

Material Safety Data Sheet

Section 1: PRODUCT AND COMPANY INFORMATION

Product Name(s): Cationic Asphalt Emulsion (Asphalt emulsion)

Product Identifiers: Cationic Emulsified Asphalt, Emulsified Asphalt Cement, Polymer Modified Emulsified Asphalt Cement, Polymer Modified Emulsified Asphalt, Cationic Asphalt Emulsion, Asphalt Emulsion, CQS-1H, CQS-1H (LM), CQS-1HP, CRS-1, CRS-2, CRS-2P, CSS-1, CSS-1H.

Manufacturer:
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Toronto, Ontario M3K 1G2

Information Telephone Number:
(416) 633-9670

Emergency Telephone Number:
CANUTEC (613) 996-6666

Product Use: Asphalt emulsion is a water based suspension of asphalt cement and is used as a binder in asphalt paving applications such as paving roads, driveways, parking lots and other surface, base, or sub-base applications.




Section 2: COMPOSITION/INFORMATION ON INGREDIENTS

Component	Percent (By Weight)	CAS Number	OSHA PEL – TWA (mg/m ³)	ACGIH TLV-TWA (mg/m ³)	LD ₅₀ (rat, oral)	LC ₅₀ (Inhalation, rat)
Asphalt Cement (as Fume)	55-75	8052- 42-4	NA	0.5	NA	NA
Butadiene Styrene Copolymer	0-5	9003-55-8	NA	NA	71.3 mg/kg	NA
Hydrochloric Acid	0-2	7647-01-0	7 (Ceiling)	2 ppm (ceiling)	900 mg/kg (rabbit)	3124 ppm/1hr.

Note: Asphalt is produced from high temperature vacuum distillation of crude oil. Composition varies depending on source of crude and specifications of final product. It can contain trace amounts of sulfur, nitrogen and oxygen compounds as well as trace amounts of heavy metals. Different asphalt grades may contain an anti-stripping additive.

Asphalt products can contain hydrogen sulfide, because it is naturally occurring in crude oil from which asphalt is derived. Hydrogen sulfide can also be present as a by-product of asphalt processing.

Section 3: HAZARD IDENTIFICATION

WARNING		
	<p>Hot product can cause burns.</p> <p>Irritant: Causes eye, skin and inhalation irritation. Toxic - Harmful by inhalation.</p> <p>Hot Product can release Hydrogen Sulfide gas.</p> <p>Use proper engineering controls, work practices, and personal protective equipment.</p> <p>Read MSDS for details.</p>	 Eye Protection  Gloves

Emergency Overview: Asphalt emulsion is a dark brown to black colored liquid that has a petroleum odor. Hot product will cause severe thermal burns. If burned by hot product, cool affected area immediately with cool water. Seek medical attention. When heated, this product may release toxic hydrogen sulfide (H₂S). Prolonged or repeated skin contact can cause drying of the skin which may produce irritation or dermatitis.

Section 3: HAZARD IDENTIFICATION (continued)

- Potential Health Effects:** Risk of injury depends on duration and level of exposure.
- Eye Contact:** Hot product will cause severe thermal burns. Eye contact with asphalt emulsion and asphalt emulsion fumes can cause moderate eye irritation, redness, itching, and chemical burns. Eye exposures require immediate first aid to prevent damage to the eye.
- Skin Contact:** Direct contact with hot asphalt emulsion will cause severe thermal burns. Repeated or prolonged contact to asphalt emulsion may cause dry skin, discomfort, irritation, dermatitis and chemical burns.
- Inhalation:** Hot asphalt emulsion releases irritating fumes or vapors such as smoke, carbon dioxide, carbon monoxide, and unburned hydrocarbons. Exposure to fumes or vapors may cause irritation of the nose and throat, and symptoms such as headache, dizziness, loss of coordination, and drowsiness.
- Hydrogen sulfide and other sulfur-containing gases can evolve from this product at elevated temperatures. Hydrogen sulfide can cause respiratory paralysis and death, depending on concentrations and duration of exposure. Do not rely on ability to smell vapors, since odor fatigue rapidly occurs. Effects of overexposure include irritation of the nose and throat, nausea, vomiting and signs of nervous system depression.
- Ingestion:** Do not ingest asphalt emulsion. Hot product will cause thermal burns. Ingestion may result in nausea, vomiting, diarrhea and restlessness.
- Notes:** Asphalt emulsion is not listed as a carcinogen by IARC or NTP, some components of the product are. The International Agency for Research on Cancer (IARC) has concluded that occupational exposures to oxidized asphalt and their emissions during roofing operations are “probably carcinogenic to Humans (Group 2A). IARC concluded that occupational exposures to hard asphalt and their emissions during mastic asphalt work are “possibly carcinogenic to humans” (Group 2B). IARC concluded that occupational exposures to straight-run asphalt and their emissions during paving operations are “possibly carcinogenic to humans” (Group 2B).

Medical Conditions

- Aggravated by Exposure:** Individuals with preexisting skin conditions can be aggravated by exposure.

Section 4: FIRST AID MEASURES

- Eye Contact:** For contact with product, flush with large amounts of cool water for at least 15 minutes, including under lids. Seek medical attention for burns and severe irritation.
- Skin Contact:** Wash with cool water and a pH neutral soap or a mild skin detergent. Do not use solvents or thinners to remove product from skin. Seek medical attention for burns, rash, irritation, and dermatitis.
- For contact with hot product, immerse or flush skin with cold water for at least 15 minutes. Call a physician.
- Inhalation:** Move person to fresh air. Seek medical attention for discomfort or if coughing or other symptoms do not subside.
- Ingestion:** Do not induce vomiting. If conscious, have person drink plenty of water. Seek medical attention or contact poison control center immediately.
- Note to Physician:** No attempt should be made to remove firmly adhering asphalt from the skin. Once the

asphalt has cooled, it will do no further harm and it provides a sterile covering over the burned area. As healing takes place, the asphalt will detach itself, usually after a few days.

Section 5: FIREFIGHTING MEASURES

Flashpoint & Method:	204 °C Cleveland Open Cup	Firefighting Equipment:	A SCBA is recommended to limit exposures to combustion products when fighting any fire.
General Hazard:	Combustible liquid. Avoid breathing fumes.		
Upper/Lower Flammable Limit (%):	NA.		
Auto-Ignition Temperature:	> 370 °C (> 698 °F)	Combustion Products:	Toxic gases produced in fire, such as CO, CO ₂ , and H ₂ S.
Extinguishing Media:	Use appropriate extinguishing media for the size of the fire. Water spray and foam can cause frothing. Use of water on product above 100 °C (212 °F) can cause product to expand with explosive force.		
Specific Hazards:	If tank, rail car or tanker truck is involved in fire, isolate for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. Shut off fuel to fire if possible to do so without hazard. Cool containing vessels with water spray in order to prevent pressure buildup, autoignition or explosion. Avoid flushing spilled product into sewers, streams or other bodies of water.		

Section 6: ACCIDENTAL RELEASE MEASURES

General:	Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. Remove all potential ignition sources. Isolate the area of the spill and restrict access. For small spills, soak up released asphalt emulsion with inert absorbent material, remove with shovels and place spilled material into a container. Contain large spills with inert materials. Avoid using combustive absorbers such as sawdust. Transfer liquids and solid material to suitable containers for recovery or disposal. Do not allow spills and cleaning runoff to enter drains, sewers, groundwater, drainage ditches or surface waters. Wear appropriate protective equipment as described in Section 8.
Waste Disposal Method:	Dispose of asphalt emulsion according to Federal, State, Provincial and Local regulations.

Section 7: HANDLING AND STORAGE

General:	Handle with care and use appropriate control measures. Use appropriate grounding and bonding practices. Store in properly closed containers that are appropriately labeled and in a cool well-ventilated area. Do not expose to heat, open flames, strong oxidizers or other source of ignition. Do not cut, drill, grind or weld on empty containers since they may contain flammable residues. Significant concentrations of hydrogen sulfide (H ₂ S) gas can be generated and accumulate in storage tanks and bulk transport compartments which may require additional precautions and procedures during loading and unloading. When opening covers and outlet caps on storage tanks, use face shield and gloves to avoid possible injury from pressurized product. Stay upwind and vent open hatches before unloading. Keep heating coils and flues in storage tanks, trucks and kettles covered with product. Do not overheat.
Usage:	Avoid contact with skin, eyes and clothing. Use additional precautions when handling

hot material. Maintain employee exposure levels below established regulatory limits. Do not allow hot product to contact skin. Ensure adequate ventilation. Use all appropriate engineering controls and Personal Protective Equipment (PPE) described in Section 8 below.

Section 7: HANDLING AND STORAGE (continue)

Storage Temperature: Store away from all ignition sources and open flames. Avoid freezing. Do not store above 190°F. Heating product above 190°F may cause water portion to boil which may result in an overflow of hot product from storage container.

Storage: Do not expose to open flames, strong oxidizers or other source of ignition. Consult appropriate Federal, State, Provincial and Local authorities before reusing, recycling or disposing of empty containers or waste residues of this product.

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls: Use local exhaust or general dilution ventilation when using at elevated temperatures or during activities that generate vapors or mists, to maintain levels below exposure limits. Ensure that an emergency eye wash station and safety shower is located near the work area.

Personal Protective Equipment (PPE):

Respiratory Protection: Under ordinary conditions no respiratory protection is required. Wear a NIOSH approved respirator that is properly fitted and is in good condition when exposed to vapors above exposure limits.

Eye Protection: Wear CSA/ANSI approved safety goggles or face shield when handling asphalt emulsion to prevent contact with eyes.

Skin Protection: Wear chemical resistant gloves (e.g. neoprene or butyl rubber) to prevent skin contact and insulated gloves when handling hot product. Do not rely on barrier creams, in place of impervious gloves. Additional protection may be necessary to prevent skin contact including use of apron, arm covers, face shield or boots. Remove and launder clothing that is soiled with asphalt emulsion. Thoroughly wash hands and other exposed skin after exposure to asphalt emulsion.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid.	Evaporation Rate:	NA.
Appearance:	Brown to black.	pH (in water):	1-4.
Odor:	Slight petroleum odor.	Boiling Point:	100°C. (water phase)
Vapor Pressure:	< 1 mm Hg @ 20°C.	Freezing Point:	0°C. (water phase)
Vapor Density:	> 1 (Air =1).	Viscosity:	NA.
Specific Gravity:	0.95 – 1.13	Solubility in Water:	Partially miscible with water.

Section 10: STABILITY AND REACTIVITY

Stability: Stable. Avoid contact with incompatible materials, excessive heat, sources of ignition and open flame.

Incompatibility: Asphalt emulsion is incompatible with strong acids or bases, and oxidizing agents such as nitrates, chlorates and peroxides.

Hazardous Polymerization: None.

Hazardous Decomposition: When heated may liberate carbon monoxide, carbon dioxide, hydrogen sulfide,

trace oxides of sulfur and nitrogen, and various hydrocarbons.

Section 11 and 12: TOXICOLOGICAL AND ECOLOGICAL INFORMATION

For questions regarding toxicological and ecological information refer to contact information in Section 1.

Section 13: DISPOSAL CONSIDERATIONS

Dispose of waste and containers in compliance with applicable Federal, State, Provincial and Local regulations.

Section 14: TRANSPORT INFORMATION

This product is not classified as a Hazardous Material under U.S. DOT and Canadian TDG regulations. This product is non-hazardous when shipped at ambient temperatures or at temperatures below 100 °C.

Section 15: REGULATORY INFORMATION

OSHA/MSHA Hazard Communication:	This product is considered by OSHA/MSHA to be a hazardous chemical and should be included in the employer's hazard communication program.
CERCLA/SUPERFUND:	This product is not listed as a CERCLA hazardous substance.
EPCRA SARA Title III:	This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 and is considered to be an acute health hazard (irritation).
EPRCA SARA Section 313:	This product contains none of the substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.
RCRA:	If discarded in its purchased form, this product would not be a hazardous waste either by listing or characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.
TSCA:	This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.
California Proposition 65:	This product and/or its components are not listed in California's Proposition 65.
WHMIS/DSL:	Products containing asphalt are classified as D2B and are subject to WHMIS requirements.



Section 16: OTHER INFORMATION

Abbreviations:

>	Greater than	MSHA	Mine Safety and Health Administration
ACGIH	American Conference of Governmental Industrial Hygienists	NA	Not Applicable
		NFPA	National Fire Protection Association
ANSI	American National Standards Institute	NIOSH	National Institute for Occupational Safety and Health
CAS No	Chemical Abstract Service number		
CBI	Confidential Business Information	NTP	National Toxicology Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	OSHA	Occupational Safety and Health Administration
		PEL	Permissible Exposure Limit
CFR	Code for Federal Regulations	pH	Negative log of hydrogen ion
CL	Ceiling Limit	PPE	Personal Protective Equipment
CSA	Canadian Standards Association	R	Respirable Particulate
DOT	U.S. Department of Transportation	RCRA	Resource Conservation and Recovery Act
EST	Eastern Standard Time	SARA	Superfund Amendments and Reauthorization Act
HEPA	High-Efficiency Particulate Air		
HMIRC	Hazardous Materials Information Review Commission	SCBA	Self-Contained Breathing Apparatus
		T	Total Particulate
HMIS	Hazardous Materials Identification System	TDG	Transportation of Dangerous Goods
		TLV	Threshold Limit Value
IARC	International Agency for Research on Cancer	TWA	Time Weighted Average (8 hour)
LC ₅₀	Lethal Concentration	WHMIS	Workplace Hazardous Materials Information System
LD ₅₀	Lethal Dose		
mg/m ³	Milligrams per cubic meter		

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