

SAFETY DATA SHEET



CATIONIC ASPHALT EMULSION

DENV00000086

Version 3.0

Revision Date 2018/12/04

Print Date 2018/12/05

SECTION 1. IDENTIFICATION

Product name : CATIONIC ASPHALT EMULSION

Synonyms : CQS-1, CQS-1H, CQS-1HL, CQS-1HP, CRS-2, CRS-2P, CRS-2Pa, CRS-2Pa DILUTED, PCRS-2P DILUTED, CRS-2P DILUTED, CRS-2R, CSS-1, CSS-1H, CSS-1H DILUTED, CQS-1L, CQS-1P, CQS-1HL DILUTED, CSS SPECIAL, CQS-1 DILUTED, CQS-1L DILUTED, CQS-1P DILUTED, CQS-1H DILUTED, CQS-1HL DILUTED, CQS-1HP DILUTED, CRS-2 DILUTED, CRS-2R DILUTED, CSS-1 DILUTED, CSS SPECIAL DILUTED, CSS-1P, CSS-1P Diluted, CIR-EE, CQS-1HP (NLR), CQS-1HP (SLR), CQS-1NV, CQS-1P (NLR), CQS-1P (SLR), CQS-2P, CRS-2A, CRS-2B, CRS-2H, CRS-2L, CRS-2NV, CSS-1HP, LMCQS-1H, LMCQS-1H (%3 Latex), LMCQS-1H DILUTE, LMCQS-1HS, LMCRS-2, LMCRS-2H, MSE, MSE - NL, STE-1

Product code : 103014, 103013, 103012, 103010, 103009, 103008, 102918, 103021, 102921, 102976, 102975, 102920, 102974, 102973, 102972, 102919, 102969, 102917, 102968, 102915, 102916, 103019, 103016, 103015, 102914, 103018, 103017, 102774, 102668, 102667, 102666, 102658, 102653, 102652, 102651, 102645, 102529, 102476, 102475, 102473, 102472, 102470, 102469, 102468, 102466, 102477, 102471, 102453, 102452, 102364, 102363, 102362, 102103, 102102, 101691, 101672, 101671, 101661, 101641, 101551, 101431, 101403, 101382, 101337, 101335, 101334, 101331, 101329, 101336, 101332, 101330

Manufacturer or supplier's details : Suncor Energy (U.S.A.)
5801 Brighton Blvd.
Commerce City Colorado 80022
United States

Emergency telephone number : Suncor Energy: +1 403-296-3000;
CHEMTREC Transport Emergency: 1-800-424-9300 or 1-703-527-3887 (call collect);
Poison Control Centre: Consult local telephone directory for emergency number(s).

Recommended use of the chemical and restrictions on use

Recommended use : Cationic asphalt emulsion
Prepared by : Product Safety: +1 905-804-4752

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	Liquid at ambient temperatures
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Colour	dark brown
Odour	No data available

GHS Classification

- Acute toxicity (Inhalation) : Category 4
- Skin irritation : Category 2
- Germ cell mutagenicity : Category 1B
- Carcinogenicity : Category 1A
- Reproductive toxicity : Category 1B
- Specific target organ toxicity - repeated exposure : Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : Harmful if inhaled.
Causes skin irritation.
May cause genetic defects.
May cause cancer.
May damage fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure.

Precautionary statements : **Prevention:**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves.
Use personal protective equipment as required.
Response:
IF ON SKIN: Wash with plenty of soap and water.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician.
IF exposed or concerned: Get medical advice/ attention.
If skin irritation occurs: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.

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Storage:

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

Potential Health Effects

- Primary Routes of Entry : Inhalation
Skin contact
Eye contact
- Target Organs : Blood
Immune system
Thymus
Liver
Bone marrow
- Inhalation : Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
In high doses hydrogen sulphide may produce pulmonary edema and respiratory depression or paralysis.
Exposure to very high levels of hydrogen sulphide (> 500 ppm) will result in unconsciousness and death.
Long term inhalation of vapors or fumes may cause chronic bronchitis and pneumonitis.
- Skin : Possible burns as a result of skin contact with hot product.
May cause skin irritation.
Fumes from heated material can cause irritation.
Long term skin exposure can increase sensitivity to the sun and cause discoloration.
Frequent or prolonged contact may irritate the skin and cause inflammation (dermatitis).
- Eyes : Possible burns as a result of eye contact with hot product.
May cause eye irritation.
Vapor or fumes may cause watering of the eyes.
- Ingestion : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
- Chronic Exposure : The effect is similar in appearance to an exaggerated sunburn and is temporary in duration if exposure is discontinued.
Continued exposure to sunlight can result in more serious skin problems including pigmentation, skin eruptions and possible skin cancers.
Frequent or prolonged contact may irritate the skin and cause inflammation (dermatitis).
- Aggravated Medical Condition : None known.

Other hazards

None known.

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IARC	Group 1: Carcinogenic to humans	
	Benzene	71-43-2
	Group 2B: Possibly carcinogenic to humans	
	Asphalt	8052-42-4
	Ethylbenzene	100-41-4
OSHA	OSHA specifically regulated carcinogen	
	Benzene	71-43-2
NTP	Known to be human carcinogen	
	Benzene	71-43-2

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration
Asphalt	8052-42-4	10 - 80 %
fuel oil no. 2	68476-30-2	<= 35 %
hydrogen chloride	7647-01-0	1 - 3.5 %
1,2,4-trimethylbenzene	95-63-6	1 - 2.5 %
n-hexane	110-54-3	1 - 2.5 %
cyclohexane	110-82-7	1 - 2.5 %
toluene	108-88-3	0 - 2 %
ethylbenzene	100-41-4	1 - 1.5 %
xylene	1330-20-7	1 - 1.5 %
hydrogen sulphide	7783-06-4	0 - 1 %
benzene	71-43-2	0 - 1 %

SECTION 4. FIRST AID MEASURES

If inhaled	: Move to fresh air. Artificial respiration and/or oxygen may be necessary. Seek medical advice.
In case of skin contact	: Cover wound with sterile dressing. Cool melted product on skin with plenty of water. Do not remove solidified product. Contaminated clothing may be removed provided it is not adhering to the skin. Immediate medical attention is required.
In case of eye contact	: For contact with molten material, gently open eyes and flush affected eye(s) with cold, not icy, water. Obtain medical attention.

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|---|---|
| If swallowed | : First aid is not normally required for the solid material; however, if molten material is swallowed, seek immediate medical attention. |
| Most important symptoms and effects, both acute and delayed | : Respiratory, skin and eye irritation; nausea; cancer. |
| Protection of first-aiders | : First Aid responders should pay attention to self-protection and use the recommended protective clothing
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |
-

SECTION 5. FIREFIGHTING MEASURES

- | | |
|---------------------------------------|---|
| Suitable extinguishing media | : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Dry chemical
Carbon dioxide (CO ₂)
Foam |
| Unsuitable extinguishing media | : No information available. |
| Specific hazards during fire-fighting | : Cool closed containers exposed to fire with water spray. |
| Hazardous combustion products | : Carbon oxides (CO, CO ₂), nitrogen oxides (NO _x), sulphur oxides (SO _x), hydrogen sulphide (H ₂ S), smoke and irritating vapours as products of incomplete combustion. |
| Further information | : Prevent fire extinguishing water from contaminating surface water or the ground water system. |
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- | | |
|---|---|
| Personal precautions, protective equipment and emergency procedures | : Use personal protective equipment.
Ensure adequate ventilation.
Evacuate personnel to safe areas. |
| Environmental precautions | : Try to prevent the material from entering drains or water courses.
Do not flush to drain /storm sewer.
If the product contaminates rivers and lakes or drains inform respective authorities. |
| Methods and materials for containment and cleaning up | : Prevent further leakage or spillage if safe to do so.
Remove all sources of ignition.
Clean up promptly by sweeping or vacuum.
Non-sparking tools should be used.
Ensure adequate ventilation.
Contact the proper local authorities. |
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SECTION 7. HANDLING AND STORAGE

- | | |
|-------------------------|--|
| Advice on safe handling | : For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area. |
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In case of insufficient ventilation, wear suitable respiratory equipment.
 Avoid contact with skin, eyes and clothing.
 Do not ingest.
 Keep away from heat and sources of ignition.
 Keep container closed when not in use.

Conditions for safe storage : Store in original container.
 Containers which are opened must be carefully resealed and kept upright to prevent leakage.
 Keep in a dry, cool and well-ventilated place.
 Keep in properly labelled containers.
 To maintain product quality, do not store in heat or direct sunlight.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Asphalt	8052-42-4	TWA (Fume, inhalable fraction)	0.5 mg/m ³ (benzene soluble aerosol)	ACGIH
		C (Fumes)	5 mg/m ³	NIOSH REL
		PEL (Fumes)	5 mg/m ³	CAL PEL
hydrogen chloride	7647-01-0	C	2 ppm	ACGIH
		C	5 ppm	NIOSH REL
		C	7 mg/m ³	OSHA Z-1
		C	5 ppm	OSHA P0
		C	7 mg/m ³	OSHA P0
		PEL	0.3 ppm 0.45 mg/m ³	CAL PEL
1,2,4-trimethylbenzene	95-63-6	C	2 ppm	CAL PEL
		TWA	25 ppm 125 mg/m ³	NIOSH REL
		TWA	50 ppm	ACGIH
n-hexane	110-54-3	TWA	50 ppm 180 mg/m ³	NIOSH REL
		TWA	500 ppm 1,800 mg/m ³	OSHA Z-1
		TWA	50 ppm 180 mg/m ³	OSHA P0
		PEL	50 ppm 180 mg/m ³	CAL PEL
		TWA	100 ppm	ACGIH
cyclohexane	110-82-7	TWA	300 ppm 1,050 mg/m ³	NIOSH REL
		TWA	300 ppm 1,050 mg/m ³	OSHA Z-1
		TWA	300 ppm 1,050 mg/m ³	OSHA P0
		PEL	300 ppm	CAL PEL

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			1,050 mg/m3	
toluene	108-88-3	TWA	20 ppm	ACGIH
		TWA	100 ppm 375 mg/m3	NIOSH REL
		ST	150 ppm 560 mg/m3	NIOSH REL
		TWA	200 ppm	OSHA Z-2
		CEIL	300 ppm	OSHA Z-2
		Peak	500 ppm (10 minutes)	OSHA Z-2
		TWA	100 ppm 375 mg/m3	OSHA P0
		STEL	150 ppm 560 mg/m3	OSHA P0
		PEL	10 ppm 37 mg/m3	CAL PEL
		C	500 ppm	CAL PEL
		STEL	150 ppm 560 mg/m3	CAL PEL
ethylbenzene	100-41-4	TWA	20 ppm	ACGIH
		TWA	100 ppm 435 mg/m3	NIOSH REL
		ST	125 ppm 545 mg/m3	NIOSH REL
		TWA	100 ppm 435 mg/m3	OSHA Z-1
		TWA	100 ppm 435 mg/m3	OSHA P0
		STEL	125 ppm 545 mg/m3	OSHA P0
		PEL	5 ppm 22 mg/m3	CAL PEL
		STEL	30 ppm 130 mg/m3	CAL PEL
xylene	1330-20-7	TWA	100 ppm	ACGIH
		STEL	150 ppm	ACGIH
		TWA	100 ppm 435 mg/m3	OSHA Z-1
		STEL	150 ppm 655 mg/m3	CAL PEL
		C	300 ppm	CAL PEL
		PEL	100 ppm 435 mg/m3	CAL PEL
hydrogen sulphide	7783-06-4	TWA	1 ppm	ACGIH
		STEL	5 ppm	ACGIH
		C	10 ppm 15 mg/m3	NIOSH REL
		CEIL	20 ppm	OSHA Z-2
		Peak	50 ppm (10 minutes once only if no other measured expo- sure occurs)	OSHA Z-2
		TWA	10 ppm	OSHA P0

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			14 mg/m3	
		STEL	15 ppm 21 mg/m3	OSHA P0
		STEL	15 ppm 21 mg/m3	CAL PEL
		C	50 ppm	CAL PEL
		PEL	10 ppm 14 mg/m3	CAL PEL
benzene	71-43-2	TWA	0.5 ppm	ACGIH
		STEL	2.5 ppm	ACGIH
		TWA	0.1 ppm	NIOSH REL
		ST	1 ppm	NIOSH REL
		TWA	10 ppm	OSHA Z-2
		CEIL	25 ppm	OSHA Z-2
		Peak	50 ppm (10 minutes)	OSHA Z-2
		PEL	1 ppm	OSHA CARC
		STEL	5 ppm	OSHA CARC
		PEL	1 ppm	CAL PEL
		STEL	5 ppm	CAL PEL

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam-pling time	Permissible concentra-tion	Basis
Toluene	108-88-3	Toluene	In blood	Prior to last shift of work-week	0.02 mg/l	ACGIH BEI
		Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0.03 mg/l	ACGIH BEI

Engineering measures : Use adequate ventilation and/or engineering controls to prevent exposure to gas or vapors.
Ensure that eyewash station and safety shower are proximal to the work-station location.

Personal protective equipment

Respiratory protection : Concentration in air determines protection needed.
Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Filter type : organic vapour cartridge or canister with a dust, fume or mist filter (R, or P series) may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited.

Hand protection

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Remarks	: When handling hot material, use heat resistant gloves. 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.
Eye protection	: Wear safety glasses with side shields to prevent eye contact.
Skin and body protection	: Wear long sleeve clothing or coveralls. Avoid contact with skin.
Protective measures	: Wash contaminated clothing before re-use.
Hygiene measures	: Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash face, hands and any exposed skin thoroughly after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquid at ambient temperatures
Colour	: dark brown
Odour	: No data available
Odour Threshold	: No data available
pH	: 2 - 6.5
Freezing Point	: 0 °C (32 °F)
Boiling point/boiling range	: 100 °C (212 °F)
Flash point	: > 100 °C (212 °F)
Auto-Ignition Temperature	: No data available
Evaporation rate	: No data available
Flammability	: Low fire hazard. This material must be heated before ignition will occur. Hydrogen sulphide may be released if the product is overheated and may accumulate in the tank headspace or any other confined space.
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapour pressure	: Based on water 31.68 hPa (25 °C / 77 °F)
Relative vapour density	: No data available
Relative density	: 0.9 - 1.1 Water = 1
Density	: 0.9 - 1.1 g/cm ³
Solubility(ies)	
Water solubility	: dispersible
Partition coefficient: n-	: No data available

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octanol/water

Viscosity

Viscosity, kinematic : 5 - 20000 sus (25 °C / 77 °F)

Explosive properties : Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Container explosion may occur under fire conditions or when heated.

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions : Hazardous polymerisation does not occur. Stable under normal conditions.

Conditions to avoid : No data available

Incompatible materials : Reactive with oxidising agents.

Hazardous decomposition products : May release CO_x, NO_x, SO_x, H₂S, hydrocarbons, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation

Skin contact

Eye contact

Acute toxicity

Product:

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

Components:

Asphalt:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg,

fuel oil no. 2:

Acute oral toxicity : LD50 (Rat): 12,000 mg/kg,

1,2,4-trimethylbenzene:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg,

Acute inhalation toxicity : LC50 (Rat): 18 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit): 3,160 mg/kg,

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n-hexane:

- Acute oral toxicity : LD50 (Rat): 15,840 mg/kg,
- Acute inhalation toxicity : LC50 (Rat): 48000 ppm
Exposure time: 4 h
Test atmosphere: dust/mist
- Acute dermal toxicity : LD50 (Rabbit): > 3,295 mg/kg,

toluene:

- Acute oral toxicity : LD50 (Rat): 5,580 mg/kg,
- Acute inhalation toxicity : LC50 (Rat): 7585 ppm
Exposure time: 4 h
Test atmosphere: dust/mist
- Acute dermal toxicity : LD50 (Rabbit): 12,125 mg/kg,

ethylbenzene:

- Acute oral toxicity : LD50 (Rat): 3,500 mg/kg,
- Acute inhalation toxicity : LC50 (Rat): 4000 ppm
Exposure time: 4 h
Test atmosphere: vapour
- Acute dermal toxicity : LD50 (Rabbit): 15,380 mg/kg,

xylene:

- Acute oral toxicity : LD50 (Rat): 4,300 mg/kg,
- Acute inhalation toxicity : LC50 (Rat): 5000 ppm
Exposure time: 4 h
Test atmosphere: dust/mist
- Acute dermal toxicity : LD50 (Rabbit): > 1,700 mg/kg,

hydrogen sulphide:

- Acute inhalation toxicity : LC50 (Rat): 444 ppm
Exposure time: 4 h
Test atmosphere: gas

benzene:

- Acute oral toxicity : LD50 (Rat): 2,990 mg/kg,
- Acute inhalation toxicity : LC50 (Rat): 13700 ppm
Exposure time: 4 h
Test atmosphere: dust/mist
- Acute dermal toxicity : LD50 (Rabbit): > 8,240 mg/kg,

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Skin corrosion/irritation

Product:

Remarks: No data available

Serious eye damage/eye irritation

Product:

Remarks: No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : Remarks: No data available

Toxicity to daphnia and other aquatic invertebrates : Remarks: No data available

Toxicity to algae : Remarks: No data available

Toxicity to bacteria : Remarks: No data available

Persistence and degradability

Product:

Biodegradability : Remarks: No data available

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Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Contact waste disposal services.
Contaminated packaging : Contact local or business unit authorities for guidance on disposal of product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

49 CFR

Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

The components of this product are reported in the following inventories:

TSCA

All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

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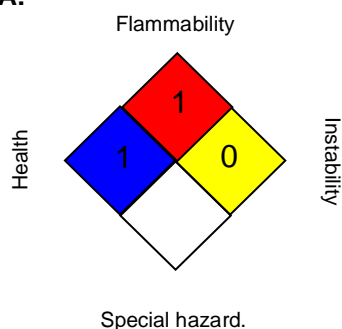
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SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	1
PHYSICAL HAZARD	0
PERSONAL PROTECTION	H

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

For Copy of SDS : For Product Safety Information: 1 905-804-4752

Prepared by : Product Safety: +1 905-804-4752

Revision Date : 2018/12/04

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.