SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier Hot Mix Asphalt Pavement
Chemical Name Mixture
CAS No. Mixture
Trade Name(s) Petroleum Asphalt / Road Paving Asphalt / Hot Mix Asphalt / Blacktop / Bitumen / Warm Mix Asphalt / Base 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 O&G Industries
112 Wall Street
Torrington, Connecticut 06790

Telephone (860) 489-9261

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
May cause eye irritation.
Prolonged exposure to fumes without adequate ventilation to 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 prolonged exposure to (dust/fume/gas/mist/vapors/spray) without adequate ventilation.
As necessary, wear protective gloves/protective clothing/eye protection/face protection.
Wash hands and exposed skin after use.
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Composition/information on ingredients</th>
<th>% wt.</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate (crushed stone, sand, gravel, slag)</td>
<td>70 - 97</td>
<td>Various</td>
</tr>
<tr>
<td>Petroleum asphalt / bitumen(^*)</td>
<td>3 - 7</td>
<td>8052-42-4</td>
</tr>
<tr>
<td>Reclaimed Asphalt Pavement (RAP)</td>
<td>0 - 45</td>
<td>Mixture</td>
</tr>
<tr>
<td>Reclaimed Asphalt Shingles (RAS)</td>
<td>0 - 10</td>
<td>Mixture</td>
</tr>
<tr>
<td>Polymers and Natural Rubbers</td>
<td>&lt; 0.5</td>
<td>Various</td>
</tr>
<tr>
<td>Process oils (inherent in refined petroleum asphalt)</td>
<td>&lt; 0.1</td>
<td>Various</td>
</tr>
<tr>
<td>Anti-strip or other amine-based additives</td>
<td>&lt; 0.1</td>
<td>Various</td>
</tr>
<tr>
<td>Warm-mix additives</td>
<td>&lt; 0.1</td>
<td>Various</td>
</tr>
</tbody>
</table>

\(^*\)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**
Causes burns. Immediately cool skin where asphalt binder has adhered to skin. Allow asphalt binder which remains on the skin to fall off naturally. DO NOT REMOVE. If problem persist or coverage is extensive, 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

<table>
<thead>
<tr>
<th>SUBSTANCE.</th>
<th>CAS No.</th>
<th>(8hr TWA)</th>
<th>(STEL)</th>
<th>Note:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>PEL (OSHA)</td>
<td>TLV (ACGIH)</td>
<td>PEL (OSHA)</td>
</tr>
<tr>
<td>Asphalt fume</td>
<td>-----</td>
<td>-----</td>
<td>0.5 mg/m3 (1)</td>
<td>-----</td>
</tr>
<tr>
<td>Crystalline Silica (respirable particulate)</td>
<td>-----</td>
<td>0.050 mg/m3 (2)</td>
<td>0.025 mg/m3 (2)*</td>
<td>-----</td>
</tr>
<tr>
<td>Hydrogen sulfide</td>
<td>7783-06-4</td>
<td>-----</td>
<td>1 ppm</td>
<td>20 ppm ceiling</td>
</tr>
</tbody>
</table>

(1) Inhalable benzene-soluble fraction; (2) Respirable fraction; * Suspected Human Carcinogen; * OSHA Carcinogen - employers must ensure compliance with OSHA 29 CFR 1926.1153 - Respirable Crystalline Silica, as applicable.; TWA = 8 hour time-weighted average; STEL = Short Term Exposure Limit.

Recommended monitoring method
NIOSH 5042 (Asphalt Fume), OSHA ID-142 (Crystalline Silica), Electrochemical sensor (hydrogen sulfide).
HOT MIX ASPHALT PAVEMENT

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

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

SECTION 10: STABILITY AND REACTIVITY

Reactivity                          | Stable under normal conditions. |
Chemical stability                  | Stable.                          |
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/m³ |

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.

<table>
<thead>
<tr>
<th>NTP</th>
<th>IARC</th>
<th>ACGIH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>Yes.*</td>
<td>No.</td>
<td>No.</td>
</tr>
</tbody>
</table>

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. Contains crystalline silica, an OSHA-regulated carcinogen, inherent in the aggregate. ACGIH classifies crystalline silica as a Suspected Human Carcinogen (A2).

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 this asphalt producer, permitted waste disposal contractor or the local authority for advice on waste disposal or recycling options.

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):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Typical %wt.</th>
<th>RQ (Pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
</tbody>
</table>

SARA 311/312 - Hazard Categories: None
- Fire
- Sudden Release
- Reactivity
- Immediate (acute)
- Chronic (delayed)

SARA 313 - Toxic Chemicals (40 CFR 372):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Typical %wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>----</td>
<td>----</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Typical %wt.</th>
<th>TPQ (pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
</tbody>
</table>

SECTION 16: OTHER INFORMATION

Additional Information

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

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