SAFETY DATA SHEET



Section 1. Identification

GHS product identifier

Document product code

Other means of identification

: Not available.

Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Identified uses

Supplier/Manufacturer

Emergency telephone number (with hours of

operation)

Section 2. Hazards identification

OSHA/HCS status

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

Classification of the substance or mixture

: SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A

GERM CELL MUTAGENICITY - Category 2

CARCINOGENICITY - Category 1B

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) -

Category 3

AQUATIC HAZARD (ACUTE) - Category 3 AQUATIC HAZARD (LONG-TERM) - Category 3

GHS label elements

Hazard pictograms





Signal word : Danger



Section 2. Hazards identification

Hazard statements : H319 - Causes serious eye irritation.

H315 - Causes skin irritation.

H350 - May cause cancer.

H341 - Suspected of causing genetic defects. H336 - May cause drowsiness or dizziness.

H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention: P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood. P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.

P271 - Use only outdoors or in a well-ventilated area.

P273 - Avoid release to the environment.

P261 - Avoid breathing vapor.

P264 - Wash hands thoroughly after handling.

Response : P308 + P313 - IF exposed or concerned: Get medical attention.

P304 + P340 + P312 - IF INHALED: Remove person to fresh air and keep comfortable

for breathing. Call a POISON CENTER or physician if you feel unwell.

P302 + P352 + P362+P364 - IF ON SKIN: Wash with plenty of soap and water. Take off

contaminated clothing and wash it before reuse.

P332 + P313 - If skin irritation occurs: Get medical attention.

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.

Storage : P405 - Store locked up.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national

and international regulations.

Hazards not otherwise

classified

: None known.

Section 3. Composition/information on ingredients

Substance/mixture

Other means of identification

: Mixture

: Not available.

Ingredient name	%	CAS number
Trichloroethylene	≥25 - ≤50	79-01-6

United States: The exact percentage (concentration) in the composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200.

Canada: The exact percentage (concentration) in the composition has been withheld as a trade secret in accordance with the amended HPR as of April 2018.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.



Section 4. First aid measures

Description of necessary first aid measures

Eye contact

: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact

: Flush contaminated skin with plenty of water. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or

dizziness.

Skin contact : Causes skin irritation.

Ingestion : Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following:

pain or irritation watering

redness

Inhalation : Adverse symptoms may include the following:

nausea or vomiting

headache

drowsiness/fatigue dizziness/vertigo unconsciousness

Skin contact: Adverse symptoms may include the following:

irritation redness

Ingestion: No known significant effects or critical hazards.



Section 4. First aid measures

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician

: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments
Protection of first-aiders

- : No specific treatment.
- : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media

: None known.

Specific hazards arising from the chemical

: In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products

 Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds carbonyl halides

Special protective actions for fire-fighters

: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters

: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders:

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions

: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Section 6. Accidental release measures

Methods and materials for containment and cleaning up

Spill

: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities

: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

United States

Occupational exposure limits

Ingredient name	Exposure limits
	OSHA PEL Z2 (United States, 2/2013). TWA: 100 ppm 8 hours. CEIL: 200 ppm AMP: 300 ppm 5 minutes. ACGIH TLV (United States, 3/2017). TWA: 10 ppm 8 hours. STEL: 25 ppm 15 minutes.

Section 8. Exposure controls/personal protection

Canada

Occupational exposure limits

Ingredient name	Exposure limits
Trichloroethylene	CA Alberta Provincial (Canada, 4/2009). 15 min OEL: 537 mg/m³ 15 minutes. 15 min OEL: 100 ppm 15 minutes. 8 hrs OEL: 50 ppm 8 hours. 8 hrs OEL: 269 mg/m³ 8 hours. CA British Columbia Provincial (Canada, 7/2016). TWA: 10 ppm 8 hours. STEL: 25 ppm 15 minutes. CA Ontario Provincial (Canada, 7/2015). TWA: 10 ppm 8 hours. STEL: 25 ppm 15 minutes. CA Quebec Provincial (Canada, 1/2014). TWAEV: 50 ppm 8 hours. TWAEV: 269 mg/m³ 8 hours. STEV: 200 ppm 15 minutes. STEV: 1070 mg/m³ 15 minutes. CA Saskatchewan Provincial (Canada, 7/2013). STEL: 100 ppm 15 minutes. TWA: 50 ppm 8 hours.

Appropriate engineering controls

: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection Hand protection

: 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. Color : Black. Odor Solvent. **Odor threshold** Not available. pН Not available. **Melting point** : Not available. **Boiling point** : Not available. Flash point Not available. **Evaporation rate** : Not available. Flammability (solid, gas) : Not available.

Lower and upper explosive

(flammable) limits

: Not available.

: Not available. Vapor pressure Vapor density : >1 [Air = 1] **Relative density** : 1.07

Solubility : Not available. Partition coefficient: n-

octanol/water

: Not available.

Auto-ignition temperature Not available. **Decomposition temperature** : Not available.

: Dynamic (room temperature): 8500 mPa·s (8500 cP) **Viscosity**

: Not available. Flow time (ISO 2431)

VOC = Volatile Organic

Compound

Section 10. Stability and reactivity

: No specific test data related to reactivity available for this product or its ingredients. Reactivity

Chemical stability The product is stable.

Possibility of hazardous reactions

: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid excessive heat.

Incompatible materials : May react vigorously with oxidizing agents, bases and strong acids, halogens, metals

such as aluminum and magnesium powder, sodium and potassium.

Hazardous decomposition

products

: Under normal conditions of storage and use, hazardous decomposition products should

not be produced.



Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Trichloroethylene	LC50 Inhalation Vapor LD50 Dermal LD50 Oral	Rabbit	140700 mg/m³ >20 g/kg 4920 mg/kg	1 hours -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Trichloroethylene	Eyes - Moderate irritant	Rabbit	-	24 hours 20 mg	-
	Skin - Severe irritant	Rabbit	-	24 hours 2 mg	-

Sensitization

There is no data available.

Mutagenicity

There is no data available.

Carcinogenicity

Classification

Product/ingredient name	OSHA	IARC	NTP
Trichloroethylene	-	1	Known to be a human carcinogen.

Reproductive toxicity

There is no data available.

Teratogenicity

There is no data available.

Specific target organ toxicity (single exposure)

Name	Category	Target organs
Trichloroethylene	Category 3	Narcotic effects

Specific target organ toxicity (repeated exposure)

There is no data available.

Aspiration hazard

There is no data available.

Information on the likely

routes of exposure

: Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or

dizziness.

Skin contact : Causes skin irritation.

Ingestion : Can cause central nervous system (CNS) depression.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: Adverse symptoms may include the following:

pain or irritation watering redness



Section 11. Toxicological information

Inhalation : Adverse symptoms may include the following:

nausea or vomiting

headache

drowsiness/fatigue dizziness/vertigo unconsciousness

Skin contact: Adverse symptoms may include the following:

irritation redness

Ingestion: No known significant effects or critical hazards.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate

effects

: No known significant effects or critical hazards.

Potential delayed effects

: No known significant effects or critical hazards.

Long term exposure

Potential immediate

: No known significant effects or critical hazards.

effects

Potential delayed effects: No known significant effects or critical hazards.

Potential chronic health effects

General: No known significant effects or critical hazards.

Carcinogenicity: May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : Suspected of causing genetic defects.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	14303.2 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Trichloroethylene	Acute EC50 95000 µg/L Marine water	Algae - Skeletonema costatum	96 hours
,	Acute EC50 36.5 mg/L Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours
	Acute LC50 20 mg/L Marine water	Crustaceans - Elminius modestus	48 hours
	Acute LC50 18000 μg/L Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 16 mg/L Marine water	Fish - Pleuronectiformes	96 hours
	Chronic EC10 12.3 mg/L Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours
	Chronic NOEC 2.3 mg/L Fresh water	Daphnia - Daphnia magna	21 days

Persistence and degradability

There is no data available.



Section 12. Ecological information

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
Trichloroethylene	2.53	17	low

Mobility in soil

Soil/water partition coefficient (Koc)

: Not available.

Other adverse effects

: No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS#		Reference number
Trichloroethylene	79-01-6	Listed	U228

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	UN3082	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	-	-	-
Transport hazard class(es)	9	-	-	-
Packing group	III	-	-	-
Environmental hazards	Yes.	No.	No.	No.

AERG : 171

DOT-RQ Details : Trichloroethylene 100 lbs / 45.4 kg [8.2147 gal / 31.096 L]



Section 14. Transport information

Additional information

DOT Classification

IATA

: Non-bulk packages of this product are not regulated as hazardous materials in package sizes less than the product reportable quantity, unless transported by inland waterway. The marine pollutant mark is not required when transported on inland waterways in sizes of ≤5 L or ≤5 kg.

Reportable quantity 265.96 lbs / 120.74 kg [29.811 gal / 112.85 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ

(reportable quantity) transportation requirements.

: The environmentally hazardous substance mark may appear if required by other

transportation regulations.

Special precautions for user : Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations

: TSCA 5(a)2 final significant new use rules: Trichloroethylene TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

TSCA 12(b) one-time export: Trichloroethylene Clean Water Act (CWA) 307: Trichloroethylene Clean Water Act (CWA) 311: Trichloroethylene

Clean Air Act Section 112

(b) Hazardous Air **Pollutants (HAPs)** : Listed

Clean Air Act Section 602

Class I Substances

: Not listed

Clean Air Act Section 602

Class II Substances

: Not listed

DEA List I Chemicals

(Precursor Chemicals)

: Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : SKIN CORROSION/IRRITATION - Category 2

SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A

GERM CELL MUTAGENICITY - Category 2

CARCINOGENICITY - Category 1B

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) -

Category 3



Section 15. Regulatory information

Composition/information on ingredients

Name	Classification
	SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A GERM CELL MUTAGENICITY - Category 2 CARCINOGENICITY - Category 1B SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

SARA 313

	Product name	CAS number
Form R - Reporting requirements	Trichloroethylene	79-01-6
Supplier notification	Trichloroethylene	79-01-6

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: Asphalt; Distillates (petroleum), solvent-dewaxed

heavy paraffinic; Trichloroethylene

New York : The following components are listed: Trichloroethylene

New Jersey : The following components are listed: Asphalt, oxidized; Asphalt; Distillates (petroleum),

solvent-dewaxed heavy paraffinic; Trichloroethylene

Pennsylvania : The following components are listed: Asphalt; Soybean oil; Trichloroethylene

California Prop. 65

WARNING: This product can expose you to Trichloroethylene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Canada

Canadian lists

Canadian NPRI : The following components are listed: Trichloroethylene
CEPA Toxic substances : The following components are listed: Trichloroethylene

Canada inventory (DSL : All components are listed or exempted.

NDSL)

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A	Calculation method
GERM CELL MUTAGENICITY - Category 2	Calculation method
CARCINOGENICITY - Category 1B	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) -	Calculation method
Category 3	
AQUATIC HAZARD (ACUTE) - Category 3	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 3	Calculation method

History

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Prepared by : KMK Regulatory Services Inc.



Section 16. Other information

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

