

SAFETY DATA SHEET

Asphalt



Section 1. Identification

Product name : Asphalt
Product code : Not available.
Synonyms : PG asphalt, pitch, zero pen, penetration graded asphalt, AC graded asphalt, PAC graded asphalt, TR asphalt, rubberized asphalt, asphalt emulsion base, flux, vacuum tower bottoms, PDA bottoms, Residuum

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

Product use : Road Paving
Area of application : Industrial applications.

Manufacturer : HollyFrontier Refining & Marketing LLC
2828 North Harwood
Suite 1300
Dallas, Texas 75201
USA
Customer Service: 1-214-954-6720

e-mail address of person responsible for this SDS : hfcsds@hollyfrontier.com
Emergency telephone number : CHEMTREC® (800) 424-9300
CCN 201319

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 : H319 EYE IRRITATION - Category 2A
H350 CARCINOGENICITY - Category 1B
H361 TOXIC TO REPRODUCTION - Category 2
H372 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H319 - Causes serious eye irritation.
H350 - May cause cancer.
H361 - Suspected of damaging fertility or the unborn child.
H372 - Causes damage to organs through prolonged or repeated exposure. (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. Wear protective gloves: > 8 hours (breakthrough time): Recommended: Wear heat resistant gloves when used at elevated temperatures.. Wear protective clothing. Wear eye or face protection. Do not breathe dust. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Product may release hydrogen sulfide: a specific assessment of inhalation risks from the presence of hydrogen sulfide in tank headspaces, confined spaces, product residue, tank waste and waste water and unintentional releases should be made to help determine controls appropriate to local circumstances.
- Response** : IF exposed or concerned: Get medical advice or 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 advice or attention.
- Storage** : Not applicable.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Supplemental label elements** : Avoid contact with skin and clothing. Wash thoroughly after handling. Heated material can cause thermal burns.
- Hazards not otherwise classified** : Prolonged or repeated contact may dry skin and cause irritation. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	Other names	%	CAS number
Asphalt	-	70 - 100	8052-42-4
Extracts (petroleum), heavy paraffinic distillate solvent	-	0 - 25	64742-04-7
Ground tire rubber	-	0 - 25	-
Butadiene-Styrene copolymer	-	<8	9003-55-8
carbon black, non respirable	-	0 - 8	1333-86-4
Polyphosphoric acids	-	<2	8017-16-1
Alkoxylated Fatty polyamines	-	<2	-
sulfur	-	<1	7704-34-9
zinc oxide	-	<0.4	1314-13-2
hydrogen sulphide	-	<0.1	7783-06-4

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 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** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention. Continue to rinse for at least 15 minutes.
- Inhalation** : 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. Continue to rinse for at least 15 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention. 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 : Causes serious eye irritation.
Inhalation : Mist/high concentrations: Inhalation may cause irritation to the nose, throat, upper respiratory tract and lungs.
Skin contact : Defatting to the skin. May cause skin dryness and irritation.
Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : pain or irritation; watering; redness
Inhalation : respiratory tract irritation; coughing
Skin contact : irritation; dryness; cracking
Ingestion : No specific data.

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.
Specific treatments : No specific treatment.
Protection of medical responders : No 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 : Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : No specific fire or explosion hazard. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

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 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. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.
- For 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 sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, waterways, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. 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** : 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 ingest. 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. High pressure skin injections are serious medical emergencies. Injury will not appear serious at first. Within a few hours, tissue will become swollen, discolored and extremely painful. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.
- Advice on general occupational hygiene** : 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.

- Conditions for safe storage, including any incompatibilities** : 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. 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
<p>Asphalt</p> <p>Extracts (petroleum), heavy paraffinic distillate solvent</p> <p>Ground tire rubber Butadiene-Styrene copolymer carbon black, non respirable</p> <p>Polyphosphoric acids Alkoxylated Fatty polyamines sulfur zinc oxide</p> <p>hydrogen sulphide</p>	<p>NIOSH REL (United States, 10/2016). CEIL: 5 mg/m³ 15 minutes. Form: Fume</p> <p>ACGIH TLV (United States, 3/2020). TWA: 0.5 mg/m³, (as benzene soluble aerosol) 8 hours. Form: Inhalable fraction</p> <p>NIOSH REL (United States, 10/2016). TWA: 5 mg/m³ 10 hours. Form: Mist STEL: 10 mg/m³ 15 minutes. Form: Mist</p> <p>None.</p> <p>None.</p> <p>ACGIH TLV (United States, 3/2020). TWA: 3 mg/m³ 8 hours. Form: Inhalable fraction</p> <p>NIOSH REL (United States, 10/2016). TWA: 3.5 mg/m³ 10 hours. TWA: 0.1 mg of PAHs/cm³ 10 hours.</p> <p>OSHA PEL (United States, 5/2018). TWA: 3.5 mg/m³ 8 hours.</p> <p>None.</p> <p>None.</p> <p>None.</p> <p>NIOSH REL (United States, 10/2016). CEIL: 15 mg/m³ Form: Dust TWA: 5 mg/m³ 10 hours. Form: Dust and fumes STEL: 10 mg/m³ 15 minutes. Form: Fume</p> <p>OSHA PEL (United States, 5/2018). TWA: 5 mg/m³ 8 hours. Form: Fume TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</p> <p>ACGIH TLV (United States, 3/2020). TWA: 2 mg/m³ 8 hours. Form: Respirable fraction STEL: 10 mg/m³ 15 minutes. Form: Respirable fraction</p> <p>ACGIH TLV (United States, 3/2020). TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes.</p> <p>OSHA PEL Z2 (United States, 2/2013). CEIL: 20 ppm AMP: 50 ppm 10 minutes.</p> <p>NIOSH REL (United States, 10/2016). CEIL: 10 ppm 10 minutes. CEIL: 15 mg/m³ 10 minutes.</p>

- 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. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.
- 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: chemical splash goggles.

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. > 8 hours (breakthrough time): Recommended: Wear heat resistant gloves when used at elevated temperatures.
- 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.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

- Physical state** : Solid.
- Color** : Brown./Black. [Dark]
- Odor** : Asphalt
- Odor threshold** : Not available.
- pH** : 7 - 13
- Melting point** : Not available.
- Boiling point, initial boiling point, and boiling range** : >482°C (>900°F)
- Flash point** : Open cup: >260°C (>500°F) [ASTM D92]
- Evaporation rate** : Not available.
- Flammability** : Not available.
- Lower and upper explosion limit/flammability limit** : Not applicable.
- Vapor pressure** : 1.3 kPa (<10 mm Hg)
- Relative vapor density** : Not applicable.
- Relative density** : 0.9 to 1.1
Bulk density: 8.6 lbs/gal [16°C (60°F)]
- Density** : Not available.
- Solubility** : Insoluble in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/water** : Not applicable.
- Auto-ignition temperature** : Not applicable.
- Decomposition temperature** : Not available.
- SADT** : Not available.
- Viscosity** : Kinematic (40°C (104°F)): 30 to 3000000 cm²/s (3000 to 300000000 cSt)
- Flow time (ISO 2431)** : Not available.
- Particle characteristics**
- Median particle size** : Not available.
- Additional information**
- Physical/chemical properties comments** : No additional information.

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** : No specific data.
- 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	Result	Species	Dose	Exposure
Asphalt	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
Extracts (petroleum), heavy paraffinic distillate solvent	LC50 Inhalation Dusts and mists	Rat	>5 mg/l	4 hours
	LD50 Dermal	Rabbit	>3000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
carbon black, non respirable	LC50 Inhalation Dusts and mists	Rat	6.75 mg/l	4 hours
	LD50 Dermal	Rabbit	>3 g/kg	-
	LD50 Oral	Rat	>15400 mg/kg	-
Alkoxylated Fatty polyamines sulfur	LD50 Oral	Rat	>500 mg/kg	-
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
zinc oxide	LC50 Inhalation Dusts and mists	Rat	>5.7 mg/l	4 hours
	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
hydrogen sulphide	LC50 Inhalation Gas.	Rat	444 ppm	4 hours

- Conclusion/Summary** : Based on CONCAWE assessment of bitumen.
Based on CONCAWE assessment of untreated distillate aromatic extracts.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Extracts (petroleum), heavy paraffinic distillate solvent	Skin - Mild irritant	Rabbit	-	-	-
Butadiene-Styrene copolymer	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
zinc oxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-

Conclusion/Summary

- Skin** : Heated material can cause thermal burns.
Based on CONCAWE assessment of bitumen. May cause slight transient irritation.
Based on CONCAWE assessment of untreated distillate aromatic extracts. Slightly irritating to the skin.

Eyes : Heated material can cause thermal burns.
Based on CONCAWE assessment of bitumen. May cause slight transient irritation.
Based on CONCAWE assessment of untreated distillate aromatic extracts. May cause slight transient irritation.

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Extracts (petroleum), heavy paraffinic distillate solvent	skin	Guinea pig	Not sensitizing

Conclusion/Summary

Skin : Based on CONCAWE assessment of bitumen. Not sensitizing.
Based on CONCAWE assessment of untreated distillate aromatic extracts. Not sensitizing.

Respiratory : No data available.

Mutagenicity

Conclusion/Summary : Based on CONCAWE assessment of bitumen. No mutagenic effect.
Based on CONCAWE assessment of untreated distillate aromatic extracts. No mutagenic effect.

Carcinogenicity

Product/ingredient name	OSHA	IARC	NTP
Asphalt	-	2B	-
Butadiene-Styrene copolymer	-	3	-
carbon black, non respirable	-	2B	-

Reproductive toxicity

Conclusion/Summary : Based on CONCAWE assessment of untreated distillate aromatic extracts. Not considered to be toxic to the reproductive system.

Teratogenicity

Conclusion/Summary : Based on CONCAWE assessment of untreated distillate aromatic extracts. Possible risk of harm to the unborn child.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Polyphosphoric acids	Category 3	-	Respiratory tract irritation
sulfur	Category 3	-	Respiratory tract irritation
hydrogen sulphide	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Extracts (petroleum), heavy paraffinic distillate solvent	Category 1	dermal	adrenal, bone marrow, kidneys, liver, lymphatic system, stomach, thymus
hydrogen sulphide	Category 2	inhalation	lungs

Aspiration hazard

Name	Result
Extracts (petroleum), heavy paraffinic distillate solvent	ASPIRATION HAZARD - Category 1

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

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

Conclusion/Summary : Based on CONCAWE assessment of untreated distillate aromatic extracts.

General : Causes damage to organs through prolonged or repeated exposure. 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

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Asphalt	26472.2	2889	N/A	N/A	N/A
Asphalt	N/A	2500	N/A	N/A	N/A
Extracts (petroleum), heavy paraffinic distillate solvent	N/A	2500	N/A	N/A	N/A
carbon black, non respirable	N/A	2500	N/A	N/A	6.75
Alkoxylated Fatty polyamines	500	N/A	N/A	N/A	N/A
sulfur	2500	2500	N/A	N/A	N/A
zinc oxide	N/A	2500	N/A	N/A	N/A
hydrogen sulphide	N/A	N/A	444	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Extracts (petroleum), heavy paraffinic distillate solvent	Acute EC50 18.8 mg/l	Algae	96 hours
carbon black, non respirable	Acute EC50 35.9 mg/l	Daphnia	48 hours
	Acute EC50 >1000 mg/l	Fish	96 hours
Alkoxylated Fatty polyamines	Acute EC50 >10000 mg/l Fresh water	Algae	72 hours
	Acute NOEC >10000 mg/l Fresh water	Algae	72 hours
sulfur	LC50 0.1 to 0.15 mg/l	Fish	96 hours
	Acute LC50 >100 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
zinc oxide	Acute IC50 1.85 mg/l Marine water	Algae - Skeletonema costatum	96 hours
	Acute IC50 46 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours

hydrogen sulphide	Acute LC50 98 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 1.1 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 0.04 mg/l Fresh water	Daphnia - Daphnia magna	21 days
	Acute EC50 62 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus	2 days
	Acute LC50 2 µg/l Fresh water	Fish - Coregonus clupeaformis - Yolk-sac fry	96 hours

Conclusion/Summary : Based on CONCAWE assessment of untreated distillate aromatic extracts.

Persistence and degradability

Conclusion/Summary : Based on CONCAWE assessment of bitumen.
Based on CONCAWE assessment of untreated distillate aromatic extracts.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Asphalt	-	-	Not readily
Extracts (petroleum), heavy paraffinic distillate solvent	-	-	Inherent

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Asphalt	≥4	-	high
Extracts (petroleum), heavy paraffinic distillate solvent	≥4	-	high
zinc oxide	-	28960	high

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

Asphalt		HollyFrontier Refining & Marketing LLC	
	DOT Classification	IMDG	IATA
UN number	UN3257	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.	Yes.	Yes. The environmentally hazardous substance mark is not required.

Additional information

DOT Classification

: **Limited quantity** No.
Packaging instruction Exceptions: None. Non-bulk: None. Bulk: 247.
Quantity limitation Passenger aircraft/rail: Forbidden. Cargo aircraft: Forbidden.
Special provisions IB1, T3, TP3, TP29
Remarks The HOT placard is required for product being shipped in bulk at elevated temperature.

IMDG

: The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Emergency schedules F-A, _S-P_
Special provisions 232, 274

IATA

: The environmentally hazardous substance mark may appear if required by other transportation regulations.
Quantity limitation Passenger and Cargo Aircraft: Forbidden. Packaging instructions: Forbidden. Cargo Aircraft Only: Forbidden. Packaging instructions: Forbidden. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.

Special precautions for user : **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.

Special Note: Not regulated by DOT if at room temperature and in containers of 119 gallons or less.

Section 15. Regulatory information

U.S. Federal regulations : **United States inventory (TSCA 8b):** Not determined.
Clean Water Act (CWA) 307: zinc oxide
Clean Water Act (CWA) 311: hydrogen sulphide

Department of homeland security (DHS), Chemical Facility Anti-terrorism Standards (6 CFR 27), Appendix A, Chemicals of Interest

Name	%	Status
Hydrogen sulphide	<0.1	Listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
hydrogen sulphide	<0.1	Yes.	500	-	100	-

SARA 304 RQ : 111111.1 lbs / 50444.4 kg

SARA 311/312

Classification : EYE IRRITATION - Category 2A
 CARCINOGENICITY - Category 1B
 TOXIC TO REPRODUCTION - Category 2
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
 HNOC - Defatting irritant

Composition/information on ingredients

Name	%	Classification
Asphalt	70 - 100	CARCINOGENICITY - Category 2
Extracts (petroleum), heavy paraffinic distillate solvent	0 - 25	CARCINOGENICITY - Category 1B TOXIC TO REPRODUCTION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1 ASPIRATION HAZARD - Category 1 HNOC - Static-accumulating flammable liquid HNOC - Defatting irritant
Butadiene-Styrene copolymer	<8	EYE IRRITATION - Category 2B
Polyphosphoric acids	<2	CORROSIVE TO METALS - Category 1 SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 HNOC - Corrosive to digestive tract
Alkoxylated Fatty polyamines	<2	ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A
sulfur	<1	FLAMMABLE SOLIDS - Category 2 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
zinc oxide	<0.4	EYE IRRITATION - Category 2B
hydrogen sulphide	<0.1	FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Compressed gas ACUTE TOXICITY (inhalation) - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

SARA 313

Not applicable.

State regulations

Massachusetts

: The following components are listed: ASPHALT FUMES; ASPHALT (LIQUID RAPID-CURING); ASPHALT (CUTBACK); MINERAL OIL, PETROLEUM EXTRACTS, HEAVY PARAFFINIC DISTILLATE SOLVENT; CARBON BLACK

New York

: None of the components are listed.

New Jersey

: The following components are listed: ASPHALT; ROAD ASPHALT, LIQUID; BITUMEN; ASPHALT (TYPICAL); MINERAL OIL (UNTREATED and MILDLY TREATED); CARBON BLACK

Pennsylvania

: The following components are listed: ASPHALT; CARBON BLACK

California Prop. 65

⚠ WARNING: This product can expose you to chemicals including Bitumens, extracts of steam-refined and air refined and Carbon black, which are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Ingredient name	No significant risk level	Maximum acceptable dosage level
Bitumens, extracts of steam-refined and air refined	-	-
Carbon black	-	-

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: Not determined.
Canada	: Not determined.
China	: Not determined.
Europe	: Not determined.
Japan	: Japan inventory (CSCL): At least one component is not listed. Japan inventory (ISHL): Not determined.
Malaysia	: At least one component is not listed.
New Zealand	: Not determined.
Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: Not determined.
Turkey	: Not determined.

Section 16. Other information

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

Health	*	3
Flammability		1
Physical hazards		0

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 and the associated label are not required on SDSs or products leaving a facility 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 trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

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



Procedure used to derive the classification

Classification	Justification
EYE IRRITATION - Category 2A	Calculation method
CARCINOGENICITY - Category 1B	Calculation method
TOXIC TO REPRODUCTION - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1	Calculation method

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Key to abbreviations	: ATE = Acute Toxicity Estimate AMP = Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift 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 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) N/A = Not available UN = United Nations

📌 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 manufacturer, 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.