions

MASS = MA Massachusetts Hazardous Substances List
NRC = Nationally Recognized Carcinogens
PA = PA Right-To-Know List of Hazardous Substances
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level

SARA Section 313 Notification:

This product contains the following toxic chemicals that are subject to the reporting requirements of Section 313 of the Emergency Planninig and Community Right-To-Know Act (EPCRA) of 1986 and 40 CFR 372:

Polycyclic Aromatic Compounds (PACs) (Category N590)

Hydrogen Sulfide (CASRN 7783-06-4) is found in varying trace amounts 0-1% depending on temperature, source of crude, etc.

This information must be included on all SDSs that are copied and distributed for this material.

16 OTHER INFORMATION

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

Asphalt Materials, Inc.

1 PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Vendor

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Product Name:	PG 70-28, PG 76-22, PG 76-28, PG 82-22
Revision Date:	6/1/2015
SDS Number:	AMI-103
Common Name:	Petroleum Asphalt
CAS Number:	Mixture
Chemical Family:	Complex Petroleum Hydrocarbon
Synonyms:	Asphalt Cement, Paving Asphalt, SuperPave Asphalt
Product Use:	Highway and Hot-Mix Paving Mixtures

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

Health, Acute toxicity, 5 Inhalation

GHS Label elements, including precautionary statements

GHS Signal Word: WARNING

GHS Hazard Pictograms:

no GHS pictograms indicated for this product

GHS Hazard Statements:

H333 - May be harmful if inhaled

GHS Precautionary Statements:

P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Hazards not otherwise classified (HNOC) or not covered by GHS

Inhalation:

Breathing vapors, fumes, or mists may cause irritation to nasal and respiratory tract and central nervous system effects. Symptoms may include labored breathing, sore throat, coughing, wheezing, headache, and nausea. Some asphalts may contain sulfur compounds, which may form Hydrogen Sulfide when heating.

Exposure to lower concentrations of Hydrogen Sulfide can result in eye irritation, sore throat and cough, nausea, shortness of breath, and fluid in the lungs. Long-term, low level exposure may result in fatigue, loss of appetite, headaches, irritability, poor memory, and dizziness.

0.02 ppm	Odor threshold.
10 ppm	8-hour per day exposure limit to Hydrogen Sulfide.
10-20 ppm	Borderline concentration for eye irritation.
10-100 ppm	Leads to eye damage.
100-150 ppm	Olfactory nerve paralyzed after a few minutes, sense of smell disappears, and often

awareness of danger.

320-530 ppm	Leads to pulmonary edema with the possibility of death.
530-1,000 ppm	Causes strong stimulation of central nervous system and rapid breathing.
800 ppm	Lethal concentration of 50% of humans for a 5-minute exposure (LC50).
>1,000 ppm	Immediate collapse with loss of breathing, even after inhalation of a single breath.

Do not depend on sense of smell for warning. Hydrogen Sulfide causes rapid olfactory fatigue (deadens sense of smell).

Skin Contact: Contact with hot asphalt can cause thermal burns. Prolonged exposure to vapors, fumes, or mists may cause irritation and redness.

Eye Contact: Contact with hot asphalt can cause thermal burns to the eyes. Prolonged exposure to vapors, fumes, or mists may cause irritation, redness, and tearing.

Ingestion: Ingestion is not likely. Ingestion may cause thermal burns. If ingestion of molten material occurs, keep victim's head below their hips to prevent asphalt from reaching the lungs. Take victim to obtain medical assistance immediately.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
8052-42-4	>94%	Asphalt (typical)
0	<2%	Antistrip Adhesion Promoter, Proprietary
0	<1%	Asphalt Additive C, Proprietary
0	<6%	Polymer Modifier, Proprietary
0	<0.2%	Vulcanizing Agent, Proprietary

Asphalt: Asphalt is a complex mixture of high molecular weight hydrocarbons produced from crude petroleum. Composition varies depending on the source of the crude and the specifications of the final product.

ACGIH: The American Conference of Governmental Industrial Hygienists recommends an exposure limit of 0.5 mg/m^3 as benzene-extractable inhalable particulate (or equivalent method) to avoid irritation of the conjunctive mucous membranes. Historical information on exposure of asphalt workers used methods different than those recommended by ACGIH, so comparisons to the recommended exposure limits are not known.

Hydrogen Sulfide: Trace amounts of Hydrogen Sulfide may be present as a naturally-occurring constituent in the petroleum stream and are not added separately to the product.

4 FIRST AID MEASURES

Inhalation: If irritation occurs from inhalation overexposure, immediately remove victim from source to fresh air and seek medical attention.

Skin Contact: Hot Molten Material: Cool the affected body parts immediately by submerging in cold water until the material has cooled. Do not attempt to remove solidified material from burn area as this may further tissue damage. Take the victim to obtain medical assistance immediately.

Cold Material: Remove cold asphalt by soaking dressing in mineral oil and place over affected area for 2-3 hours. If irritation occurs, call a physician.

Never try to remove material with solvents.

Eye Contact: Gently flush immediately with cold water for 15 minutes. Do not attempt to remove solidified material from the eye, as this may further injury. Take victim to obtain medical assistance.

Ingestion: Ingestion is not likely. If large amounts are swallowed, do not induce vomiting and immediately call a physician.

5 FIRE FIGHTING MEASURES

Flammability:	NFPA Class IIIB
Flash Point:	>450°F
Flash Point Method:	ASTM D-92
Autoignition Temp:	>800°F
LEL:	1.0%
UEL:	6.0%

Fire and Explosion Hazards:

May produce severe burns on contact.
May produce Hydrogen Sulfide (H2S) gas in confined spaces, closed containers, and tank headspaces.
Vapors can explode.

Extinguishing Media:

Foam, Carbon Dioxide, Dry Chemical, and water spray may all be suitable in extinguishing fires involving this product.

Fire Fighting Instructions:

Avoid water streams to prevent frothing. Use water spray to cool exposed surfaces and to assist in solidifying hot asphalt material.

6 ACCIDENTAL RELEASE MEASURES

Stop source of leak if safe to do so. Eliminate sources of ignition. Contain by diking or impounding. Absorbents can be used to contain small spills. After containment and solidification, asphalt can be collected for disposal. Advise authorities if product has entered a drainage sewer or a water source. Assure conformity with local, state, and federal government regulations for disposal.

7 HANDLING AND STORAGE

Handling Precautions:

When opening covers and outlet caps on storage tanks, use faceshield and gloves to avoid possible injury from pressurized hot asphalt. Long sleeved shirts and pants should be worn to minimize thermal burns. Hydrogen Sulfide can be generated and accululated in storage tanks and bulk transport compartments. Stay upwind and vent storage tanks before unloading. Keep heating units and flues in storage tanks covered with at least 12 inches of asphalt. Do not overheat.

Empty Container Warning: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, OR OTHER SOURCES OF IGNITION; THEY MAY BURN OR EXPLODE AND CAUSE INJURY OR DEATH.

Hot Material Warning: Hot material (above 212°F) contact with water results in a violent expansion as water turns to steam. This can lead to a dangerous boilover and a pressurized container or cargo tank, which can cause damage, rupture of the container or cargo tank, and thermal burn injuries. Never load hot asphalt product into cargo tanks with water condensation or emulsion residue from the previous load without servicing the cargo tank. Keep away from incompatible materials.

Wear body covering clothes to avoid prolonged or repeated exposure. Launder soiled clothing before reuse.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Local or general exhaust required if in an enclosed area to remain below the TLV. If workplace exposure limits are exceeded, a NIOSH/MSHA-approved air-supplied respirator is advised in the absence of proper environmental engineering controls.

Personal Protective Equipment: Eye and Face Protection: Safety glasses or chemical splash goggles should be worn with faceshield if splashing is anticipated.

Skin Protection: Insulated, oil-impervious gloves for hot asphalt or cloth gloves for cold asphalt. Long-sleeve shirts and long pants should be worn at all times around hot asphalt to prevent thermal burns.

Respiratory Protection: Respiratory protection is not normally required under normal conditions and adequate ventilation. If high vapors and expected, use a respirator approved for organic vapors. Observe respirator protection factor criteria cited in ANSI Z88.2 (1980) and other OSHA requirements found in 29 CFR 1910.134. Use air-supplied respirators or self-contained breathing apparatus for fire fighting and in confined spaces when asphalt vapor or Hydrogen Sulfide gas exceends permissible limits.

Work/Hygienic Practices: Skin contact and the breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects. Thoroughly wash exposed skin areas after work to avoid dermatitis. Consider the use of lanolin skin treatments before handling or working around asphalt mixtures.

Other Protection: Wear body-covering clothes to avoid prolonged or repeated exposure. Launder before reuse.

PETROLEUM ASPHALT:
- OSHA PEL: Not established for this material.
- ACGIH TLV: 0.5 mg/m³ as benzene-extractable inhalable particulate (or equivalent method)
- NIOSH REL: 5.0 mg/m³ as a 15-minute ceiling limit measured as total particulates.

HYDROGEN SULFIDE:
- ACGIH TLV: 1 ppm (1.4 mg/m³) for 8 hours
- ACGIH STEL: 5 ppm (7 mg/m³) for 15 minutes

ANTISTRIP ADHESION PROMOTER, Proprietary:
- OSHA PEL: Not established for this material.

ASPHALT ADDITIVE, Proprietary
- OSHA PEL: Not established for this material.

POLYMER MODIFIER, Proprietary
- OSHA PEL: Not established for this material.

VULCANIZING AGENT, Proprietary
- OSHA PEL: Not established for this material.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Black/Brown viscous solid. Liquid when hot.		
Physical State:	Solid when cold, Liquid when hot.	**Odor:**	Characteristic asphalt odor
Spec Grav./Density:	0.95 - 1.10	**Solubility:**	Negligible
Viscosity:	Thin fluid when hot. Solid when cold.	**Softening Point:**	110 degrees F and above
Boiling Point:	>750°F	**Heat Value:**	18,000 BTU per pound
Flammability:	Class IIIB Combustible	**Freezing/Melting Pt.:**	115 - 130°F
Vapor Pressure:	1.9 E-9 psia	**Flash Point:**	>450°F
Evap. Rate:	Negligible	**Vapor Density:**	Lighter than air
Molecular weight:	320	**VOC:**	Negligible
Decomp Temp:	>750 F	**Bulk Density:**	8.46 lb./gallon
		Auto-Ignition Temp:	>800°F
		UFL/LFL:	6.0% / 1.0%

10 STABILITY AND REACTIVITY

Chemical Stability:	Product is stable under normal conditions.
Conditions to Avoid:	Contact with oxidizers
Materials to Avoid:	Strong Oxidizing Agents.
Hazardous Decomposition:	Fumes, smoke, carbon monoxide, hydrogen sulfide, aldehydes, and hydrocarbons.
Hazardous Polymerization:	Will not occur.

11 TOXICOLOGICAL INFORMATION

International Agency for Research on Cancer Ruling

Occupational exposures to straight-run bitumens and their emissions during road paving:
On the basis of an earlier meta-analysis, the IARC multi-center study and several more recent independent studies, the Working Group concluded that there was inadequate evidence in humans for the carcinogenicity of occupational exposures during road paving with straight-run bitumens. Also, there was inadequate evidence in experimental animals for the carcinogenicity of extracts and of fume condensates of this type of bitumens. However, studies of workers exposed to bitumen emissions during paving with straight-run bitumens showed mutagenic and genotoxic/cytogenetic effects in these workers. Similar effects were also observed in experimental systems under controlled conditions. This strong mechanistic evidence led to the classification of occupational exposures to straight-run bitumens and their emissions during road paving as "possibly carcinogenic to humans" (Group 2B).

Health Hazard Characterization:

Uncertainties exist in the hazard characterization of asphalt fumes by many factors including its chemical complexity, limitation of the information, the inclusion of coal tar in asphalts in past decades, other confounders and mixed results of human studies. **Concise International Chemical Assessment Documents** relating to asphalt and fumes can be obtained on the internet at http://inchem.org/documents/cicads/cicads/cicad59.htm. Despite conflicting reports, the following bullet points should be noted:

- Currently classified as A4 (not classifiable as a human carcinogen). Asphalt Coal Tar Free
- Breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects.
- Asphalt and asphalt fumes contain trace levels of polynuclear aromatic hydrocarbons that are known carcinogens.
- Chronic health effects would not be expected as long as good hygiene and proper safety precautions are practiced and exposures are less than the TLVs/RELs.
- After using material or being around fumes, wash exposed areas thoroughly with soap and water. Showering immediately after work is a good personal hygiene practice.

12 ECOLOGICAL INFORMATION

May cause fouling of water. Once solidified, this product will no longer exhibit these characteristics.

13 DISPOSAL CONSIDERATIONS

Dispose in accordance with local, state, and federal regulations. After cooling, waste or contaminated asphalt mixtures may be scooped and stockpiled for later recycling into asphalt pavement mixtures, pugmilled into cold mix, or disposed in an approved special waste, industrial waste, or construction debris landfill.

RCRA Information:
This material, if discarded as produced, is not a RCRA "listed" hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261). Along with properly characterizing all waste materials, consult state and local regulations regarding proper disposal of this material.

14 TRANSPORT INFORMATION

UN3257, Elevated temperature liquid, n.o.s., at or above 100 C and below its flash point (including molten metals, molten salts, etc.), 9, PGIII, (Contains Petroleum Asphalt)

Packaging Requirements - Bulk:	49 CFR 173.247
Packaging Requirements - Non-Bulk:	None
Packaging Exceptions:	None

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

Asphalt (typical) (8052-42-4) [>94%] MASS, NRC, PA, TSCA, TXAIR

Antistrip Adhesion Promoter, Proprietary (0) [<2%]

Polymer Modifier, Proprietary (0) [<6%]

Regulatory CODE Descriptions

MASS = MA Massachusetts Hazardous Substances List
NRC = Nationally Recognized Carcinogens
PA = PA Right-To-Know List of Hazardous Substances
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level

SARA Section 313 Notification:

This product contains the following toxic chemicals that are subject to the reporting requirements of Section 313 of the Emergency Planninig and Community Right-To-Know Act (EPCRA) of 1986 and 40 CFR 372:

Polycyclic Aromatic Compounds (PACs) (Category N590)

Hydrogen Sulfide (CASRN 7783-06-4) is found in varying trace amounts 0-1% depending on temperature, source of crude, etc.

This information must be included on all SDSs that are copied and distributed for this material.

16 OTHER INFORMATION

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

Asphalt Materials, Inc.

Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)

Section 1: Identification

Product Identifier: **Phillips 66 Superpave PG**

Other means of identification:
Phillips 66 Superpave PG 46-28
Phillips 66 Superpave PG 46-34
Phillips 66 Superpave PG 52-28
Phillips 66 Superpave PG 58-22
Phillips 66 Superpave PG 58-28
Phillips 66 Superpave PG 64-22
Phillips 66 Superpave PG 64-28
Phillips 66 Superpave PG 67-22
Phillips 66 Superpave PG 70-22
Phillips 66 Emulsion Base 120-150
Phillips 66 Emulsion Base 150-200
Phillips 66 Superpave PG 64H-22

SDS Number: **724540**
MARPOL Annex I Category: Asphalt Solutions
Intended Use: Highway paving
Uses Advised Against: All others
Emergency Health and Safety Number: Chemtrec: 800-424-9300 (24 Hours)

Manufacturer:
Phillips 66 Company
P.O. Box 4428
Houston, Texas 77210

SDS Information:
Phone: 800-762-0942
Email: SDS@P66.com
URL: www.Phillips66.com **Technical Information:** 281-320-2986

Section 2: Hazards Identification

Classified Hazards
No classified hazards

Other Hazards
May contain or release poisonous hydrogen sulfide gas
Contact with hot product will cause thermal burns
Water contact with hot material can cause violent eruption.

Label Elements

WARNING
Water contact with hot material can cause violent eruption.
Contact with hot product will cause thermal burns
May contain or release poisonous hydrogen sulfide gas.

Avoid overheating to minimize fume production; Avoid breathing fumes from hot material

Section 3: Composition / Information on Ingredients

Chemical Name	CASRN	Concentration[1]
Asphalt	8052-42-4	100
Hydrogen sulfide	7783-06-4	Variable (<1)

Total Sulfur: > 0.5 wt%

[1] All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Section 4: First Aid Measures

Eye Contact: If irritation or redness develops from exposure to fumes generated from molten material, move victim away from exposure and into fresh air. Remove contact lenses if present and easy to do. Flush eyes with clean water. If irritation or redness persists, seek medical attention. For contact with the molten material, gently open eyelids and flush affected eye(s) with cold, not icy, water. Seek immediate medical attention.

Skin Contact: For contact with hot asphalt, leave material on skin and immediately flush or immerse affected area(s) using cold, not icy, water for up to 10 minutes. No attempt should be made to remove the asphalt from the skin. Contaminated clothing may be removed provided it is not adhering to the skin. Seek immediate medical attention.

Inhalation (Breathing): If respiratory symptoms or other symptoms of exposure develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If symptoms persist, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): First aid is not normally required for the solid material; however, if molten material is swallowed, seek immediate medical attention.

Most important symptoms and effects:

Acute: Headaches, dizziness, and lung irritation from breathing vapors or fumes from the heated material.

Delayed: None known or anticipated. See Section 11 for information on effects from chronic exposure, if any.

Notes to Physician: Once cooled, adhered asphalt is not harmful to the skin, and in fact, provides a sterile cover over the affected area. The asphalt will detach itself within a few days as healing occurs. If it is necessary to remove the asphalt, only medically approved solvents or warm paraffin should be used to prevent further skin damage. If hot material has caused burns to the eye, early ophthalmologic evaluation is recommended. Small amounts of ingested asphalt usually require no treatment.

At high concentrations hydrogen sulfide may produce pulmonary edema, respiratory depression, and/or respiratory paralysis. The first priority in treatment should be the establishment of adequate ventilation and the administration of 100% oxygen. Animal studies suggest that nitrites are a useful antidote, however, documentation of the efficacy of nitrites in humans is lacking. If the diagnosis of hydrogen sulfide poisoning is confirmed and if the patient does not respond rapidly to supportive care, the use of nitrites may be an effective antidote if delivered within the first few minutes of exposure. For adults the dose is 10 mL of a 3% $NaNO_2$ solution (0.5 gm $NaNO_2$ in 15 mL water) I.V. over 2-4 minutes. The dosage should be adjusted in children or in the presence of anemia, and methemoglobin levels, arterial blood gases, and electrolytes should be monitored closely.

Other Comments: Before attempting rescue, first responders should be alert to the possible presence of hydrogen sulfide, a poisonous gas with the smell of rotten eggs, and should consider the need for respiratory protection (see Section 8). Remove casualty to fresh air as quickly as possible. Immediately begin artificial respiration if breathing has ceased. Consider whether oxygen administration is needed. Obtain medical advice for further treatment.

Section 5: Fire-Fighting Measures

NFPA 704 Hazard Class

Health: 0 **Flammability:** 1 **Instability:** 0

0 (Minimal)
1 (Slight)
2 (Moderate)
3 (Serious)
4 (Severe)

Extinguishing Media: Dry chemical, carbon dioxide, or alcohol-resistant foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters. Water fog may be used on flat surfaces such as roads. Do not use water on asphalt fire in tank or other containers since it may cause violent eruption and spreading of burning asphalt.

Specific hazards arising from the chemical

Unusual Fire & Explosion Hazards: This material may burn, but will not ignite readily. This product will float and can be reignited on surface water. Vapors are heavier than air and can accumulate in low areas. When heated above its flash point, this material may release flammable vapors, which, if exposed to a source of ignition, can burn in the open or be explosive in confined spaces. Vapors released to atmosphere at these temperatures can cause flash fire. Hot asphalt may ignite flammable mixtures on contact. If water is applied to heated material, it can cause violent foaming and boil over. If container is not properly cooled, it can rupture in the heat of a fire. Hazardous combustion/decomposition products, including hydrogen sulfide, may be released by this material when exposed to heat or fire. Use caution and wear protective clothing, including respiratory protection.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Hydrogen sulfide and oxides of nitrogen and sulfur may also be formed. Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of nitrogen and sulfur may also be formed.

Special protective actions for firefighters: For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water or foam can cause frothing. Cool equipment exposed to fire with water, if it can be done safely. Avoid spreading burning liquid with water used for cooling purposes.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release. May contain or release poisonous hydrogen sulfide gas. If the presence of dangerous amounts of H2S around the spilled product is suspected, additional or special actions may be warranted, including access restrictions and use of protective equipment. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental Precautions: Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard. Spills into or upon navigable waters, the contiguous zone, or adjoining shorelines that cause a sheen or discoloration on the surface of the water, may require notification of the National Response Center (phone number 800-424-8802).

Methods and material for containment and cleaning up: Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken. See Section 13 for information on appropriate disposal.

Section 7: Handling and Storage

Precautions for safe handling: Keep away from flames and hot surfaces. Avoid contact with the heated material. May contain or release dangerous levels of hydrogen sulfide. Use only outdoors or in well-ventilated area. Avoid breathing vapors or fumes from hot material. Avoid skin contact with fumes or surfaces where fumes may have condensed. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). This material may be heated to high temperatures during use. Use caution when handling heated material, to avoid causing thermal burns. Vapors or fumes may cause watering or irritation of the eyes. Avoid heating material above 350 degrees F (177 C). Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes.

Conditions for safe storage: Keep container(s) tightly closed and properly labeled. Store only in approved containers. Storage and handling temperatures should be kept as low as feasible to minimize fume production. This material may contain or release poisonous hydrogen sulfide gas. In a tank, barge, or other closed container, the vapor space above this material may accumulate hazardous concentrations of hydrogen sulfide. Check atmosphere for oxygen content, H2S, and flammability prior to entry. Use and store this material in cool, dry, well-ventilated area away from heat and all sources of ignition. Protect container(s) against physical damage. Keep away from any incompatible material (see Section 10).

Hot asphalt must never be added to a tank or other container that is not completely dry. Contact with water results in violent expansion as the water turns to steam. This can lead to dangerous boil over and may cause damage or rupture of the tank or container.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Section 8: Exposure Controls / Personal Protection

Chemical Name	ACGIH	OSHA	Other
Asphalt	TWA: 0.5 mg/m³ as benzene soluble inhalable aerosolTWA: 0.5 mg/m³ as benzene soluble inhalable aerosol	---	---
Hydrogen sulfide	STEL: 5 ppm TWA: 1 ppm	Ceiling: 20 ppm	TWA: 5 ppm 8hr TWA: 2.5 ppm 12hr STEL: 15 ppm (Phillips 66 Guidelines)

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: Heated material will give off fumes. Reduce exposure to fume by keeping operating temperatures as low as possible taking into account occupational exposure limits and safe handling temperatures (see Section 7). If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye/face protection is not normally required; however, good industrial hygiene practice suggests the use of eye protection that meets or exceeds ANSI Z.87.1 whenever working with chemicals.

Skin/Hand Protection: Avoid skin contact with fumes or surfaces where fumes may have condensed. Suitable gloves, coveralls, or other chemical resistant clothing should be used to protect exposed areas of skin. Wear thermal insulating gloves and face shield or eye protection when working with materials that present thermal hazards (hot or cold).

Respiratory Protection: Where there is potential for airborne exposure above the exposure limit a NIOSH certified air purifying respirator equipped with organic vapor cartridges/canisters with R or P95 filters may be used. Where there is potential for airborne exposure to hydrogen sulfide (H2S) above exposure limits, a NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used.

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health (IDLH).

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

Section 9: Physical and Chemical Properties

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

Appearance: Black, viscous
Physical Form: Semi-Solid
Odor: Asphalt
Odor Threshold: No data
pH: Not applicable
Vapor Density (air=1): >1
Upper Explosive Limits (vol % in air): No data
Lower Explosive Limits (vol % in air): No data
Evaporation Rate (nBuAc=1): <1
Particle Size: N/A
Percent Volatile: No data
Flammability (solid, gas): N/A

Flash Point: > 450 °F / > 232 °C
Test Method: Cleveland Open Cup (COC), ASTM D92
Initial Boiling Point/Range: >900 °F / °C
Vapor Pressure: <1 mm Hg
Partition Coefficient (n-octanol/water) (Kow): No data
Melting/Freezing Point: No data
Auto-ignition Temperature: No data
Decomposition Temperature: No data
Specific Gravity (water=1): 0.99 @ 68°F / 20°C
Bulk Density: 8.22 lbs/gal
Viscosity: N/D
Solubility in Water: Negligible

Section 10: Stability and Reactivity

Reactivity: Not chemically reactive.

Chemical stability: Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions: Hazardous reactions not anticipated.

Conditions to avoid: Avoid heating above the recommended handling and storage temperatures to minimize generation of vapors and fumes. Avoid all possible sources of ignition. Flammable and poisonous hydrogen sulfide gas can be released upon heating. Do not allow contact of molten product with water or liquids as violent eruptions, splatter of hot material or ignition of flammable materials may result.

Incompatible materials: Avoid contact with strong oxidizing agents and strong reducing agents.

Hazardous decomposition products: Thermal decomposition can produce oxides of carbon, nitrogen and sulfur.

Section 11: Toxicological Information

Information on Toxicological Effects of Substance/Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Unlikely to be harmful	May contain or release poisonous hydrogen sulfide gas - see Other Comments.	Not applicable
Dermal	Unlikely to be harmful		>2 g/kg
Oral	Unlikely to be harmful		>5 g/kg

Aspiration Hazard: Not an aspiration hazard.

Skin Corrosion/Irritation: Not expected to be irritating. Contact with the heated material may cause thermal burns. Fumes from the heated material can cause irritation and dermatitis after prolonged or repeated exposure. Long term skin exposure can increase sensitivity to the sun and cause discoloration of the skin.

Serious Eye Damage/Irritation: Not expected to be irritating. Contact with the heated material may cause thermal burns. Vapors or fumes may cause watering of the eyes.

Symptoms of Overexposure: Ingestion may cause irritation of the digestive tract, nausea, vomiting, and diarrhea. Breathing vapors or fumes from the heated material may cause headaches, dizziness, and lung irritation. Repeated exposure to high concentrations of fumes may cause chronic bronchitis and pneumonitis (inflammation of the lungs).

Skin Sensitization: Not expected to be a skin sensitizer.

Respiratory Sensitization: Not expected to be a respiratory sensitizer.

Specific Target Organ Toxicity (Single Exposure): Not expected to cause organ effects from single exposure.

Specific Target Organ Toxicity (Repeated Exposure): Not expected to cause organ effects from repeated exposure. Some human studies have reported small increases in non-malignant respiratory symptoms, mostly evaluated by tests of lung function, the majority of which suffer from potential confounding co-exposures, recall bias or other shortcomings in design. A two year rat inhalation study of asphalt fume condensates, collected under controlled field conditions, did not produce significant adverse effects.

Carcinogenicity: Inadequate information available. A large, multi-country epidemiology study of European paving asphalt workers reported an increased incidence of lung cancers, but a follow-up case control study concluded that the lung cancers could have been caused by exposure to cigarette smoke or coal tar. Other studies of workers exposed to asphalt emissions during paving with straight run asphalt have shown mixed findings, with some showing mutagenic and other genotoxic/cytogenetic effects in the workers. Fume condensates collected from storage tanks containing paving asphalt did not produce tumors when applied repeatedly to the skin of mice for two years. Similar negative findings have been reported in studies where neat asphalt, or asphalt dissolved in mineral oil, was evaluated in dermal carcinogenicity studies. The International Agency for Research on Cancer (IARC) published a preliminary finding in late 2011 indicating that occupational exposures to straight-run asphalts and their emissions during road paving presented a potential cancer risk to humans.

Germ Cell Mutagenicity: Not expected to cause heritable genetic effects.

Reproductive Toxicity: Not expected to cause reproductive toxicity.

Other Comments: This material may contain or liberate hydrogen sulfide, a poisonous gas with the smell of rotten eggs. The smell disappears rapidly because of olfactory fatigue so odor may not be a reliable indicator of exposure. Effects of overexposure include irritation of the eyes, nose, throat and respiratory tract, blurred vision, photophobia (sensitivity to light), and pulmonary edema (fluid accumulation in the lungs). Severe exposures can result in nausea, vomiting, muscle weakness or cramps, headache, disorientation and other signs of nervous system depression, irregular heartbeats, convulsions, respiratory failure, and death.

This material may contain varying concentrations of polycyclic aromatic hydrocarbons (PAHs) which have been known to produce a phototoxic reaction when contaminated skin is exposed to sunlight. The effect is similar in appearance to an exaggerated sunburn, and is temporary in duration if exposure is discontinued. Continued exposure to sunlight can result in more serious skin problems including pigmentation (discoloration), skin eruptions (pimples), and possible skin cancers.

Section 12: Ecological Information

GHS Classification:
No classified hazards

Toxicity: No ecotoxicity studies are available for this material. However, the predicted water solubilities of these substances are so low that no adverse acute or chronic effects on aquatic organisms are expected.

Persistence and Degradability: Because of the absence of biodegradation, bitumens are not regarded as readily biodegradable.

Persistence per IOPC Fund definition: Persistent

Bioaccumulative Potential: Bitumens are not expected to meet the criteria for ready degradability. Although all the constituents of bitumen have log Kow values in excess of 6, and are potentially able to bioaccumulate, their low water solubility and high molecular weight is such that bioavailability to aquatic organisms is very limited. Accordingly, the bioaccumulation of bitumen components is very unlikely.

Mobility in Soil: Volatility is not a significant loss under ambient temperatures. During road paving and roofing applications, bitumens are heated causing fume to enter the atmosphere. Most of this fume rapidly condenses and the components fall out onto surfaces or soil where they are adsorbed. The more volatile hydrocarbon components will react with hydroxyl radicals in the atmosphere. On release to water, bitumens tend to float or sink; they show little tendency to disperse and are persistent in this medium with the main physical effect being adsorption to sediment. In soil, bitumens are both immobile and inert, adsorption again being the main physical process.

Other Adverse Effects: None anticipated.

Section 13: Disposal Considerations

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste and is not believed to exhibit characteristics of hazardous waste. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

Container contents should be completely used and containers should be emptied prior to discard.

Section 14: Transport Information

U.S. Department of Transportation (DOT)

Shipping Description:	***Shipping description is for bulk shipments that meet the Elevated temperature criteria, non-bulk is unregulated. (see Note below)*** UN3257, Elevated temperature liquid, n.o.s., (Asphalt), 9, III
Non-Bulk Package Marking:	none
Non-Bulk Package Labeling:	none
Bulk Package/Placard Marking:	None / 3257 & [HOT mark] ***or*** Class 9 / 3257 & [HOT mark] ***[49 CFR 172.325]***
Packaging - References:	None; None; 49 CFR 173.247 ***(Exceptions; Non-bulk; Bulk)***
Hazardous Substance:	none
Emergency Response Guide:	128
Note:	***This product is regulated by DOT when shipped in bulk packages at temperatures >100° C (212° F). The word HOT must be marked on the bulk package on two opposing sides. [49 CFR 172.325]*** ***If shipped by land in a packaging having a capacity of 3,500 gallons or more, the provisions of 49 CFR, Part 130 apply. (Contains oil)***

International Maritime Dangerous Goods (IMDG)

Shipping Description:	UN3257, Elevated temperature liquid, n.o.s., (Asphalt), 9, III
Non-Bulk Package Marking:	Elevated temperature liquid, n.o.s., UN3257
Labels:	Class 9
Placards/Marking (Bulk):	Class 9/3257 and [Elevated Temperature Mark] ***[IMDG 5.3.2.2]***
Packaging - Non-Bulk:	P099
EMS:	F-A, S-P
Note:	***Not regulated at temperatures below 100° C.If transported in bulk by marine vessel in international waters, product is being carried under the scope of MARPOL Annex I.***

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)

Note: ***Elevated temperature liquid, n.o.s. - is a forbidden shipment.***
Not regulated at temperatures below 100° C.

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	---	---	---
Max. Net Qty. Per Package:	---	---	---

Section 15: Regulatory Information

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):
This material contains the following chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372:

Chemical Name	TPQ	EPCRA RQ
Hydrogen sulfide	500 lb	100 lb

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health:	No
Chronic Health:	No
Fire Hazard:	No
Pressure Hazard:	No
Reactive Hazard:	No

CERCLA/SARA - Section 313 and 40 CFR 372:
This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

EPA (CERCLA) Reportable Quantity (in pounds):
This material does not contain any chemicals with CERCLA Reportable Quantities. This material contains the following chemicals subject to the reporting requirements of 40 CFR 302.4:

California Proposition 65:
Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the warning requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Chemical Name	Type of Toxicity
Various Polycyclic Aromatic Hydrocarbons	Skin Cancer

Canada:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the Regulations.

WHMIS Hazard Class:
none

National Chemical Inventories
All components are either listed on the US TSCA Inventory, or are not regulated under TSCA
All components are either on the DSL, or are exempt from DSL listing requirements.

U.S. Export Control Classification Number: EAR99

Section 16: Other Information

Date of Issue:	Previous Issue Date:	SDS Number:	Status:
05-Jun-2013	25-Mar-2013	724540	FINAL

Revised Sections or Basis for Revision:
Shipping information (Section 14)

Guide to Abbreviations:
ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

Disclaimer of Expressed and implied Warrantles:
The information presented in this Safety Data Sheet is based on data believed to be accurate as of the date this Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Section 1 ~ **Identification**

Product Name: Polymer Modified Asphalt Cement – Performance Graded (PG)
PG 64-28 (M, P, SBS)
PG 64-34 (M, P, SBS)
PG 70-22 (M, P, SBS)
PG 70-28 (M, P, SBS)
PG 76-22 (M, P, SBS)
PG 76-28 (M, P, SBS)

SDS Number: PG141202
Product Description: Polymer Modified Asphalt Cement/ Polymer Modified Bitumen
Intended Use: Road paving and other industrial applications
Emergency Phone 1.800.424.9300 CHEMTREC (24 hours)

Manufacturer Information: Seneca Petroleum Company, Inc.
13301 South Cicero Ave
Crestwood, Illinois 60445
Phone 1.708.396.1100

Section 2 ~ **Hazard(s) Identification**

Classification Hazards:

No classified Hazards

Other Hazards:

Vapors may contain hydrogen sulfide gas (H_2S) which can be harmful or fatal if inhaled.
Heated material can cause thermal burns.
Contact with water may cause violent eruption.
Prolonged repeated contact with cold material or condensed
Vapors may produce skin irritation.

Label Elements:

WARNING
Vapors may contain hydrogen sulfide gas (H_2S) which can be harmful or fatal if inhaled.
Heated material can cause thermal burns.
Contact with water may cause violent eruption.
Prolonged repeated contact with cold material or condensed
Vapors may produce skin irritation.
Avoid overheating to minimize fume production.
Avoid breathing fumes from hot material.

Section 3 ~ Composition / Information Ingredients

Component/Chemical Name	CAS #	Concentration Range
Asphalt	8052-42-4	90-99%
Polymer Mixture		2-9%
Hydrogen Sulfide (in the vapor space)	7783-06-4	< .2%

Section 4 ~ First-Aid Measures

General: Remove from exposure. Lie down. Remove outer layers of clothing, as necessary and as long as clothing is not adhering to person. Do not attempt to remove material in direct skin contact. Seek immediate medical attention.

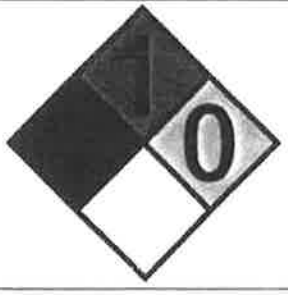
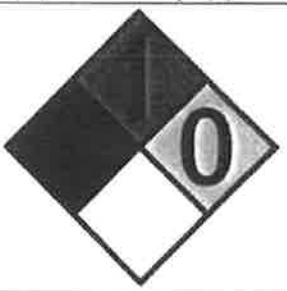
Eye: For contact with hot molten material, flush with plenty of water for 15 minutes holding eyelids apart and away from eyeball. Seek immediate medical attention.

Skin: For contact with hot molten material, cool area with water. Do not attempt to remove congealed solid material. Seek immediate medical attention. Clean skin with waterless hand cleaner. Do not use petroleum solvents to remove solid.

Inhalation: Remove exposed individual to fresh air; administer oxygen or artificial respiration as needed. Seek immediate medical attention.

Ingestion: DO NOT induce vomiting. Seek immediate medical attention. Clean mouth with water and drink afterwards plenty of water. If person vomits, sit person upright and notify medical attention.

Section 5 ~ Fire Fighting Measures

HMIS CODE: (Health:1) (Flammability:1) (Reactivity:0)	NFPA CODE: (Health:1) (Flammability:1) (Reactivity:0)
	

Extinguishing Media:

Small Fires: Any extinguisher suitable for Class B fires, dry chemical, or CO_2

Large Fires: Water spray, fog or fire fighting foam. Foam is the preferred medium.

Specific Hazards during Fire

Isolate hazard area and keep unauthorized personnel from entering. (If in use,) Request the disconnection of internal heat source (heating coils). Stop, control and contain any spills when it can be safely done. If water is applied to control fire, a violent eruption may occur, a boil over may occur, and/or material may float on surface creating the

possibility of asphalt/oil sheen may occur. In the case of a major fire, it may be necessary to allow the fire to burn itself out.

Specific Protective Equipment for Fire Fighters

Use NIOSH/MSHA approved positive pressure self-contained breathing apparatus and fully protective clothing such as bunker gear. Withdraw from the fire when there is rising sound from venting safety device or discoloration of vessel, tanks, or pipelines. In addition, wear other appropriate protective equipment as conditions warrant.

Section 6 ~ Accidental Release Measures

Personal Precautions

ACTIVATE YOUR COMPANY'S SPILL OR EMERGENCY RESPONSE PLAN.
Carefully contain and stop the source of the spill, when safe to do so. Protect water by diking, absorbents, and/or absorbent boom. Remove by mechanical means. Authorities should be notified if reportable quantity release occurs.

Methods for clean up

Allow to solidify. Collect materials in a ventilated waste container for disposal.

Section 7 ~ Handling & Storage

Handling

Use only in ventilated areas.
Do not smoke near areas where material is handled or stored.
Vapors (from H_2S) may form explosive mixtures in air.

Storage

This material is stored at an elevated temperature in excess of 280°F.
Keep away from flame, sparks, excessive temperature change and open flames.
Keep containers closed when not in use and clearly labeled.
Maintain adequate ventilation.
Do not enter confined spaces without proper ventilating before entrance.
Do not mix with water as a violent eruption may occur, a boil over may occur, and/or material may float on surface creating the possibility of asphalt/oil sheen may occur.

Section 8 ~ Exposure Controls / Personal Protection

Exposure Guidelines

Chemical Name	ACGIH	OSHA
Asphalt	TWA: 0.5 mg/m^3	
Hydrogen Sulfide (H_2S)	TWA: 1 ppm STEL: 5 ppm	STEL 20 ppm

Engineering Controls

Engineering controls are generally required when handling elevated temperature products.
Provide adequate ventilation.

Ensure that an emergency wash station and emergency shower are located in the work station.

Eye/Face Protection

Use a full face shield when handling product.
Safety glasses meeting ANSI Z.87.1 are recommended as minimal protection when working in an industrial location.

Skin/Hand Protection

Wear long sleeved shirts and work pants preferably 100% cotton.
Wear work boots made of leather that cover the ankle.
Use insulated gloves when handling hot product.
Use work gloves when handling cooled product.

Respiratory Protection

Use adequate ventilation.
Contaminant air concentrations determine the level of respiratory protection required. Use only NOISH approved respiratory equipment within the limits of the appropriate protection factor(s). Use supplied air when H2S concentrations are expected to exceed workplace exposure limits.

Other Protections

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet facilities.
Use a full body heat resistant or internally cooled suit when work conditions dictate.

Section 9 ~ Physical & Chemical Properties

Appearance	Black, viscous
Physical Form	Semi-solid (ambient temp.) Liquid (elevated temp.)
Odor	Sour tar like, asphalt
Odor Threshold	No data
pH	Not applicable
Melting Point/Freezing Point	86-149°F, 30-130°C
Boiling Point	>752 °F, >400°C
Flash Point	>450 °F, >232°C
Evaporation Rate	Negligible
Flammability (solid/gas)	Not applicable
Lower Explosive Limit (LEL)	Not applicable
Upper Explosive Limit (UEL)	Not applicable
Vapor Pressure	Negligible
Vapor Destiny (air=1)	Not applicable
Specific Gravity (water=1)	1-1.03
Partition Coefficient	No data
Auto-Ignition Temperature	No data
Decomposition Temperature	No data
Viscosity, Kinematic	No data
Solubility in Water	Negligible

Section 10 ~ Stability & Reactivity

Reactivity

Not chemically reactive.

Chemical Stability

Stable under normal use.

Possibility of Hazardous Reactions

Stable under normal use.

Incompatible with strong acid and strong oxidizers. (Chlorine, hydrogen peroxide, organic peroxides, nitric acid, oxygen under pressure)

Do not mix with water as a violent eruption may occur, a boil over may occur, and/or material may float on surface creating the possibility of asphalt/oil sheen may occur.

Conditions to Avoid

Do not mix with water as a violent eruption may occur, a boil over may occur, and/or material may float on surface creating the possibility of asphalt/oil sheen may occur.

Incompatible Materials

Strong Acids and strong oxidizers. (Chlorine, hydrogen peroxide, organic peroxides, nitric acid, oxygen under pressure)

Hazardous decomposition Products

Thermal decomposition can produce toxic gases: oxides of carbon, nitrogen and sulfur.

Section 11 ~ Toxicological Information

We have not conducted specific toxicity tests on this product. Our hazard assessment is based upon information provided by our suppliers on similar products, other manufacturers, and scientific literature. The International Agency for Research on Cancer has found that there is limited evidence of carcinogenicity for undiluted steam-refined asphalts in laboratory animals, but inadequate evidence of carcinogenicity for undiluted steam-refined asphalts in humans.

Eye Irritation:

At an elevated temperature, this material can cause burns to the eyes. Mists, vapors or fumes may cause eye irritation with tearing, redness, or a stinging or burning feeling.

Ingestion:

Chronic –If consumed in large quantities, material may obstruct the intestine.

Acute – Contact with heated material may cause burns. If material is consumed at ambient temperature, no significant adverse health effects are anticipated

Inhalation:

Chronic - No significant health effects were observed during lifetime inhalation studies with laboratory animals, but lung damage was observed including bronchitis, pneumonitis, abcess formation, and other irritations.

Acute - Hydrogen sulfide (H_2S) can accumulate in the headspace of heated asphalt storage tanks or transport vessels. Inhalation of H_2S can produce eye and respiratory irritation, unconsciousness, and even death. Due to rapid fatigue of the olfactory senses you can not rely upon odor to detect this toxic gas. Use caution to avoid breathing of vapors when working around bulk containers of HOT liquid asphalt.

Skin Irritation:

Chronic -This material contains Polynuclear Aromatic Hydrocarbons, some of which may be types shown to induce skin cancer in mice in lifetime skin-painting tests at the site of application. Prolonged repeated exposure to condensed vapors can cause skin irritation. Wash areas of exposed skin following contact and do not continue to wear contaminated clothing.

Acute – Heated asphalt may cause burns to the skin.

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Unlikely to be harmful	May contain or release poisonous H_2S gas	Not Applicable
Dermal	Unlikely to be harmful		>2 g/kg
Oral	Unlikely to be harmful		>5 g/kg

Section 12 ~ Ecological Information (Non-Mandatory)

No ecological studies are available for this product.

Section 13 ~ Disposal Considerations (Non-Mandatory)

Recovered spilled material may be reused or recycling.

Dispose only in accordance with federal, state, and/or local regulations. Recovered liquid may be incinerated at an approved facility. Contaminated solid absorbent or diking material(s) may be deposited in an approved landfill.

Section 14 ~ Transport Information (Non-Mandatory)

U.S. Department of Transportation (DOT)

Shipping Description:	***Shipping description is for bulk shipments that meet the Elevated temperature criteria, non-bulk is unregulated.*** UN3257, Elevated temperature liquid, n.o.s. (Asphalt), 9, III
Non-Bulk Packaging Marking:	None
Non-Bulk Packaging Labels:	None
Bulk Package/Placard Marking:	None/ 3257 & [HOT mark] or class 9/ 3257 & [HOT mark]
Hazardous Substance	None

Note: This material is regulated by the DOT when shipped in bulk packages at temperatures >212°F (100°C). The word **HOT** must be marked on the bulk package on two opposing sides.

If shipped by land in a package having a capacity of 3500 gallons or more, the provisions of 49 CFR, Part 130 apply.

International Maritime Dangerous Goods (IMDG)

Shipping Description:	UN3257, Elevated temperature liquid, n.o.s. (Asphalt), 9, III
Non-Bulk Packaging Marking:	Elevated temperature liquid, n.o.s., UN3257
Labels:	Class 9
Placard/Markings Bulk:	Class 9/3257 and [Elevated Temperature Mark]
EMS	F-A, S-P

Note: Not regulated as temperature below 100°C. If transported in bulk by marine vessel in international waters, product is being carried under the scope of MARPOL Annex I.

International Civil Aviation Org./International Air Transport Assoc. (ICAC/IATA)
Elevated temperature liquid, n.o.s. – is forbidden shipment.
Not regulated at temperatures below 100°C.

Section 15 ~ Regulatory Information (Non-Mandatory)

OSHA:

Hazardous by definition 29 CFR 1910.1299 (Hazard Communication Standard. Contains a component listed by ACGIH

TSCA:

All of the components of this product are listed on the TSCA inventory.

CERCLA:

This material is exempt from CERCLA reporting requirements under 40 CFR Part 302.4. There is no RQ for This material or any component greater than 1% or 0% (carcinogen). However, if spilled into the waters of the United States, it may be reportable under 33 CFR Part 153 if it produces a sheen..

SARA Title III Section 313:

This material is exempt from the reporting requirements of Section 313 SARA and 40 CFR Part 372.

Sara Title III Section 302:

There is no TQP for this material under 40 CFR Part 355, however, if heated, vapors may cause H2S which is on the Extremely Hazardous Substances List (TPQ 10,000 lbs., RQ 2,000lbs.).

RCRA:

This material is not subject to the 40 CFR Part 268.30 land ban on the disposal of certain hazardous wastes.

Canada:

This material has been classified in accordance with hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by regulations

WHMIS:

None

California:

Warning: This material contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject ti the warning requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5).

Section 16 ~ Other Information (Non-Mandatory)

The information provided in the Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Approved for use on: December 1, 2014 by Daryl Brown

RECYCLABLE ASPHALT PAVEMENT MIX

SAFETY DATA SHEET

OSHA HCS (29 CFR 1910.1200)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier — Recyclable Asphalt Pavement Mix

Chemical Name	Mixture
CAS No.	Mixture
Trade Name(s)	Recycled asphalt pavement

Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s)	Road Paving Asphalt
Uses Advised Against	None.

Details of the supplier of the safety data sheet

Company Identification	Brooks Construction Co., Inc. PO Box 9560, 6525 Ardmore Ave. Fort Wayne, IN 46899
Telephone	(260) 478-1990

Emergency telephone number

Emergency Phone No.	Not classified as dangerous for supply/use. Please contact the supplier above during normal business hours.

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

OSHA HCS (29 CFR 1910.1200) / GHS Classification — Carc. 1B; Repr. 2

Label elements

Hazard Symbol

Signal Word(s) — **DANGER**

Hazard Statement(s)

May cause cancer.

Suspected of damaging fertility or the unborn child.

Precautionary Statement(s)

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid breathing dust/fume/gas/mist/vapors/spray.

Wear protective gloves/protective clothing/eye protection.

Wash hands and exposed skin after use.

Other hazards

Contact with hot liquid causes skin burns.

May cause eye irritation.

Fumes may cause upper respiratory irritation (nose & throat).

Skin contact may increase susceptibility to sunburn.

Mechanical disruption (e.g., milling, cutting, chipping) of cured asphalt pavement may release crystalline silica dust from the aggregate.

Additional Information

"WARNING: This product contains chemicals known to the State of California to cause cancer."

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Composition/Information on Ingredients	% wt.	CAS No.
Reclaimed Asphalt Pavement (RAP)	> 99	Mixture
Heavy paraffinic distillate (solvent extract) ^	< 1	64742-04-7

^Contains: < 10% of 3 - 7 ring Polycyclic Aromatic Hydrocarbons (PAHs).

Other Substances in the product which may present a health or environmental hazard, or which have been assigned occupational exposure limits, are detailed below. Please see Section 8 of SDS for more details.

- Contains: <0.1% airborne crystalline silica (inherent in aggregate) and <0.1% hydrogen sulfide.
- Heated product releases asphalt fume.

Additional Information - None

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Inhalation	Not normally required. Move person to fresh air. Apply artificial respiration if necessary. If symptoms persist, obtain medical attention.
Skin Contact	Gently wash with plenty of soap and water. If irritation (redness, rash, blistering) develops, get medical attention.
Eye Contact	Flush eyes with water for at least 15 minutes while holding eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation develops and persists, get medical attention.
Ingestion	Not normally required. Do not induce vomiting. Do not give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.
Most important symptoms and effects, both acute and delayed	None known
Indication of any immediate medical attention and special treatment needed	None known

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

-Suitable Extinguishing Media	Extinguish with carbon dioxide, dry chemical, foam or water spray.
-Unsuitable Extinguishing Media	None anticipated.
Special hazards arising from the substance or mixture	Combustion causes toxic fumes. Combustion products: Carbon monoxide, Carbon dioxide, Nitrogen oxides, Sulfur oxides
Advice for fire-fighters	A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Avoid contact with skin and eyes.
Environmental precautions	Not normally required.
Methods and material for containment and cleaning up	Allow product to cool/solidify and pick up as a solid.

Reference to other sections None
Additional Information None.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling Avoid contact with skin and eyes.

Conditions for safe storage, including any incompatibilities

-Storage temperature Store at temperatures not exceeding the product's flash point.
-Incompatible materials Strong oxidizing agents.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Occupational Exposure Limits

SUBSTANCE.	CAS No.	(8hr TWA)		(STEL)		Note:
		PEL (OSHA) *	TLV (ACGIH)	PEL (OSHA)	TLV (ACGIH)	
Asphalt fume	----	----	0.5 mg/m3 (I)	----	----	See below
Polycyclic aromatic compounds (3- to 7-ring)	----	0.2 mg/m3	0.2 mg/m3	----	----	----
Crystalline Silica (respirable particulate)	----	$\frac{10\ mg/m^3}{\%SiO_2 + 2}$	0.025 mg/m3 ^	----	----	See below

(I) Inhalable benzene-soluble fraction; ^Suspected Human Carcinogen; *Refer to OSHA 29 CFR 1910.1000 & 29 CFR 1926.55; 8hr TWA = 8 hour time-weighted average; STEL = Short Term Exposure Limit.

Recommended monitoring method NIOSH 5042 (Asphalt Fume), NIOSH 7500 (Crystalline Silica); NIOSH 5042 or NIOSH 5023 (Polycyclic aromatic compounds)

Exposure controls

Appropriate engineering controls Use only outdoors or in a well-ventilated area.

Personal protection equipment

Eye/face protection

The following to be used as necessary: Safety Glasses

Skin protection (Hand protection/ Other)

The following to be used as necessary: Leather or thick textile gloves.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. Use NIOSH approved respiratory protection. Air-purifying respirator with combination organic vapor cartridge / particulate filter may be sufficient. Check with protective equipment manufacturer's data.

Thermal hazards Use gloves with insulation for thermal protection, when needed.

Environmental Exposure Controls Do not discharge waste and/or cleaning water via public sewer system. Ensure waste is collected and contained.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Solid
Color.	Dark brown / Black
Odor	Asphalt / Bitumen
Odor Threshold (ppm)	Not available.
pH (Value)	Not available.
Melting Point (°C) / Freezing Point (°C)	Not available.
Boiling point/boiling range (°C):	> 371 (>700 °F)
Flash Point (°C)	> 232 (> 450 °F)
Evaporation Rate	Not available.
Flammability (solid, gas)	Not applicable.
Explosive Limit Ranges	Not applicable.
Vapor pressure (Pascal)	Not determined.
Vapor Density (Air=1)	Not determined.
Density (g/ml)	2.2 - 2.7
Solubility (Water)	Negligible
Solubility (Other)	Not known
Partition Coefficient (n-Octanol/water)	Not available.
Auto Ignition Point (°C)	Not available.
Decomposition Temperature (°C)	Not available.
Kinematic Viscosity (cSt) @ 40°C	Not available
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Other information	Not available.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable.
Possibility of hazardous reactions	May react violently with: Strong oxidizing agents
Conditions to avoid	Incompatible materials
Incompatible materials	Oxidizers
Hazardous decomposition product(s)	Combustion causes toxic fumes. Combustion products: Carbon monoxide, Carbon dioxide, Nitrogen oxides, Sulfur oxides

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes: Inhalation, Skin Contact, Eye Contact

Information on toxicological effects

Petroleum asphalt / bitumen (CAS No. 8052-42-4)

Acute toxicity	LD50 (rat): >5000 mg/kg bw LD50 (dermal): >2000 mg/kg bw LC50 (inhalation, fume): >94.4 mg/m^3
Irritation/Corrosivity	May cause irritation to skin, eyes and respiratory system.
Sensitization	Not to be expected
Repeated dose toxicity	NOAEL(rat): 28 mg/m^3 LOAEL (rat): 149 mg/m^3
Carcinogenicity	Not to be expected at typical road paving temperatures.

NTP	IARC	ACGIH	OSHA
No.	Yes.*	No.	No.

Mutagenicity	Not to be expected.
Reproductive toxicity	Not to be expected.

Other information * IARC (2013, volume 103) identifies that "occupational exposures to straight-run bitumens and their emissions during road paving are possibly carcinogenic to humans (Group 2B)." However, classification as a carcinogen under OSHA 29 CFR 1910.1200 is not warranted given the absence of positive cancer findings in human epidemiological studies and in cancer studies with laboratory animals when exposed dermally or by inhalation to asphalt products or fume condensates that are typical of road paving applications. IARC (2013, volume 103) also identifies that "occupational exposures to oxidized bitumens and their emissions during roofing are probably carcinogenic to humans (Group 2A)." Roofing shingles, which are considered an article under OSHA 29 CFR 1910.1200, are sometimes recycled into road paving asphalt mix. Emissions from oxidized bitumen, e.g., from shingles, at road paving temperatures are not expected to be qualitatively different than emissions from straight-run bitumens, and therefore would not warrant a carcinogen classification under OSHA 29 CFR 1910.1200.

Heavy paraffinic distillate (solvent extract) (CAS No. 64742-04-7)

Acute toxicity	LD50 (rat): >5000 mg/kg bw LD50 (dermal): >3000 mg/kg bw LC50 (inhalation, fume): >5 mg/L
Irritation/Corrosivity	May cause irritation to skin, eyes and respiratory system.
Sensitization	Not to be expected
Repeated dose toxicity	NOAEL(rat): 28 mg/m^3 LOAEL (rat): 149 mg/m^3
Carcinogenicity	May cause cancer.

NTP	IARC	ACGIH	OSHA
Yes*	Group 1*	A2*	Yes*

Mutagenicity	Not to be expected.
Reproductive toxicity	Suspected of damaging fertility or the unborn child.
Other information	* Contains up to 10% 3- to 7-ring polycyclic aromatic compounds.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Short term	LL50 (48 hour): >1000 mg/l (Fish) LL50 (48 hour): >1000 mg/L (Aquatic Invertebrates) EL50 (48 hour): >1000 mg/L (Aquatic Plants)
Long Term	No data
Persistence and degradability	The product is poorly biodegradable.
Bioaccumulative potential	The product has low potential for bioaccumulation.
Mobility in soil	The product has low mobility in soil.
Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods	Disposal should be in accordance with local, state or national legislation.Consult an accredited waste disposal contractor or the local authority for advice.
Additional Information	None known.

SECTION 14: TRANSPORT INFORMATION

Ground or Water Domestic Voyage (DOT): Not regulated when transported below 240°C (464 °F).

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

TSCA (Toxic Substance Control Act) - Inventory Status: All components listed or exempt.

Designated Hazardous Substances and Reportable Quantities (40 CFR 302.4):

Chemical Name	CAS No.	Typical %wt.	RQ (Pounds)
Benzo(b)fluoranthen	205-99-2	< 1	1
Benzo(a)pyren	50-32-8	< 1	1
Fluoranthene	206-44-0	< 1	100
Naphthalene	91-20-3	< 1	100
Acenaphthene	83-32-9	< 1	100
Dibenz(a,h)anthracen	53-70-3	< 1	1
Dibenzofuran	132-64-9	< 1	100
Biphenyl	92-52-4	< 1	100
Chrysen	218-01-9	< 1	100
Phenanthrene	85-01-8	< 1	5000
Cresols	1319-77-3	< 1	100
Indeno(1,2,3-cd)pyrene	193-39-5	< 1	100
Pyrene	129-00-0	< 1	5000
Anthracene	120-12-7	< 1	5000

SARA 311/312 - Hazard Categories:

☐ Fire ☐ Sudden Release ☐ Reactivity ☐ Immediate (acute) ☒ Chronic (delayed)

SARA 313 - Toxic Chemicals (40 CFR 372):

Chemical Name	CAS No.	Typical %wt.
Polycyclic Aromatic Compounds (PACs)	Category No. N590	< 1

SARA 302 - Extremely Hazardous Substances(40 CFR 355):

Chemical Name	CAS No.	Typical %wt.	TPQ (pounds)
Pyrene	129-00-0	< 1	1000 / 10000

Proposition 65 (California): "WARNING: This product contains chemicals known to the State of California to cause cancer."

SECTION 16: OTHER INFORMATION

Additional Information

The following sections contain revisions or new statements: 1-16.

Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. The manufacturer gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. The manufacturer accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed.

1 PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Vendor

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Product Name:	REDUCED PENETRATING EMULSION, RPE
Revision Date:	6/1/2015
SDS Number:	AMI-412
Common Name:	Asphalt Emulsion Cationic
CAS Number:	Mixture
Chemical Family:	Emulsified complex petroleum hydrocarbon and water
Synonyms:	Cationic Asphalt Emulsion
Product Use:	Highway Paving Applications and Mixtures

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

Health, Acute toxicity, 5 Dermal
Health, Serious Eye Damage/Eye Irritation, 2 B

GHS Label elements, including precautionary statements

GHS Signal Word: WARNING

GHS Hazard Pictograms:

no GHS pictograms indicated for this product

GHS Hazard Statements:

H313 - May be harmful in contact with skin
H320 - Causes eye irritation

GHS Precautionary Statements:

P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Hazards not otherwise classified (HNOC) or not covered by GHS

Inhalation:	Breathing vapors, fumes, or mists may cause irritation to nasal and respiratory tract and central nervous system effects. Symptoms may include labored breathing, sore throat, coughing, wheezing, headache, and nausea.
Skin Contact:	Contact with hot emulsified asphalt can cause minor thermal burns. Prolonged exposure to vapors, fumes, or mists may cause irritation and redness.
Eye Contact:	Contact with hot emulsified asphalt can cause thermal burns to the eyes. Prolonged exposure to vapors, fumes, or mists may cause irritation, redness, and tearing.
Ingestion:	Ingestion is not likely. Ingestion may cause thermal burns. If ingestion of emulsified material occurs, keep victim's head below their hips to prevent asphalt from reaching the lungs. Take victim to obtain medical

assistance immediately.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
8052-42-4	30-65%	Asphalt (typical)
7732-18-5	30-75%	Water
0	1-3%	Hydrochloride Salt, Proprietary

Asphalt: Asphalt is a complex mixture of high molecular weight hydrocarbons produced from crude petroleum. Composition varies depending on the source of the crude and the specifications of the final product.

ACGIH: The American Conference of Governmental Industrial Hygienists recommends an exposure limit of 0.5 mg/m^3 as benzene-extractable inhalable particulate (or equivalent method) to avoid irritation of the conjunctive mucous membranes. Historical information on exposure of asphalt workers used methods different than those recommended by ACGIH, so comparisons to the recommended exposure limits are not known.

4 FIRST AID MEASURES

Inhalation: If irritation occurs from inhalation overexposure, immediately remove victim from source to fresh air and seek medical attention.

Skin Contact: Hot Emulsified Material: Cool the affected body parts immediately by submerging in cold water until the material has cooled. Do not attempt to remove solidified material from burn area as this may further tissue damage. Take the victir to obtain medical assistance immediately.

Cold Emulsified Material: Remove cold emulsified asphalt by soaking dressing in mineral oil and place over affected area for 2-3 hours. If irritation occurs, call a physician.

Never try to remove material with solvents.

Eye Contact: Gently flush immediately with cold water for 15 minutes. Do not attempt to remove solidified material from the eye, as this may further injury. Take victim to obtain medical assistance.

Ingestion: Ingestion is not likely. If large amounts are swallowed, do not induce vomiting and immediately call a physician.

5 FIRE FIGHTING MEASURES

Flash Point: Not Applicable
Autoignition Temp: >400°F
LEL: Not Applicable
UEL: Not Applicable

Extinguishing Media:
Foam, Carbon Dioxide, Dry Chemical, and water spray may all be suitable in extinguishing fires involving this product.

Fire Fighting Instructions:
Avoid water streams to prevent frothing. Use water spray to cool exposed surfaces.

6 ACCIDENTAL RELEASE MEASURES

Stop source of leak if safe to do so. Eliminate sources of ignition. Contain by diking or impounding. Absorbents can be used to contain small spills. After containment, emulsified asphalt can be collected for disposal. Advise authorities if product has entered a drainage sewer or a water source. Assure conformity with local, state, and federal government regulations for disposal.

7 HANDLING AND STORAGE

Handling Precautions:

When opening covers and outlet caps on storage tanks, monitor the vapor space for hydrogen sulfide levels. Use faceshield and gloves to avoid possible injury from pressurized asphalt. Long sleeved shirts and pants should be worn to minimize thermal burns. Stay upwind and vent storage tanks before unloading. Keep heating units and flues in storage tanks covered with at least 12 inches of asphalt. Do not overheat.

Empty Container Warning: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, OR OTHER SOURCES OF IGNITION; THEY MAY BURN OR EXPLODE AND CAUSE INJURY OR DEATH.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Local or general exhaust required if in an enclosed area to remain below the TLV. If workplace exposure limits are exceeded, a NIOSH/MSHA-approved air-supplied respirator is advised in the absence of proper environmental engineering controls.

Personal Protective Equipment:

Eye and Face Protection: Safety glasses or chemical splash goggles with faceshield if splashing is anticipated.

Skin Protection: Oil-impervious gloves, such as Neoprene, if frequent or prolonged contact is expected. Long-sleeve shirts and long pants should be worn at all times around asphalt to prevent thermal burns.

Respiratory Protection: Respiratory protection is not normally required under normal conditions and adequate ventilation. If high vapors and expected, use a respirator approved for organic vapors. Observe respirator protection factor criteria cited in ANSI Z88.2 (1980) and other OSHA requirements found in 29 CFR 1910.134. Use air-supplied respirators or self-contained breathing apparatus for fire fighting and in confined spaces when asphalt vapor or Hydrogen Sulfide gas exceends permissible limits.

Work/Hygienic Practices: Skin contact and the breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects. Thoroughly wash exposed skin areas after work to avoid dermatitis. Consider the use of lanolin skin treatments before handling or working around asphalt mixtures.

Other Protection: Wear body-covering clothes to avoid prolonged or repeated exposure. Launder before reuse.

PETROLEUM ASPHALT:

OSHA PEL:	Not established for this material.
ACGIH TLV:	0.5 mg/m³ as benzene-extractable inhalable particulate (or equivalent method)
NIOSH REL:	5.0 mg/m³ as a 15-minute ceiling limit measured as total particulates.

HYDROCHLORIDE SALT, Proprietary:

OSHA PEL:	Not established for this material.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Brown Liquid		
Physical State:	Liquid	**Odor:**	Characteristic asphalt odor
Spec Grav./Density:	0.96 - 1.05	**Solubility:**	Completely
Boiling Point:	212°F	**Flash Point:**	Not Applicable
Flammability:	Aqueous, Non-Flammable	**Vapor Density:**	>1.0
Vapor Pressure:	1.9 E-9 psia	**Bulk Density:**	8.12 - 8.89 lb/gallon
pH:	2 - 5	**Auto-Ignition Temp:**	>400°F
Molecular weight:	280	**UFL/LFL:**	Not Applicable

10 STABILITY AND REACTIVITY

Chemical Stability:	Product is stable under normal conditions.
Conditions to Avoid:	Contact with oxidizers
Materials to Avoid:	Strong Oxidizing Agents.
Hazardous Decomposition:	Fumes, smoke, carbon monoxide, hydrogen sulfide, aldehydes, and hydrocarbons.
Hazardous Polymerization:	Will not occur.

11 TOXICOLOGICAL INFORMATION

International Agency for Research on Cancer Ruling

Occupational exposures to straight-run bitumens and their emissions during road paving:
On the basis of an earlier meta-analysis, the IARC multi-center study and several more recent independent studies, the Working Group concluded that there was inadequate evidence in humans for the carcinogenicity of occupational exposures during road paving with straight-run bitumens. Also, there was inadequate evidence in experimental animals for the carcinogenicity of extracts and of fume condensates of this type of bitumens. However, studies of workers exposed to bitumen emissions during paving with straight-run bitumens showed mutagenic and genotoxic/cytogenetic effects in these workers. Similar effects were also observed in experimental systems under controlled conditions. This strong mechanistic evidence led to the classification of occupational exposures to straight-run bitumens and their emissions during road paving as "possibly carcinogenic to humans" (Group 2B).

Health Hazard Characterization:

Uncertainties exist in the hazard characterization of asphalt fumes by many factors including its chemical complexity, limitation of the information, the inclusion of coal tar in asphalts in past decades, other confounders and mixed results of human studies. **Concise International Chemical Assessment Documents** relating to asphalt and fumes can be obtained on the internet at http://inchem.org/documents/cicads/cicads/cicad59.htm. Despite conflicting reports, the following bullet points should be noted:

- Currently classified as A4 (not classifiable as a human carcinogen). Asphalt Coal Tar Free
- Breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects.
- Asphalt and asphalt fumes contain trace levels of polynuclear aromatic hydrocarbons that are known carcinogens.
- Chronic health effects would not be expected as long as good hygiene and proper safety precautions are practiced and exposures are less than the TLVs/RELs.

After using material or being around fumes, wash exposed areas thoroughly with soap and water. Showering immediately after work is a good personal hygiene practiced.

12 ECOLOGICAL INFORMATION

May cause fouling of water. May be toxic to aquatic animals. Once solidified, this product will no longer exhibit these characteristics.

13 DISPOSAL CONSIDERATIONS

Dispose in accordance with local, state, and federal regulations. After cooling, waste or contaminated asphalt mixtures may be scooped and stockpiled for later recycling into asphalt pavement mixtures, pugmilled into cold mix, or disposed in an approved special waste, industrial waste, or construction debris landfill.

RCRA Information:
This material, if discarded as produced, is not a RCRA "listed" hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261). Along with properly characterizing all waste materials, consult state and local regulations regarding proper disposal of this material.

14 TRANSPORT INFORMATION

This product as produced and shipped is not considered a hazardous material by the U.S. Department of Transportation.

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

Asphalt (typical) (8052-42-4) [30-65%] MASS, NRC, PA, TSCA, TXAIR

Water (7732-18-5) [30-75%] TSCA

Hydrochloride Salt, Proprietary (0) [1-3%]

Regulatory CODE Descriptions

MASS = MA Massachusetts Hazardous Substances List
NRC = Nationally Recognized Carcinogens
PA = PA Right-To-Know List of Hazardous Substances
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level

16 OTHER INFORMATION

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

Asphalt Materials, Inc.

1 PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Vendor

Asphalt Materials, Inc.
5400 West 86th Street
Indianapolis, Indiana 46268

Emergency:	CHEMTREC: 800-424-9300
Contact:	Douglas Lozier
Phone:	317-872-6010
Fax:	317-875-4673
Email:	doug.lozier@asphalt-materials.com
Web:	www.asphalt-materials.com

Product Name:	RS-2P, RS-2M, HFRS-2P, HFRS-2M, AE-90S, MSP-1
Revision Date:	6/1/2015
SDS Number:	AMI-213
Common Name:	Asphalt Emulsion Anionic
CAS Number:	Mixture
Chemical Family:	Emulsified complex petroleum hydrocarbon and water
Synonyms:	Anionic Asphalt Rubber Emulsion, Emulsified Rubber Asphalt
Product Use:	Highway Paving Applications and Mixtures

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

Health, Acute toxicity, 5 Dermal
Health, Serious Eye Damage/Eye Irritation, 2 B

GHS Label elements, including precautionary statements

GHS Signal Word: WARNING

GHS Hazard Pictograms:

no GHS pictograms indicated for this product

GHS Hazard Statements:

H313 - May be harmful in contact with skin
H320 - Causes eye irritation

GHS Precautionary Statements:

P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Hazards not otherwise classified (HNOC) or not covered by GHS

Inhalation:	Breathing vapors, fumes, or mists may cause irritation to nasal and respiratory tract and central nervous system effects. Symptoms may include labored breathing, sore throat, coughing, wheezing, headache, and nausea.
Skin Contact:	Contact with hot emulsified asphalt can cause minor thermal burns. Prolonged exposure to vapors, fumes, or mists may cause irritation and redness.
Eye Contact:	Contact with hot emulsified asphalt can cause thermal burns to the eyes. Prolonged exposure to vapors, fumes, or mists may cause irritation, redness, and tearing.
Ingestion:	Ingestion is not likely. Ingestion may cause thermal burns. If ingestion of molten material occurs, keep victim's head below their hips to prevent asphalt from reaching the lungs. Take victim to obtain medical

assistance immediately.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
8052-42-4	55-75%	Asphalt (typical)
0	<2%	Antistrip Adhesion Promoter, Proprietary
65997-01-5	0.5-5%	Tall oil, sodium salt
7732-18-5	25-45%	Water
68476-30-2	<25%	Fuel oil no. 2
0	<5%	Polymer Modifier, Proprietary
0	<1%	Vulcanizing Agent, Proprietary

Asphalt: Asphalt is a complex mixture of high molecular weight hydrocarbons produced from crude petroleum. Composition varies depending on the source of the crude and the specifications of the final product.

ACGIH: The American Conference of Governmental Industrial Hygienists recommends an exposure limit of 0.5 mg/m^3 as benzene-extractable inhalable particulate (or equivalent method) to avoid irritation of the conjunctive mucous membranes. Historical information on exposure of asphalt workers used methods different than those recommended by ACGIH, so comparisons to the recommended exposure limits are not known.

4 FIRST AID MEASURES

Inhalation: If irritation occurs from inhalation overexposure, immediately remove victim from source to fresh air and seek medical attention.

Skin Contact: Hot Emulsified Material: Cool the affected body parts immediately by submerging in cold water until the material has cooled. Do not attempt to remove solidified material from burn area as this may further tissue damage. Take the victim to obtain medical assistance immediately.

Cold Emulsified Material: Remove cold emulsified asphalt by soaking dressing in mineral oil and place over affected area for 2-3 hours. If irritation occurs, call a physician.

Never try to remove material with solvents.

Eye Contact: Gently flush immediately with cold water for 15 minutes. Do not attempt to remove solidified material from the eye, as this may further injury. Take victim to obtain medical assistance.

Ingestion: Ingestion is not likely. If large amounts are swallowed, do not induce vomiting and immediately call a physician.

5 FIRE FIGHTING MEASURES

Flash Point: Not Applicable
Autoignition Temp: >400°F
LEL: Not Applicable
UEL: Not Applicable

Extinguishing Media:
Foam, Carbon Dioxide, Dry Chemical, and water spray may all be suitable in extinguishing fires involving this product.

Fire Fighting Instructions:
Avoid water streams to prevent frothing. Use water spray to cool exposed surfaces.

6 ACCIDENTAL RELEASE MEASURES

Stop source of leak if safe to do so. Eliminate sources of ignition. Contain by diking or impounding. Absorbents can be used to contain small spills. After containment, emulsified asphalt can be collected for disposal. Advise authorities if product has entered a drainage sewer or a water source. Assure conformity with local, state, and federal government regulations for disposal.

7 HANDLING AND STORAGE

Handling Precautions:

When opening covers and outlet caps on storage tanks, monitor the vapor space for hydrogen sulfide levels. Use faceshield and gloves to avoid possible injury from pressurized asphalt. Long sleeved shirts and pants should be worn to minimize thermal burns. Stay upwind and vent storage tanks before unloading. Keep heating units and flues in storage tanks covered with at least 12 inches of asphalt. Do not overheat.

Empty Container Warning: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, OR OTHER SOURCES OF IGNITION; THEY MAY BURN OR EXPLODE AND CAUSE INJURY OR DEATH.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Local or general exhaust required if in an enclosed area to remain below the TLV. If workplace exposure limits are exceeded, a NIOSH/MSHA-approved air-supplied respirator is advised in the absence of proper environmental engineering controls.

Personal Protective Equipment: Eye and Face Protection: Safety glasses or chemical splash goggles with faceshield if splashing is anticipated.

Skin Protection: Oil-impervious gloves, such as Neoprene, if frequent or prolonged contact is expected. Long-sleeve shirts and long pants should be worn at all times around asphalt to prevent thermal burns.

Respiratory Protection: Respiratory protection is not normally required under normal conditions and adequate ventilation. If high vapors and expected, use a respirator approved for organic vapors. Observe respirator protection factor criteria cited in ANSI Z88.2 (1980) and other OSHA requirements found in 29 CFR 1910.134. Use air-supplied respirators or self-contained breathing apparatus for fire fighting and in confined spaces when asphalt vapor or Hydrogen Sulfide gas exceends permissible limits.

Work/Hygienic Practices: Skin contact and the breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects. Thoroughly wash exposed skin areas after work to avoid dermatitis. Consider the use of lanolin skin treatments before handling or working around asphalt mixtures.

Other Protection: Wear body-covering clothes to avoid prolonged or repeated exposure. Launder before reuse.

PETROLEUM ASPHALT:
- OSHA PEL: Not established for this material.
- ACGIH TLV: 0.5 mg/m³ as benzene-extractable inhalable particulate (or equivalent method)
- NIOSH REL: 5.0 mg/m³ as a 15-minute ceiling limit measured as total particulates.

ANTISTRIP ADHESION PROMOTER, Proprietary:
- OSHA PEL: Not established for this material.

TALL OIL SODIUM SALT:
- OSHA PEL: Not established for this material.

No. 2 FUEL OIL:
- OSHA PEL: Not established for this material.

POLYMER MODIFIER, Proprietary:
- OSHA PEL: Not established for this material.

VULCANIZING AGENT, Proprietary:
- OSHA PEL: Not established for this material.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Brown Liquid		
Physical State:	Liquid	**Odor:**	Characteristic asphalt odor
Spec Grav./Density:	0.92 - 1.05	**Solubility:**	Completely
Boiling Point:	212°F	**Flash Point:**	Not Applicable
Flammability:	Aqueous, Non-Flammable	**Vapor Density:**	>1.0
Vapor Pressure:	1.9 E-9 psia	**Auto-Ignition Temp:**	>400°F
pH:	7 - 11	**UFL/LFL:**	Not Applicable
Molecular weight:	280		

10 STABILITY AND REACTIVITY

Chemical Stability:	Product is stable under normal conditions.
Conditions to Avoid:	Contact with oxidizers
Materials to Avoid:	Strong Oxidizing Agents.
Hazardous Decomposition:	Fumes, smoke, carbon monoxide, hydrogen sulfide, aldehydes, and hydrocarbons.
Hazardous Polymerization:	Will not occur.

11 TOXICOLOGICAL INFORMATION

International Agency for Research on Cancer Ruling

Occupational exposures to straight-run bitumens and their emissions during road paving:
On the basis of an earlier meta-analysis, the IARC multi-center study and several more recent independent studies, the Working Group concluded that there was inadequate evidence in humans for the carcinogenicity of occupational exposures during road paving with straight-run bitumens. Also, there was inadequate evidence in experimental animals for the carcinogenicity of extracts and of fume condensates of this type of bitumens. However, studies of workers exposed to bitumen emissions during paving with straight-run bitumens showed mutagenic and genotoxic/cytogenetic effects in these workers. Similar effects were also observed in experimental systems under controlled conditions. This strong mechanistic evidence led to the classification of occupational exposures to straight-run bitumens and their emissions during road paving as "possibly carcinogenic to humans" (Group 2B).

Health Hazard Characterization:

Uncertainties exist in the hazard characterization of asphalt fumes by many factors including its chemical complexity, limitation of the information, the inclusion of coal tar in asphalts in past decades, other confounders and mixed results of human studies. **Concise International Chemical Assessment Documents** relating to asphalt and fumes can be obtained on the internet at http://inchem.org/documents/cicads/cicads/cicad59.htm. Despite conflicting reports, the following bullet points should be noted:

- Currently classified as A4 (not classifiable as a human carcinogen). Asphalt Coal Tar Free
- Breathing of mists, fumes, or vapors should be reduced to a minimum to avoid any ill effects.
- Asphalt and asphalt fumes contain trace levels of polynuclear aromatic hydrocarbons that are known carcinogens.
- Chronic health effects would not be expected as long as good hygiene and proper safety precautions are practiced and exposures are less than the TLVs/RELs.
- After using material or being around fumes, wash exposed areas thoroughly with soap and water. Showering immediately after work is a good personal hygiene practiced.

No. 2 FUEL OIL:
Lifetime skin painting studies in animals with similar distillate fuels have produced weak carcinogenic activity following prolonged and repeated exposure. Repeated dermal application has produced severe irritation and systematic toxicity in subacute toxicity studies. Some components of distillate fuels, i.e., paraffins and olefins, have been shown to produce a species-specific, sex hormonal dependent kidney lesion in male rats from repeated oral or inhalation exposure. Jet fuel and No. 1 fuel oil were found to be positive in a few mutagenicity tests while negative in the majority of others. The exact relationship between these results and human health is not known. Chronic human health effects would not be expected as long as good personal hygiene and proper safety precautions are practiced.

12 ECOLOGICAL INFORMATION

May cause fouling of water. May be toxic to aquatic animals. Once solidified, this product will no longer exhibit these characteristics.

13 DISPOSAL CONSIDERATIONS

Dispose in accordance with local, state, and federal regulations. After cooling, waste or contaminated asphalt mixtures may be scooped and stockpiled for later recycling into asphalt pavement mixtures, pugmilled into cold mix, or disposed in an approved special waste, industrial waste, or construction debris landfill.

RCRA Information:
This material, if discarded as produced, is not a RCRA "listed" hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261). Along with properly characterizing all waste materials, consult state and local regulations regarding proper disposal of this material.

14 TRANSPORT INFORMATION

This product as produced and shipped is not considered a hazardous material by the U.S. Department of Transportation.

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

Asphalt (typical) (8052-42-4) [55-75%] MASS, NRC, PA, TSCA, TXAIR

Antistrip Adhesion Promoter, Proprietary (0) [<2%]

Tall oil, sodium salt (65997-01-5) [0.5-5%] TSCA

Water (7732-18-5) [25-45%] TSCA

Fuel oil no. 2 (68476-30-2) [<25%] TSCA

Polymer Modifier, Proprietary (0) [<5%]

Regulatory CODE Descriptions

MASS = MA Massachusetts Hazardous Substances List
NRC = Nationally Recognized Carcinogens
PA = PA Right-To-Know List of Hazardous Substances
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level

16 OTHER INFORMATION

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

Asphalt Materials, Inc.

Lehigh Hanson
HEIDELBERGCEMENT Group

Safety Data Sheet Sand and Gravel

Section 1. Identification

GHS product identifier: Sand and Gravel

Other means of identification: Aggregate, Manufactured Sand, Natural Stone, Crushed Stone

Relevant identified uses of the substance or mixture and uses advised against: Sand and Gravel aggregate may be used in the manufacture of bricks, mortar, cement, concrete, plasters, paving materials, and other construction materials. Sand and Gravel aggregate may be distributed in bags, totes, and bulk shipments. No known recommended restrictions.

Supplier's details:

300 E. John Carpenter Freeway, Suite 1645
Irving, TX 75062
(972) 653-5500

Emergency telephone number (24 hours): **CHEMTREC: (800) 424-9300**

Section 2. Hazards Identification

GHS Classification:

CARCINOGENICITY – Category 1A
SPECIFIC TARGET ORGAN TOXICITY – Category 2
REPEATED EXPOSURE
SKIN CORROSION/IRRITATION – Category 2
EYE DAMAGE/IRRITATION – Category 2A

GHS label elements

Hazard pictograms:

Signal word: Danger

Hazard statements:

May cause cancer
May cause damage to organs (lung) through prolonged or repeated exposure
Causes skin irritation
Causes serious eye irritation

Precautionary statements:

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash any exposed body parts. Wear protective gloves/protective clothing/eye protection/face protection.

Response: If exposed or concerned: Get medical advice/attention. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If in eyes: Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do.

Storage: Restrict or control access to stockpile areas (store locked up). Engulfment hazard: To prevent burial or suffocation, do not enter a confined space, such as a silo, bulk truck or other storage container or vessel that stores or contains aggregates without an effective procedure for assuring safety.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazards not otherwise classified (HNOC): None known

Supplemental Information: Respirable Crystalline Silica (RCS) may cause cancer. Sand and Gravel is a naturally occurring mineral complex that contains varying quantities of quartz (crystalline silica). In its natural bulk state, sand and gravel is not a known health hazard. Sand and Gravel may be subjected to various natural or mechanical forces that produce small particles (dust) which may contain respirable crystalline silica (particles less than 10 micrometers in aerodynamic diameter). Repeated inhalation of respirable crystalline silica (quartz) may cause lung cancer according to IARC and NTP; ACGIH states that it is a suspected cause of cancer. Other forms of RCS (e.g., tridymite and cristobalite) may also be present or formed under certain industrial processes.

Section 3. Composition/information on ingredients

CAS number/other identifiers

Substance/mixture: Sand and Gravel

Ingredient name	%	CAS number
Sand and Gravel	> 99	None
Crystalline Silica (Quartz)	> 1	14808-60-7

Any concentration shown as a range is to protect confidentiality or is due to process variation. There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. These materials are mined from the earth. Trace amounts of naturally occurring elements might be detected during chemical analysis of these materials.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye Contact: Dust: Immediately flush with plenty of water for at least 15 minutes. Hold eyelids apart. Remove contacts is present and easy to do. Occasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from the eye(s). Get medical attention if irritation develops or persists.

Inhalation: Dust: Move to fresh air. Call a physician if symptoms develop or persist.

Skin Contact: Dust: Wash off with soap and water. Get medical attention if irritation develops and persists.

Ingestion: Dust: Rinse mouth and drink plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.

Most important symptoms/effects, acute and delayed

Inhaling dust may cause discomfort in the chest, shortness of breath, and coughing. Prolonged inhalation may cause chronic health effects. This product contains crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica liberated from this product can cause silicosis, and may cause cancer.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

Specific treatments: Not Applicable

Protection of first-aiders: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

General information: Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and lung (including asthma and other breathing disorders). If addicted to tobacco, smoking will impair the ability of the lungs to clear themselves of dust.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media: Not flammable. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: No unusual fire or explosion hazards noted. Not a combustible dust.

Hazardous thermal decomposition Products: None known

Special protective equipment for fire-

fighters:	Use protective equipment appropriate for surrounding materials. No specific precautions.
General fire hazards:	Contact with powerful oxidizing agents may cause fire and/or explosions (see section 10 of SDS). No unusual fire or explosion hazards.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear appropriate protective equipment and clothing during clean-up of materials that contain or may liberate dust.

Methods and materials for containment, cleaning up and Environmental precautions

Spilled material, where dust is generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust. Do not dry sweep or use compressed air for clean-up. Wetting of spilled material and/or use of respiratory protective equipment may be necessary. Avoid discharge of fine particulate matter into drains or water courses.

Section 7. Handling and storage

Precautions for safe handling

Protective measures:	Do not handle until all safety precautions have been read and understood. Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment.
Advice on general occupational hygiene:	Observe good industrial hygiene practices. Promptly remove dusty clothing and launder before reuse.
Conditions for safe storage, including any incompatibilities:	Avoid dust formation or accumulation.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits:
1 – Value equivalent to OSHA formulas (29 CFR 1910.1000; 29 CFR 1917; 29 CFR 1918)
2 – Value also applies to MSHA metal/Non-Metal (1973 TLVs at 30 CFR 56/57.5001)
3 – OSHA enforces 0.250 mg/m³ in construction and shipyards (CPL-03-00-007)
4 – Value also applies to OSHA construction (29 CRF 1926.55 Appendix A) and shipyards (29 CFR 1915.1000 Table Z)
5 – MSHA limit = 10 mg/m³

Ingredient name	Exposure limits
Particulates not otherwise classified (CAS SEQ250)	**ACGIH TLV (United States, 3/2012)** TWA: 3 mg/m³. Form: Respirable particles (2) TWA: 10 mg/m³. Form: Inhalable particles (2) **OSHA PEL (United States, 6/2010)** PEL: 5 mg/m³. Form: Respirable fraction PEL: 15 mg/m³. Form: Total dust (4) TWA: 5 mg/m³. Form: Respirable fraction (1) TWA: 15 mg/m³. Form: Total dust (1, 4, 5)
Crystalline Silica (Quartz) (CAS 14808-60-7)	**OSHA PEL (United States, 6/2010)** TWA: 0.3 mg/m³. Form: Total dust (1,2) TWA: 0.1 mg/m³. Form: Respirable (1,2,3)
Crystalline Silica (all forms; CAS mixture)	**ACGIH TLV (United States, 3/2012)** TWA: 0.025 mg/m³. Form: Respirable fraction **NIOSH REL (United States, 6/2009)** TWA: 0.05 mg/m³. Form: Respirable dust

Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)	**OSHA PEL (United States, 6/2010)** TWA: 0.15 mg/m³. Form: Total dust (1) TWA: 0.05 mg/m³. Form: Respirable (1,2)

Appropriate engineering controls: Good general ventilation (typically 10 air changes per hour indoors) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Exposure guidelines: OSHA PELs, MSHA PELs, and ACGIH TLVs are 8-hr TWA values. NIOSH RELs are for TWA exposures up to 10-hr/day and 40-hr/wk. Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled. Terms including **"Particulates Not Otherwise Classified," "Particulates Not Otherwise Regulated," Particulates Not Otherwise Specified," and "Inert or Nuisance Dus" are often used interchangeably; however, the user should review each agency's terminology for differences in meanings.**

Biological limit values: No biological exposure limits noted for the ingredient(s)

Individual protection measures

Hygiene measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Eye/face protection: Wear safety glasses with side shields (or goggles).

Hand protection: Use personal protective equipment as required.

Body protection: Use personal protective equipment as required.

Other skin protection: Use personal protective equipment as required.

Respiratory protection: When handling or performing work that produces dust or respirable crystalline silica in excess of applicable exposure limits, wear a NIOSH-approved respirator that is properly fitted and is in good condition. Respirators must be used in accordance with all applicable workplace regulations.

Thermal hazards: Not anticipated. Wear appropriate thermal protective clothing if necessary.

Section 9. Physical and chemical properties

Appearance

Physical State:	Solid, particles of granular mixture	**Lower and Upper explosive flammable limits**	Not applicable
Color:	Various colors	**Vapor pressure:**	Not applicable
Odor:	Not applicable	**Vapor density:**	Not applicable
Odor threshold:	Not applicable	**Relative density:**	Not available
pH:	Not available	**Solubility:**	Not available
Melting point:	Not applicable	**Solubility in water:**	Insoluble
Boiling point:	Not applicable	**Partition coefficient: n-octanol/water:**	Not applicable
Flash point:	Non-combustible	**Auto-ignition temperature:**	Not applicable
Burning time:	Not applicable	**Decomposition temperature:**	Not applicable
Burning rate:	Not applicable	**SADT:**	Not available
Evaporation Rate:	Not applicable	**Viscosity:**	Not applicable
Flammability (solid, gas):	Not applicable		

Section 10. Stability and reactivity

Reactivity: The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical Stability: Material is stable under normal conditions

Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.

Conditions to avoid: Avoid contact with strong oxidizing agents.

Incompatible materials: Crystalline silica may react violently with strong oxidizing agents, causing fire and explosions.

Hazardous decomposition products: Silica dissolves in hydrofluoric acid producing a corrosive gas-silicon tetrafluoride.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity: Not expected to be acutely toxic.

Irritation/Corrosion: **Skin:** Dust: May cause irritation through mechanical abrasion. This product is not expected to be a skin hazard.
Eyes: Direct contact with eyes may cause temporary irritation through mechanical abrasion.
Inhalation: Repeated inhalation of respirable crystalline silica (quartz) may cause silicosis, a fibrosis (scarring) of the lungs. Silicosis is irreversible and may be fatal. Silicosis increases the risk of contracting pulmonary tuberculosis. Some studies suggest that repeated inhalation of respirable crystalline silica may cause other adverse health effects including lung and kidney cancer.
Ingestion: Not likely due to product form. However accidental ingestion may cause discomfort.

Sensitization: **Respiratory sensitization:** No respiratory sensitizing effects known.
Skin sensitization: Not known to be a dermal irritant or sensitizer.

Mutagenicity: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Aspiration Hazard: Not expected to be an aspiration hazard.

Reproductive toxicity: Not expected to be a reproductive hazard.

Symptoms related to physical, chemical and toxicological characteristics: Dust: discomfort in the chest. Shortness of breath. Coughing.

Carcinogenicity: Respirable crystalline silica has been classified by IARC and NTP as a known human carcinogen, and classified by ACGIH as a suspected human carcinogen.

Product/ingredient name	OSHA	IARC	ACGIH	NTP
Crystalline Silica (Quartz) CAS 14808-60-7)	Not listed	1 Carcinogenic to humans	A2	Known to be human Carcinogen
Respirable Tridymite and Cristobalite (Other forms of Crystalline) (CAS Mixture)	Not listed	1 Carcinogenic to humans	-	-

Specific target organ toxicity (acute exposure)

Name	Category	Route of Exposure	Target Organs
Crystalline Silica (Quartz) CAS 14808-60-7)	-	Inhalation	Not reported to have effects
Respirable Tridymite and Cristobalite (Other forms of Crystalline) (CAS Mixture)	-	Inhalation	Not reported to have effects

Specific target organ toxicity (chronic exposure)

Name	Category	Route of Exposure	Target Organs
Crystalline Silica (Quartz) CAS 14808-60-7)		Inhalation	May cause damage to organs (lung through prolonged or repeated exposure.
Respirable Tridymite and Cristobalite (Other forms of Crystalline) (CAS Mixture)		Inhalation	May cause damage to organs (lung through prolonged or repeated exposure.

Potential chronic health effects: General: Prolonged inhalation of respirable crystalline silica may be harmful. May cause damage to organs (lungs) through prolonged or repeated exposure. There are reports in the literature suggesting that excessive crystalline silica exposure may be associated with autoimmune disorders and other adverse health effects involving the kidney. In particular, the incidence of scleroderma (thickening of the skin caused by swelling and the thickening of fibrous tissue) appears to be higher in silicotic individuals. To date, the evidence does not conclusively determine a causal relationship between silica exposure and these adverse health effects.

Section 12. Ecological Information

Ecotoxicity

Not expected to be harmful to aquatic organisms. Discharging sand and gravel dust and fines into waters may increase total suspended particulate (TSP) levels that can be harmful to certain aquatic organisms.

Persistence and degradability:	Not applicable.
Bioaccumulative potential:	Not applicable.
Mobility in soil:	Not applicable.
Other adverse effects:	No other adverse environmental effects (e.g., ozone depletion, photochemical ozone creation potential, global warming potential) are expected from this component.

Section 13. Disposal considerations

Disposal methods:	Do not allow fine particulate matter to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with fine particulates. Dispose of contents in accordance with local/regional/national/international regulations.
Hazardous waste code:	Not regulated.
Waste from residues/unused products:	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
Contaminated packaging:	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty packaging materials should be recycled or disposed of in accordance with applicable regulations and practices.

Section 14. Transportation information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	-	-	-
Additional information	-	-	-

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Section 15. Regulatory Information

U.S. Federal regulations:	
OSHA Hazard Communication Standard, 29 CFR 1910.1200	**This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200**
TSCA Section 12(b) Export Notification (40 CFR 707, Subpart. D):	Not regulated
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):	Not listed
CERCLA Hazardous Substance List (40 CFR 302.4):	Not listed
Clean Air Act Section 112 (b): Hazardous Air Pollutants (HAPs):	Not regulated
Clean Air Act Section 112 (r) Accidental Release Prevention (40 CFR 68.130):	Not regulated

Safe Drinking Water Act (SDWA): Not regulated

SARA 311/312

Classification: Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire Hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Crystalline Silica (Quartz) CAS 14808-60-7	>1	No	No	No	No	Yes

SARA 313 (TRI)

	Product name	CAS number	%
Form R-Report requirements	Crystalline Silica (Quartz)	14808-60-7	Not regulated

State regulations

Massachusetts RTK: The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)

New Jersey RTK: The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS mixture)

Pennsylvania RTK: The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)

Rhode Island RTK: Not regulated.

California Prop. 65

WARNING: This product contains crystalline silica and chemicals (trace metals) known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Crystalline Silica (Quartz) CAS 14808-60-7	Yes	No	No	No

International regulations

Ingredient name	CAS #	TSCA	Canada	WHMIS	EEC
Crystalline Silica (Quartz)	14808-60-7	Yes	DSL	D2A	EINECS

WHMIS Classification:

D2A "Materials Causing Other Toxic Effects"

Section 16. Other Information

Date of issue: 06/01/2015
Version: 06/01/2015
Revised Section(s): N/Ap

Notice to reader

While the information provided in this safety data sheet is believed to provide a useful summary of the hazards of sand and gravel as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product. In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with sand and gravel to produce sand and gravel products. Users should review other relevant material safety data sheets before working with this sand and gravel or working on sand and gravel products.

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Abbreviations

ACGIH — American Conference of Governmental Industrial Hygienists
CAS — Chemical Abstract Service
CERCLA — Comprehensive Emergency Response and Comprehensive Liability Act
CFR — Code of Federal Regulations
DOT — Department of Transportation
GHS — Globally Harmonized System
HEPA — High Efficiency Particulate Air
IATA — International Air Transport Association
IARC — International Agency for Research on Cancer
IMDG — International Maritime Dangerous Goods
NIOSH — National Institute of Occupational Safety and Health
NOEC — No Observed Effect Concentration
NTP — National Toxicology Program
OSHA — Occupational Safety and Health Administration
PEL — Permissible Exposure Limit
REL — Recommended Exposure Limit
RQ — Reportable Quantity
SARA — Superfund Amendments and Reauthorization Act
SDS — Safety Data Sheet
TLV — Threshold Limit Value
TPQ — Threshold Planning Quantity
TSCA — Toxic Substances Control Act
TWA — Time-Weighted Average
UN — United Nations

SAFETY DATA SHEET

VIPLEX 50

Section 1. Identification

GHS product identifier

: VIPLEX 50

Chemical name : Extracts (petroleum), heavy paraffinic distillate solvent

Other means of identification

Product type

: Extracts, petroleum, heavy paraffinic distillate solvent; PETROLEUM EXTRACTS, HEAVY PARAFFINIC DISTILLATE SOLVENT

: Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Product use : Not available.

Area of application : Industrial applications.

Supplier/Manufacturer : Crowley Chemical Company, Inc.
One Grand Central Place
305 Madison Avenue, Suite 1035
New York, NY 10165
Phone: (212) 682-1200
Fax: (212) 953-3487

e-mail address of person responsible for this SDS

: info@crowleychemical.com
Website: www.crowleychemical.com

Emergency telephone number (with hours of operation)

: 888 488 8044 or 212 682 1200
CHEMTREC 800 424 9300

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

: CARCINOGENICITY - Category 1B
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (adrenal, bone marrow, liver, lymphatic system, kidneys, stomach and thymus) (dermal) - Category 1 ASPIRATION HAZARD - Category 1

GHS label elements

Hazard pictograms

Signal word Danger

Section 2. Hazards identification

Hazard statements : May cause cancer.
Suspected of damaging the unborn child.
May be fatal if swallowed and enters airways.
Causes damage to organs through prolonged or repeated exposure in contact with skin. (adrenal, bone marrow, kidneys, liver, lymphatic system, stomach, thymus)

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

Hazards not otherwise classified

: Avoid contact with skin and clothing. Wash thoroughly after handling.

Defatting to the skin. Prolonged or repeated contact may dry skin and cause irritation.
Contact with hot material causes thermal skin burns.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Chemical name : Extracts (petroleum), heavy paraffinic distillate solvent

Other means of identification

: Extracts, petroleum, light paraffinic distillate solvent; Mineral oil, light paraffinic distillate solvent; MINERAL OIL, PETROLEUM EXTRACTS, HEAVY PARAFFINIC DISTILLATE SOLVENT

CAS number / other identifiers

CAS number : 64742-04-7

Product code : Not available.

Ingredient name	Other names	%	CAS number
Extracts (petroleum), heavy paraffinic distillate solvent	Extracts (petroleum), Heavy paraffinic distillate solvent	100	64742-04-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact :

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact

ection 4. First aid measures

nhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms / effects, acute and delayed

Potential acute health effects

Eye contact: No known significant effects or critical hazards.

alation: No known significant effects or critical hazards.

Skin contact: Defatting to the skin. May cause skin dryness and irritation.

Ingestion: May be fatal if swallowed and enters airways.

Over-exposure signs / symptoms

Eye contact No specific data.

Inhalation: Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations

Skin contact Adverse symptoms may include the following: irritation dryness cracking reduced fetal weight increase in fetal deaths skeletal malformations

Ingestion Adverse symptoms may include the following: nausea or vomiting reduced fetal weight increase in fetal deaths skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

pecific treatments : No specific treatment.

Section 4. First aid measures

action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Unsuitable extinguishing media

: Use an extinguishing agent suitable for the surrounding fire.

SMALL FIRE
Use dry chemical, CO_2, water spray (fog) or foam. LARGE FIRE
Use water spray, fog or foam.

: Do not use water jet.

Specific hazards arising from the chemical

Hazardous thermal decomposition products

n a fire or if heated, a pressure increase will occur and the container may burst.

: Decomposition products may include the following materials: carbon dioxide
carbon monoxide sulfur oxides Aldehyde.
Aromatic hydrocarbon.
Hydrocarbon.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters

: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

: No action shall be taken involving any personal risk or without suitable training.
Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

r emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and

Section 6. Accidental release measures

Methods and materials for containment and cleaning up

Small spill: Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Advice on general occupational hygiene

Conditions for safe storage, including any incompatibilities

: Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Extracts (petroleum), Heavy paraffinic distillate solvent	**NIOSH REL (United States, 10/2013).** TWA: 5 mg/m³ 10 hours. Form: Mist STEL: 10 mg/m³ 15 minutes. Form: Mist

Appropriate engineering controls

If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

ection 8. Exposure controls/personal protection

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Recommended: Viton®, Nitrile gloves.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When handling hot material, wear heat-resistant protective gloves that are able to withstand the temperature of molten product.

Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance:	Liquid. [Viscous liquid.]
Physical state Color:	Brown. Black
Odor:	Mild
Odor threshold	Not available
pH: :	Neutral.
Melting point:	NA
ling point:	>316° C / 600° F)
ash point:	Open cup: >450°F) [Cleveland. ASTM D92]
Evaporation rate:	Not available
Flammability (solid, gas)	Not applicable.

Section 9. Physical and chemical properties

Lower and upper explosive (Flammable) limits: Not applicable.

Vapor pressure : 0.1 kPa (0.75 mm Hg) [room temperature]

Vapor density: Not available.

Relative density: 1.03 [Water = 1]

Solubility: Mostly insoluble in the following materials: cold water and hot water.

Solubility in water: Not available.

Partition coefficient: n- octanol/water: Not available.

Auto-ignition temperature: Not available.

Decomposition temperature: Not available.

SADT: Not available.

Viscosity: Kinematic @ 40°C /104°F: 700 cSt

Density: 1.03 g/cm^3

Physical/chemical properties comments: Viscosity Kinematic @100°C / 212°F: 19 cSt

Section 10. Stability and reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.

Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid: Keep away from extreme heat. Avoid all possible sources of ignition (spark or flame).

Incompatible materials: Reactive or incompatible with the following materials: oxidizing materials. such as chlorates, nitrates, peroxides.

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acutetoxicity

Product/ingredient name	Result	Species	Dose	Exposure
Extracts (petroleum), heavy paraffinic distillate solvent	LD50 Dermal	Rabbit	>2 g/kg	-
	LD50 Oral	Rat	0.5 g/kg	-

Irritation/Corrosion Not available.

Sensitization Not available

Section 11. Toxicological information

Mutagenicity Not available.

Conclusion/Summary : LAE was found to be positive in an Ames mutagenicity test.

Carcinogenicity Not available.

Conclusion/Summary : Lifetime animal skin painting studies with light aromatic extracts (LAE) have produced tumors following prolonged and repeated skin contact without washing.

Reproductive toxicity Not available.

Teratogenicity Not available.

Specific target organ toxicity (single exposure) Not available.

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Extracts (petroleum), Heavy paraffinic distillate solvent	Category 1	Skin	adrenal, bone marrow, kidneys, liver, lymphatic system, stomach and thymus

Aspiration hazard

Name	Result
Extracts (petroleum), Heavy paraffinic distillate solvent	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Potential acute health effects: Routes of entry anticipated: Oral, Dermal, Inhalation.

Eye contact: No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : Defatting to the skin. May cause skin dryness and irritation.

Ingestion: May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation: Adverse symptoms may include the following: reduced fetal weight
increase in fetal deaths skeletal malformations

Section 11. Toxicological information

Skin contact: Adverse symptoms may include the following: irritation
dryness cracking reduced fetal weight increase in fetal deaths skeletal malformations

Ingestion: Adverse symptoms may include the following: nausea or vomiting
reduced fetal weight increase in fetal deaths skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects: Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects Not available.

General : Causes damage to organs through prolonged or repeated exposure in contact with skin. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards

Teratogenicity : Suspected of damaging the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity Not available.

Conclusion/Summary : The 96 hour TLM for WAF (water accommodated fraction) of an aromatic extract is >1000 mg/l in fish or algae. 21 day exposures of 1000mg/l WAF of an aromatic extract to Daphnia did not affect survival nor reproduction.

Section 12. Ecological information

Persistence and degradability

Conclusion/Summary : VIPLEX 50 was analyzed by EPA Test 8270 and found not to contain any reportable component of the 3-7 membered condensed ring polycyclic aromatic hydrocarbon class identified as Persistent Bioaccumulative Toxic (PBT) chemicals subject to reporting under EPA EPCRA Section 313 regulations.

Bioaccumulative potential Not available.

Mobility in soil **Soil/water partition coefficient (K_{OC})** : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	UN3082	UN3082
UN proper shipping name	-	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Extracts (petroleum), light paraffinic distillate solvent). Marine pollutant (Extracts (petroleum), light paraffinic distillate solvent)	Environmentally hazardous substance, liquid, n.o.s. (Extracts (petroleum), light paraffinic distillate solvent)
Transport hazard class(es)	-	 9	 9
Packing group	-	III	III

Section 14. Transport information

Environmental hazards	No.	Yes.	Yes.
Additional information	-	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Emergency schedules (EmS)** F-A, S-F **Special provisions** 274, 335, 969	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Passenger and Cargo Aircraft** Quantity limitation: 450 L Packaging instructions: 964 **Cargo Aircraft Only** Quantity limitation: 450 L Packaging instructions: 964 **Limited Quantities- Passenger Aircraft** Quantity limitation: 30 kg Packaging instructions: Y964 **Special provisions** A97, A158, A197

Special precautions for user
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Not available.

Section 15. Regulatory information

U.S. Federal regulations :

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112: Not listed

(b) Hazardous Air Pollutants (HAPs)

Clean Air Act Section 602 Class I Substances: Not listed

Clean Air Act Section 602 Class II Substances: Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA302/304

Composition / information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA311/312

Section 15. Regulatory information

Classification : Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition / information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Extracts (petroleum), Heavy paraffinic distillate solvent	100	No.	No.	No.	Yes.	Yes.

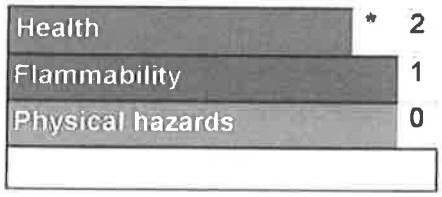
SARA313 Not applicable.

State regulations

Massachusetts : This material is listed.
New York : This material is not listed.
New Jersey : This material is listed.
Pennsylvania : This material is not listed.
CaliforniaProp.65 None of the components are listed.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Health

1 **Flammability**

2 0 **Instability/Reactivity Special**

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Section 16. Other information

History

Date of issue/Date of revision05/27/2015

Date of previous issue Version No previous validation

Prepared by the Crowley Chemical Company

Key to abbreviations	:	ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations
References	:	HCS (U.S.A.)- Hazard Communication Standard International transport regulations

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.