

**Section 1: IDENTIFICATION**

Product Identifier: Asphalt Emulsions, All Grades

Other Means of Identification: Asphalt Emulsions (all grades); Emulsified Asphalts (all grades); Cationic Emulsified Asphalt (all grades).

SDS Number: 951

Product Code: CMS-2 (531110);
CMS-2P (N/A);
CMS-2S (N/A);
CRS-2 (532110);
CRS-2P (532420);
CSS-1 (533110);
CSS-1H (533210);
STE-1 (534110).

Product Use: Road Paving Asphalt.

Restrictions on Use: Not available.

Manufacturer/Supplier: U.S. OIL & REFINING CO.
3001 Marshall Ave.
Tacoma, WA 98421

Emergency Phone: U.S. OIL & REFINING CO.: (253) 383-1651
CHEMTREC: 800-424-9300
NATIONAL POISON CENTER: 1-800-222-1222

Date of Preparation of SDS: February 9, 2015

Section 2: HAZARD(S) IDENTIFICATION

CLASSIFICATION: Skin Irritation, Category 2
Eye Damage, Category 1
Carcinogenicity, Category 2
Specific Target Organ Toxicity (Repeated Exposure), Category 2

LABEL ELEMENTS

**Hazard
Symbol(s):**



Signal Word: Danger

**Hazard
Statements:** Causes skin irritation.
Causes serious eye damage.
Suspected of causing cancer.
May cause damage to organs through prolonged or repeated exposure.



SAFETY DATA SHEET / MATERIAL SAFETY DATA SHEET

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PRECAUTIONARY STATEMENTS

Prevention: Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe mist, vapors, or spray.
Wash thoroughly after handling.
Wear protective gloves, protective clothing, eye protection and face protection.

Response: If on skin: Wash with plenty of soap and water.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If exposed or concerned: Get medical advice/attention.
Immediately call a poison center or doctor.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.

Storage: Store locked up.

Disposal: Dispose of contents/container in accordance with applicable regional, national and local laws and regulations.

Hazards Not Otherwise Classified: No applicable information was found.

Ingredients with Unknown Acute Toxicity: 75% of this product mixture consists of ingredient(s) of unknown acute toxicity.

This material is considered hazardous by the OSHA Hazard Communication Standard, (29 CFR 1910.1200).

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredient(s)	Common name / Synonyms	CAS No.	% wt./wt.
Asphalt	Not available.	8052-42-4	57 - 60, 60 - 75*
Organic Amine Emulsifier	Not available.	Proprietary	0 - 0.1, 0.1 - 1, 1 - 3.5*
Hydrochloric Acid	Not available.	7647-01-0	0 - 0.1, 0.1 - 1*
Hydrogen Sulfide (H ₂ S)	Not available.	7783-06-4	Trace

* Multiple concentration ranges are listed due to production variability, and in conformance with Canadian WHMIS requirements.

These products may also contain 0 - 5% Polymer Additives. These components are not hazardous or are present below reportable levels.

**Section 4: FIRST-AID MEASURES**

Inhalation: If inhaled: Remove person to fresh air and keep comfortable for breathing. If symptoms persist, get medical attention/advice.

Acute and delayed symptoms and effects: May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. This product may contain small amounts of Hydrogen Sulfide which may accumulate in confined spaces. Inhalation of Hydrogen Sulfide may cause loss of sense of smell, major irritation of the respiratory tract, headache, nausea, vomiting, dizziness, and fluid buildup in the lungs (pulmonary edema), which can be fatal. At 300 ppm unconsciousness may occur after 20 minutes. From 300 to 500 ppm, death can occur within 1 to 4 hours of continuous exposure. At 500 ppm the respiratory system is paralyzed, the victim collapses almost instantaneously, and death can occur after exposure of only 30 to 60 minutes. Above 500 ppm Hydrogen Sulfide may cause immediate loss of consciousness; death is rapid, and possibly immediate.

Skin Contact: If on skin (or hair): Rinse skin with water/shower. Get immediate medical advice/attention. Remove non-adhering contaminated clothing. Cool adherent materials and burned areas with ice and/or cold water. Do not remove adherent material or clothing. Wash contaminated clothing before reuse.

Acute and delayed symptoms and effects: Causes skin irritation. Signs/symptoms may include localized redness, swelling, and itching. Hot liquid product may cause serious thermal burns on direct contact. Asphalt fumes can increase susceptibility to sunburn.

Eye Contact: If in eyes: Rinse cautiously with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor.

Acute and delayed symptoms and effects: Causes serious eye damage. Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, ulcerations, significantly impaired vision or complete loss of vision. Hot liquid product may cause serious thermal burns on direct contact.

Ingestion: If swallowed: Rinse mouth. Immediately call a poison center or doctor. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Acute and delayed symptoms and effects: Hot product may cause thermal burns. Signs/symptoms may include severe mouth, throat and abdominal pain, nausea, vomiting, and diarrhea, blood in the feces and/or vomitus may also be seen. If swallowed in large quantities, Asphalt can obstruct

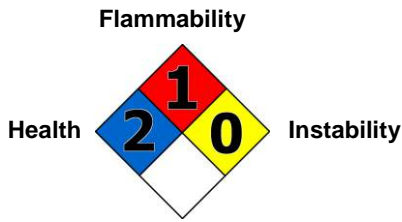


the intestine.

Note to Physicians: Symptoms may not appear immediately. For inhalation of Hydrogen Sulfide, consider Oxygen.

Section 5: FIRE-FIGHTING MEASURES

NFPA 704



SUITABLE/UNSUITABLE EXTINGUISHING MEDIA

Suitable Extinguishing Media: Small Fire: Dry chemical, CO₂, water spray or regular foam.

Large Fire: Water spray, fog or regular foam. Move containers from fire area if it can be done safely.

Unsuitable Extinguishing Media: Do not spray water onto burning product as this may cause spattering and spreading of the flame.

SPECIFIC HAZARDS

Not flammable or combustible by OSHA/WHMIS criteria. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Substance may be transported hot. Spraying water onto burning product may cause spattering and spreading of the flame.

If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

Fire involving Tanks or Car/Trailer Loads: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Products of Combustion: Oxides of Carbon. Oxides of Sulfur.

Sensitivity to Mechanical Impact: This material is not sensitive to mechanical impact.

Sensitivity to Static Discharge: This material is not sensitive to static discharge.

SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS

Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may cause pollution. Hydrogen Sulfide is heavier than air and may collect in low lying areas and confined spaces. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

**Section 6: ACCIDENTAL RELEASE MEASURES****PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES**

- Personal Precautions:** Do not touch or walk through spilled material. Use personal protection recommended in Section 8. Don full-face, positive pressure, self-contained breathing apparatus.
- Protective Equipment:** Emergency eyewash capability should be available. Wear respiratory protection as conditions warrant.
- Emergency Procedures:** Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

- Methods for Containment:** Stop leak if it can be done without risk. Contain hot liquid by diking and allow to cool. Do not flush to sewer or allow to enter waterways.
- Methods for Clean-Up:** Allow to cool. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

Section 7: HANDLING AND STORAGE**PRECAUTIONS FOR SAFE HANDLING:**

Do not swallow. Do not breathe mist, vapors, or spray. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash thoroughly after handling. Grounding of containers/pouring equipment is necessary when transferring hot liquid product. See Section 8 for information on Personal Protective Equipment.

CONDITIONS FOR SAFE STORAGE:

Store locked up. Store away from incompatible materials. See Section 10 for information on Incompatible Materials. Asphalt contains trace amounts of Hydrogen Sulfide which can accumulate in vapor space of tanks and containers. Structural materials and lighting and ventilation systems should be corrosion resistant.



Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Component	ACGIH	OSHA
Asphalt [CAS No. 8052-42-4]	ACGIH: 0.5 mg/m ³ (TWA); A4; BEI; Inhalable fraction; For Asphalt (Bitumen) fume, as Benzene-soluble aerosol	No PEL established.
Organic Amine Emulsifier [CAS No. Proprietary]	No TLV established.	No PEL established.
Hydrochloric Acid [CAS No. 7647-01-0]	2 ppm (C); A4 (2000)	5 ppm (C), 7 mg/m ³ (C)
Hydrogen Sulfide [CAS No. 7783-06-4]	1 ppm (TWA); 5 ppm (STEL); (2009)	20 ppm (C); 50 ppm (Peak) (Maximum duration: 10 mins. once only if no other meas. exp. occurs.) 10 ppm (TWA); 15 ppm (STEL) [Vacated]

PEL: Permissible Exposure Limit
TLV: Threshold Limit Value
TWA: Time-Weighted Average
STEL: Short-Term Exposure Limit
C: Ceiling

ENGINEERING CONTROLS

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT (PPE)



Eye/Face Protection:

Wear chemical safety goggles. If product is hot, wear full face-shield. Ensure that eyewash stations and safety showers are close to the workstation location. Use equipment for eye protection that meets the standards referenced by CSA Standard CAN/CSA-Z94.3-92 and OSHA regulations in 29 CFR 1910.133 for Personal Protective Equipment.

Hand Protection:

Wear protective gloves. If product is hot, thermally protective gloves are recommended. Consult manufacturer specifications for further information.

Skin and Body Protection:

Wear protective clothing. Clothing with full length sleeves and pants should be worn.



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Respiratory Protection: If engineering controls and ventilation are not sufficient to control exposure to below the allowable limits then an appropriate NIOSH approved air-purifying respirator, with organic vapor cartridge, or self-contained breathing apparatus must be used. Supplied air breathing apparatus must be used when Oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators.

General Hygiene Considerations: Handle according to established industrial hygiene and safety practices. Consult a competent industrial hygienist to determine hazard potential and/or the PPE manufacturers to ensure adequate protection. Emergency eyewash should be available near operations presenting a potential splash exposure. Avoid skin exposure. Promptly remove contaminated clothing, gloves, and shoes.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Black-brown liquid.
Color:	Black-brown.
Odor:	Asphaltic, sweet.
Odor Threshold:	Not available.
Physical State:	Liquid.
pH:	Not available.
Melting Point / Freezing Point:	Not available.
Initial Boiling Point:	Not available.
Boiling Range:	Approximately 100 °C (212 °F)
Flash Point:	Not available.
Evaporation Rate:	Negligible.
Flammability (solid, gas):	Not applicable.
Lower Flammability Limit:	Not available.
Upper Flammability Limit:	Not available.
Vapor Pressure:	Not available.
Vapor Density:	> 1 (Air = 1)
Relative Density:	1.0 to 1.3 (Water = 1) at 15 °C (59 °F)
Solubilities:	Not available.
Partition Coefficient: n-Octanol/Water:	Not available.



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Auto-ignition Temperature: Not available.

Decomposition Temperature: Not available.

Viscosity: 20 to 100 SSF at 25 °C (77 °F) [CSS-1]
150 to 400 SSF at 50 °C (122 °F) [CRS-2P]

Percent Volatile, wt. %: Not available.

VOC Content, wt. %: Not available.

Section 10: STABILITY AND REACTIVITY

Reactivity: Contact with incompatible materials. Sources of ignition. Exposure to heat.

Chemical Stability: Stable under normal storage conditions.

Possibility of Hazardous Reactions: Contact between heated Asphalt and water can cause a violent eruption.

Conditions to Avoid: Contact with incompatible materials. Sources of ignition. Exposure to heat.

Incompatible Materials: Acids. Bases. Oxidizers.

Hazardous Decomposition Products: Chlorine. Hydrogen. Oxides of Carbon. Oxides of Sulfur.

Section 11: TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE: Eye contact. Skin contact. Inhalation. Ingestion.

ACUTE EXPOSURE

PRODUCT TOXICITY

Oral: Not available.

Dermal: Not available.

Inhalation: Not available.

COMPONENT TOXICITY

Component	CAS No.	LD ₅₀ oral	LD ₅₀ dermal	LC ₅₀
Asphalt	8052-42-4	Not available.	Not available.	Not available.
Organic Amine Emulsifier	Proprietary	> 300 mg/kg (rat)	Not available.	Not available.
Hydrochloric Acid	7647-01-0	900 mg/kg (rabbit)	Not available.	1108 ppm (mouse); 1H
Hydrogen Sulfide	7783-06-4	Not available.	Not available.	444 ppm (rat); 4H

Target Organs: Skin. Eyes. Gastrointestinal tract. Respiratory system. Lungs. Blood. Cardiovascular system. Central nervous system.



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SYMPTOMS (including delayed and immediate effects)

Inhalation: May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. This product may contain small amounts of Hydrogen Sulfide which may accumulate in confined spaces. Inhalation of Hydrogen Sulfide may cause loss of sense of smell, major irritation of the respiratory tract, headache, nausea, vomiting, dizziness, and fluid buildup in the lungs (pulmonary edema), which can be fatal. At 300 ppm unconsciousness may occur after 20 minutes. From 300 to 500 ppm, death can occur within 1 to 4 hours of continuous exposure. At 500 ppm the respiratory system is paralyzed, the victim collapses almost instantaneously, and death can occur after exposure of only 30 to 60 minutes. Above 500 ppm Hydrogen Sulfide may cause immediate loss of consciousness; death is rapid, and possibly immediate.

Eye: Causes serious eye damage. Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, ulcerations, significantly impaired vision or complete loss of vision. Hot liquid product may cause serious thermal burns on direct contact.

Skin: Causes skin irritation. Signs/symptoms may include localized redness, swelling, and itching. Hot liquid product may cause serious thermal burns on direct contact. Asphalt fumes can increase susceptibility to sunburn.

Ingestion: Hot product may cause thermal burns. Causes burns to nose, mouth, throat, and digestive tract. Signs/symptoms may include severe mouth, throat and abdominal pain, nausea, vomiting, and diarrhea, blood in the feces and/or vomitus may also be seen. If swallowed in large quantities, Asphalt can obstruct the intestine.

Skin Sensitization: Not available.

Respiratory Sensitization: Not available.

Medical Conditions Not available.

Aggravated By Exposure:

CHRONIC EFFECTS (from short and long-term exposure)

Target Organs: Skin. Eyes. Gastrointestinal tract. Respiratory system. Lungs. Blood. Cardiovascular system. Liver. Kidneys. Central nervous system.

Chronic Effects: Prolonged or repeated contact may dry skin and cause irritation. Repeated exposure to Organic Amine Emulsifier may damage the kidneys. Prolonged exposure to Hydrochloric Acid may cause conjunctivitis, photosensitization, and possible blindness, and may have effects on the lungs, resulting in chronic bronchitis. Hydrogen Sulfide may reduce lung function; cause neurological effects such as headaches, nausea, depression and personality changes; eye and mucous membrane irritation; and damage to cardiovascular system.



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Carcinogenicity: May cause cancer. Long-term or repeated exposures to Asphalt fumes are possibly carcinogenic to humans.

Component Carcinogenicity

Component	ACGIH	IARC	NTP	OSHA	Prop 65
Asphalt	A4	Group 2B	Not listed.	OSHA Carcinogen.	Listed.
Hydrochloric Acid	A4	Group 3	Not listed.	Not listed.	Not listed.

Mutagenicity: Not available.

Reproductive Effects: Not available.

Developmental Effects

Teratogenicity: Not available.

Embryotoxicity: Not available.

Toxicologically Synergistic Materials: Not available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: Not available.

Persistence / Degradability: This product is expected to have a very low rate of biodegradation.

Bioaccumulation / Accumulation: Not available.

Mobility in Environment: Not available.

Other Adverse Effects: Not available.

Section 13: DISPOSAL CONSIDERATIONS

Disposal Instructions: Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

Section 14: TRANSPORT INFORMATION

REGULATORY INFORMATION	ID NUMBER	EMERGENCY RESPONSE GUIDEBOOK	PROPER SHIPPING NAME	CLASS	PACKING GROUP	PLACARD
DOT Classification	Not applicable.	Not applicable.	Not regulated.	Not applicable.	Not applicable.	Not applicable.
TDG Classification	Not applicable.	Not applicable.	Not regulated.	Not applicable.	Not applicable.	Not applicable.
IATA/ICAO	Not applicable.	Not applicable.	Not regulated.	Not applicable.	Not applicable.	Not applicable.



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Section 15: REGULATORY INFORMATION

CHEMICAL INVENTORIES

US (TSCA)

The components of this product are in compliance with the chemical notification requirements of TSCA.

Canada (DSL)

The components of this product are in compliance with the chemical notification requirements of the NSN Regulations under CEPA, 1999.

FEDERAL REGULATIONS

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

WHMIS Classification: Class D2A - Carcinogenicity.
 Class D2A - Chronic toxic effects.
 Class D2B - Skin irritant.
 Class D2B - Eye irritant.

Hazard Symbols:



United States

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SARA Title III

Component	Section 302 (EHS) TPQ (lbs.)	Section 304 EHS RQ (lbs.)	CERCLA RQ (lbs.)	Section 313	RCRA CODE	CAA 112(r) TQ (lbs.)
Hydrochloric Acid	500	5000	5000	313	Not listed.	5000
Hydrogen Sulfide	500	100	100	313	U135	10000

SARA SECTION 311/312 - EPA HAZARD CATEGORIES

<u>ACUTE HEALTH</u>	<u>CHRONIC HEALTH</u>	<u>FIRE</u>	<u>SUDDEN RELEASE OF PRESSURE</u>	<u>REACTIVE</u>
X	X	-	-	-

State Regulations

California

California Prop 65: WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Component

Asphalt

Type of Toxicity

cancer



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Section 16: OTHER INFORMATION

Disclaimer:

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for his own particular use.

Date of Preparation of SDS: February 9, 2015
SDS Expiry Date (Canada): February 8, 2018
Version: 1.0
GHS SDS Prepared by: **Deerfoot Consulting Inc.**
Phone: (403) 720-3700