SAFETY DATA SHEET

1. Identification
Product identifier: Asphalt - Oxidized Roofing
Other means of identification
SDS number: 208OxR-GHS
Synonyms: Oxidized Petroleum Asphalt; Built Up Roofing Asphalt (BURA) - Type I, II, III, & IV; ASTM D-312 Roofing Asphalt - Type I, II, III, & IV; Coating Asphalt; Damp Roofing ASTM D 449-89 - Type I, II, III, & IV
Recommended use: Asphalt products are to be used as road and highway paving applications; waterproofing and sealing applications; coatings; or other engineering applications. Use in other applications may result in higher exposures and require additional engineering controls and personal protective equipment.
Recommended restrictions: None known.
Manufacturer/Importer/Supplier/Distributor information
Manufacturer/Supplier: Valero Marketing & Supply Company and Affiliates
One Valero Way
San Antonio, TX 78269-6000
General Assistance: 210-345-4593
E-Mail: CorpHSE@valero.com
Contact Person: Industrial Hygienist
Emergency Telephone: 24 Hour Emergency 866-565-5220
1-800-424-9300 (CHEMTREC USA)

2. Hazard(s) identification
Physical hazards: Not classified.
Health hazards: Carcinogenicity Category 1B
OSHA defined hazards: Not classified.
Label elements:
Signal word: Danger
Hazard statement: May cause cancer.
Precautionary statement:
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.
Response: If exposed or concerned: Get medical advice/attention.
Storage: Store locked up.
Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC): None known.

3. Composition/information on ingredients
Mixtures
<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt</td>
<td>8052-42-4</td>
<td>0 - 100</td>
</tr>
<tr>
<td>Asphalt, oxidized</td>
<td>64742-93-4</td>
<td>0 - 100</td>
</tr>
<tr>
<td>Vacuum tower bottoms</td>
<td>64741-56-6</td>
<td>0 - 100</td>
</tr>
</tbody>
</table>
Distillates, petroleum residues, vacuum 68955-27-1 0 - 15

Hydrogen sulfide 7783-06-4 <0.1

Polycyclic Aromatic Hydrocarbons 130498-29-2 <0.1

Composition comments Dangerous amounts of hydrogen sulfide, a highly toxic gas, may be present, especially in the headspace of containers.

4. First-aid measures

Inhalation Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Skin contact In case of contact with hot or molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product from skin because skin will tear easily. Remove contaminated clothing and shoes. Get medical attention if irritation develops or persists. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes. If high pressure injection under the skin occurs, always seek medical attention.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.

Ingestion Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Do not give mouth-to-mouth resuscitation. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get medical attention immediately.


Indication of immediate medical attention and special treatment needed In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use.

5. Fire-fighting measures


Unsuitable extinguishing media Do not use water jet.

Specific hazards arising from the chemical Contact with molten material may cause thermal burns.

Special protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire-fighting equipment/instructions Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Water runoff can cause environmental damage.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment.
Methods and materials for containment and cleaning up

Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible.

Small Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Cover with plastic sheet to prevent spreading. Collect spillage. Following product recovery, flush area with water. Prevent product from entering drains. Do not allow material to contaminate ground water system. Clean surface thoroughly to remove residual contamination. Wipe up with absorbent material (e.g. cloth, fleece).

Environmental precautions

If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Review Firefighting Measures, Section 5, before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Use compatible foam to minimize vapor generation as needed. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 1-800-424-8802. For highway or railways spills, contact Chemtrec at 1-800-424-9300.

7. Handling and storage

Precautions for safe handling

Wear personal protective equipment. Avoid breathing mist or vapor from heated material. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. When using, do not eat, drink or smoke. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities

Material is normally stored in closed tanks at 250 to 375F. Do not handle, store or open near an open flame or sources of ignition. Protect material from direct sunlight. This material can accumulate static charge which may cause spark and become an ignition source. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. Exposure controls/personal protection

Occupational exposure limits

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

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide (CAS 7783-06-4)</td>
<td>Ceiling</td>
<td>20 ppm</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt (CAS 8052-42-4)</td>
<td>TWA</td>
<td>0.5 mg/m3</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Hydrogen sulfide (CAS 7783-06-4)</td>
<td>STEL</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td>Vacuum tower bottoms (CAS 64741-56-6)</td>
<td>TWA</td>
<td>1 ppm</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.5 mg/m3</td>
<td></td>
</tr>
</tbody>
</table>

US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt (CAS 8052-42-4)</td>
<td>Ceiling</td>
<td>5 mg/m3</td>
<td>Fume.</td>
</tr>
<tr>
<td>Hydrogen sulfide (CAS 7783-06-4)</td>
<td>Ceiling</td>
<td>15 mg/m3</td>
<td></td>
</tr>
<tr>
<td>Vacuum tower bottoms (CAS 64741-56-6)</td>
<td>Ceiling</td>
<td>10 ppm</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 mg/m3</td>
<td></td>
</tr>
</tbody>
</table>

Biological limit values

No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls

Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin protection

Hand protection

Avoid exposure - obtain special instructions before use. Wear protective gloves. Protective gloves.

Other

Wear chemical-resistant, impervious gloves. Flame retardant protective clothing is recommended.

Respiratory protection

Wear a NIOSH-approved (or equivalent) respirator as needed.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance

Dark brown to black liquid at normal use temperatures above 300F. Semi-solid at 70F.

Physical state

Solid.

Form

Semi-Solid at 70F

Color

Brown/black.

Odor

Strong petroleum.

Odor threshold

Not available.

pH

Not available.

Melting point/freezing point

150 - 250 °F (65.56 - 121.11 °C) (Softening point)

Initial boiling point and boiling range

700 - 1100.1 °F (371.11 - 593.39 °C)

Flash point

> 350.1 °F (> 176.7 °C) Closed Cup

Evaporation rate

Not available.

Flammability (solid, gas)

Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)

> 0.9

Flammability limit - upper (%)

< 7

Explosive limit - lower (%)

Not available.

Explosive limit - upper (%)

Not available.

Vapor pressure

< 0.01 kPa @ 20 °C

Vapor density

> 1.6 (Air = 1)

Relative density

1 - 1.2 (Water=1)

Solubility(ies)

Solubility (water)

Not available.

Partition coefficient (n-octanol/water)

Not available.

Auto-ignition temperature

Not available.

Decomposition temperature

Not available.

Viscosity

Not available.

10. Stability and reactivity

Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability

Stable under normal temperature conditions and recommended use.

Possibility of hazardous reactions

Hazardous polymerization does not occur.

Conditions to avoid

Contact with incompatible materials.

Incompatible materials

Strong oxidizing agents.
11. Toxicological information

Information on likely routes of exposure

**Ingestion**
May be harmful if swallowed.

**Inhalation**
May be harmful if inhaled. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea.

**Skin contact**
May cause skin irritation.

**Eye contact**
May cause eye irritation.

**Symptoms related to the physical, chemical and toxicological characteristics**

Information on toxicological effects

**Acute toxicity**
Based on available data, the classification criteria are not met.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide (CAS 7783-06-4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Rat</td>
<td>&gt; 0.38 mg/l, 960 Minutes</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**
Based on available data, the classification criteria are not met.

**Serious eye damage/eye irritation**
Based on available data, the classification criteria are not met.

**Respiratory or skin sensitization**

**Respiratory sensitization**
Based on available data, the classification criteria are not met.

**Skin sensitization**
Based on available data, the classification criteria are not met.

**Germ cell mutagenicity**
Based on available data, the classification criteria are not met.

**Carcinogenicity**
May cause cancer. Contains polycyclic aromatic compounds (PACs). Prolonged and/or repeated skin contact with certain PACs has been shown to cause skin cancer. Prolonged and/or repeated exposures by inhalation of certain PACs may also cause cancer of the lung and of other sites of the body. Occupational exposure to oxidized asphalts and their emissions during roofing: 2A Probably carcinogenic to humans. Occupational exposure to straight-run asphalts and their emissions during road paving: 2B Possibly carcinogenic to humans.

**IARC Monographs. Overall Evaluation of Carcinogenicity**
- Asphalt (CAS 8052-42-4) 2B Possibly carcinogenic to humans.
- Asphalt, oxidized (CAS 64742-93-4) 2A Probably carcinogenic to humans.
- Vacuum tower bottoms (CAS 64741-56-6) 2B Possibly carcinogenic to humans.

**Reproductive toxicity**
Based on available data, the classification criteria are not met.

**Specific target organ toxicity - single exposure**
Based on available data, the classification criteria are not met.

**Specific target organ toxicity - repeated exposure**
Based on available data, the classification criteria are not met.

**Aspiration hazard**
Based on available data, the classification criteria are not met.

**Further information**
Symptoms may be delayed.

12. Ecological information

**Ecotoxicity**
Not expected to be harmful to aquatic organisms.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide (CAS 7783-06-4)</td>
<td>Aquatic</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Lake whitefish (Coregonus clupeaformis) 0.002 mg/l, 96 hours</td>
</tr>
</tbody>
</table>

**Persistence and degradability**
Not available.

**Bioaccumulative potential**
Not available.
13. Disposal considerations

Disposal instructions
Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

Hazardous waste code
Not regulated.

US RCRA Hazardous Waste U List: Reference
Hydrogen sulfide (CAS 7783-06-4) U135

Waste from residues / unused products
Dispose of in accordance with local regulations.

Contaminated packaging
Offer rinsed packaging material to local recycling facilities.

14. Transport information

DOT
UN number UN3257
UN proper shipping name Elevated temperature liquid, n.o.s. (Asphalt)
Class 9
Subsidiary risk -
Packing group III
Special precautions for user Not available.
Special provisions IB1, T3, TP3, TP29
Packaging exceptions None
Packaging non bulk None
Packaging bulk 247

IATA
UN number UN3257
UN proper shipping name Elevated temperature liquid, n.o.s. (Asphalt)
Class 9
Subsidiary risk -
Packing group Not applicable.
Environmental hazards No.
ERG Code 9L
Special precautions for user Not available.

IMDG
UN number UN3257
UN proper shipping name ELEVATED TEMPERATURE LIQUID, N.O.S. (Asphalt)
Class 9
Subsidiary risk -
Packing group III
Environmental hazards No.
EmS F-A, S-P
Special precautions for user Not available.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable.
General information Classification applies only if this product is shipped at or above temperatures of 100°C. If shipped below this temperature, the product is not regulated for transport.
15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)
Asphalt (CAS 8052-42-4) \hspace{1cm} \text{LISTED}
Hydrogen sulfide (CAS 7783-06-4) \hspace{1cm} \text{LISTED}

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
- Immediate Hazard - Yes
- Delayed Hazard - Yes
- Fire Hazard - No
- Pressure Hazard - No
- Reactivity Hazard - No

SARA 302 Extremely hazardous substance

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>Reportable quantity</th>
<th>Threshold planning quantity</th>
<th>Threshold planning quantity, lower value</th>
<th>Threshold planning quantity, upper value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>7783-06-4</td>
<td>100</td>
<td>500 lbs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SARA 311/312 Hazardous chemical
Yes

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
- Polycyclic Aromatic Hydrocarbons (CAS 130498-29-2)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
- Hydrogen sulfide (CAS 7783-06-4)

Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations

WARNING: This product contains chemicals known to the State of California to cause cancer.

US. Massachusetts RTK - Substance List
- Asphalt (CAS 8052-42-4)
- Hydrogen sulfide (CAS 7783-06-4)
- Vacuum tower bottoms (CAS 64741-56-6)

US. New Jersey Worker and Community Right-to-Know Act
- Asphalt (CAS 8052-42-4)
- Asphalt, oxidized (CAS 64742-93-4)
- Hydrogen sulfide (CAS 7783-06-4)
- Polycyclic Aromatic Hydrocarbons (CAS 130498-29-2)
- Vacuum tower bottoms (CAS 64741-56-6)

US. Pennsylvania Worker and Community Right-to-Know Law
- Asphalt (CAS 8052-42-4)
- Hydrogen sulfide (CAS 7783-06-4)
- Polycyclic Aromatic Hydrocarbons (CAS 130498-29-2)
- Vacuum tower bottoms (CAS 64741-56-6)

US. Rhode Island RTK
- Hydrogen sulfide (CAS 7783-06-4)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
- Asphalt (CAS 8052-42-4)
- Vacuum tower bottoms (CAS 64741-56-6)

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
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</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Prepared by 3E Company
<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>No</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
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<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

<table>
<thead>
<tr>
<th>Issue date</th>
<th>27-June-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision date</td>
<td>05-May-2014</td>
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<tr>
<td>Version #</td>
<td>02</td>
</tr>
</tbody>
</table>

NFPA Ratings

![NFPA Rating Diagram]

References

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

Disclaimer

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