

SAFETY-KLEEN TRICHLOROETHYLENE

MATERIAL SAFETY DATA SHEET FOR USA AND CANADA



SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: SAFETY-KLEEN TRICHLOROETHYLENE

SYNONYMS: Acetylene trichloride; Ethinyl trichloride; Ethylene trichloride

PRODUCT PART NUMBERS: 1021649, 1024649

PRODUCT USE: Cleaning agent.
If this product is used in combination with other products, refer to the Material Safety Data Sheets for those products.

	24-HOUR EMERGENCY PHONE NUMBERS	
These numbers are for emergency use only. If you desire non-emergency product information, please call a phone number listed below.	MEDICAL:	TRANSPORTATION (SPILL):
	1-800-752-7869	1-800-468-1760

SUPPLIER: Safety-Kleen Systems, Inc.
5400 Legacy Drive
Cluster II, Building 3
Plano, Texas 75024
USA
1-803-669-5740

TECHNICAL INFORMATION: 1-800-669-5740, Press 1 then Extension 7500

MSDS FORM NUMBER: 82333

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PREPARED BY: Product MSDS Coordinator

APPROVED BY: MSDS Task Force

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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

WT%	NAME	SYNONYM	CAS NO.	OSHA PEL		ACGIH TLV®		LD	LC ^b
				TWA (ppm)	STEL (ppm)	TWA (ppm)	STEL (ppm)		
96 to 100	Trichloroethene ^d	Trichloroethylene	79-01-6	100	200 (ceiling)	50	100	5650 ^a (>20000 mg/kg) ^c	25700 ppm/ 1 hour
0 to 1*	1,1,1-Trichloroethane	Methyl chloroform	71-55-6	350	N. Av.	350	450	9600 ^a (15800 mg/kg) ^c	18000 ppm/ 4 hours
0 to 1*	Tetrachloroethene	Perchloroethylene; Tetrachloroethylene	127-18-4	100	200 (ceiling)	25	100	2629 ^a (10000 mg/kg) ^c	34200 mg/m ³ / 8 hours
0.5 to 0.8*	Ethyl oxirane	1,2-Butylene oxide	106-88-7	N. Av. ^e	N. Av.	N. Av.	N. Av.	500 ^a (1740 mg/kg) ^c	N. Av.

N.Av. = Not Available

*Even though the concentration range does not fall under the ranges prescribed by WHMIS, this is the actual range which varies with each batch of the product.

^aOral-Rat LD₅₀ (mg/kg)

^bInhalation-Rat LC₅₀

^cSkin-Rabbit LD₅₀

^dNIOSH IDLH (Immediately Dangerous to Life or Health) 1000 ppm

^eAIHA recommended TWA 2 ppm

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE

Liquid, clear and colorless, sweet odor.

WARNING!

HEALTH HAZARDS

May be harmful if inhaled.

May be harmful if swallowed.

May irritate the respiratory tract (nose, throat, and lungs), eyes, and skin.

Product may cause cancer. Risk of cancer depends on duration and level of exposure.

Contains material which may cause birth defects.

Contains material which may cause eye, liver, kidney, brain, and central nervous system damage.

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POTENTIAL HEALTH EFFECTS

INHALATION (BREATHING): High concentrations of vapor or mist may be harmful if inhaled. High concentrations of vapor or mist may irritate the respiratory tract (nose, throat, and lungs). High concentrations of vapor or mist may cause nausea, vomiting, headaches, dizziness, loss of coordination, numbness, and other central nervous system effects. Massive acute overexposure may cause irregular heartbeat, liver damage, kidney damage, rapid central nervous system depression, sudden collapse, coma, and/or death.

EYES: May cause irritation, pain, blurred vision, and/or burns.

SKIN: May cause irritation, drying, cracking, redness, itching, and/or swelling (dermatitis). Not likely to be absorbed through the skin in harmful amounts.

INGESTION (SWALLOWING): May be harmful if swallowed. May cause throat irritation, nausea, vomiting, and central nervous system effects as noted under **INHALATION (BREATHING)**. Breathing product into the lungs during ingestion or vomiting may cause lung injury and possible death.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Individuals with pre-existing cardiovascular, liver, kidney, respiratory tract (nose, throat, and lungs), central nervous system, eye, and/or skin disorders may have increased susceptibility to the effects of exposure.

CHRONIC: Prolonged or repeated inhalation may cause brain damage and other toxic effects as noted under **INHALATION (BREATHING)**. Prolonged or repeated eye contact may cause inflammation of the membrane lining the eyelids and covering the eyeball (conjunctivitis); and/or blindness. Prolonged or repeated skin contact may cause drying, cracking, redness, itching, and/or swelling (dermatitis); and/or blistering.

CANCER INFORMATION: This product contains trichloroethylene, perchloroethylene, and 1,2-butylene oxide which may cause cancer. Risk of cancer depends on duration and level of exposure. For more information, see **SECTION 11: CARCINOGENICITY**.

Also see **SECTION 15: CALIFORNIA**.

POTENTIAL ENVIRONMENTAL EFFECTS

Not available. Also see **SECTION 12: ECOLOGICAL INFORMATION**.

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SECTION 4: FIRST AID MEASURES

INHALATION: (BREATHING)	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Oxygen should only be administered by qualified personnel. Someone should stay with victim. Get medical attention if breathing difficulty persists.
EYES:	If irritation or redness from exposure to vapor develops, move away from exposure into fresh air. Upon contact, immediately flush eyes with plenty of lukewarm water, holding eyelids apart, for 15 minutes. Get medical attention.
SKIN:	Remove affected clothing and shoes. Wash skin thoroughly with soap and water. Get medical attention if irritation or pain develops or persists.
INGESTION: (SWALLOWING)	Do NOT induce vomiting. Immediately get medical attention. Call 1-800-752-7869 for additional information. If spontaneous vomiting occurs, keep head below hips to avoid breathing the product into the lungs. Never give anything to an unconscious person by mouth.
NOTE TO PHYSICIANS:	Treat symptomatically and supportively. Increased sensitivity of the heart to Adrenaline (epinephrine) may be caused by overexposure to product. Administration of gastric lavage if warranted, should be performed by qualified medical personnel. Treatment may vary with condition of victim and specifics of incident. Call 1-800-752-7869 for additional information.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT:	Not applicable.
FLAMMABLE LIMITS IN AIR:	LOWER: 8 VOL% 77°F (25°C) UPPER: 10.5 VOL% 77°F (25°C)
AUTOIGNITION TEMPERATURE:	788°F (420°C)
HAZARDOUS COMBUSTION PRODUCTS:	Decomposition and combustion materials may be toxic. Burning may produce phosgene, halogenated compounds, carbon monoxide, and unidentified organic compounds.
CONDITIONS OF FLAMMABILITY:	Heat, sparks, or flame. Product may burn, but does not ignite readily.

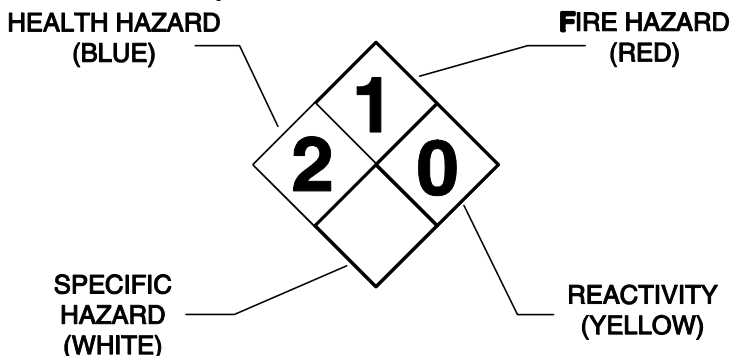
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EXTINGUISHING MEDIA: Carbon dioxide, alcohol-resistant foam, dry chemical, or water spray. Water or foam may cause frothing.

**NFPA 704
HAZARD
IDENTIFICATION:**

This information is intended solely for the use by individuals trained in this system.



**FIRE FIGHTING
INSTRUCTIONS:**

Keep storage containers cool with water spray. A positive-pressure, self-contained breathing apparatus (SCBA) and full-body protective equipment are required for fire emergencies.

**FIRE AND
EXPLOSION HAZARDS:**

Heated containers may rupture. "Empty" containers may retain residue and can be dangerous. Product is not sensitive to mechanical impact or static discharge.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Remove all ignition sources. Do not touch or walk through spilled product. Stop leak if you can do it without risk. Wear protective equipment and provide engineering controls as specified in **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Ventilate area and avoid breathing vapor or mist. A vapor suppressing foam may be used to reduce vapors. Contain spill away from surface waters and sewers. Contain spill as a liquid for possible recovery, or sorb with compatible sorbent material and shovel with a clean tool into a sealable container for disposal.

Additionally, for large spills: Water spray may reduce vapor, but may not prevent ignition in closed spaces. Dike far ahead of liquid spill for collection and later disposal.

There may be specific federal regulatory reporting requirements associated with spills, leaks, or releases of this product. Also see **SECTION 15: REGULATORY INFORMATION**.

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SECTION 7: HANDLING AND STORAGE

HANDLING: Keep away from heat, sparks, or flame. Where flammable mixtures may be present, equipment safe for such locations should be used. Use clean tools and explosion-proof equipment. When transferring large volumes of product, metal containers, including trucks and tank cars, should be grounded and bonded. Do not breathe vapor or mist. Use in a well ventilated area. Avoid contact with eyes, skin, clothing, and shoes.

SHIPPING AND STORING: Keep container tightly closed when not in use and during transport. Do not pressurize, cut, weld, braze, solder, drill, or grind containers. Keep containers away from heat, flame, sparks, static electricity, or other sources of ignition. Empty product containers may retain product residue and can be dangerous. See **SECTION 14: TRANSPORT INFORMATION** for Packing Group information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide general ventilation needed to maintain concentration of vapor or mist below applicable exposure limits. Where adequate general ventilation is unavailable, use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: Use NIOSH-certified, air-purifying respirators with organic vapor cartridges respiratory protective equipment when concentration of vapor or mist exceeds applicable exposure limits. Protection provided by air-purifying respirators is limited. Selection and use of respiratory protective equipment should be in accordance in the USA with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4.

EYE PROTECTION: Where eye contact is likely, wear chemical goggles; contact lens use is not recommended.

SKIN PROTECTION: Where skin contact is likely, wear polyvinyl alcohol (PVA), laminate (Ansell Edmont Barrier®, North Silver Shield®, Safety 4 4h®), or equivalent protective gloves; use of neoprene, nitrile, natural rubber (latex) or equivalent gloves is not recommended.

To avoid prolonged or repeated contact with product where spills and splashes are likely, wear appropriate chemical-resistant faceshield, boots, apron, whole body suits, or other protective clothing.

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PERSONAL HYGIENE: Use good personal hygiene. Wash thoroughly with soap and water after handling product and before eating, drinking, or using tobacco products. Clean affected clothing, shoes, and protective equipment before reuse. Discard affected clothing, shoes, and/or protective equipment if they cannot be thoroughly cleaned. Discard leather articles, such as shoes, saturated with the product.

OTHER PROTECTIVE EQUIPMENT: Where spills and splashes are likely, facilities storing or using this product should be equipped with an emergency eyewash and shower, both equipped with clean water, in the immediate work area.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE, APPEARANCE, AND ODOR: Liquid, clear and colorless, sweet odor.

ODOR THRESHOLD: 21 ppm

MOLECULAR WEIGHT: 131.4

SPECIFIC GRAVITY: 1.46 (water = 1)

DENSITY: 12.2 LB/US gal (1460 g/l)

VAPOR DENSITY: 4.5 (air = 1)

VAPOR PRESSURE: 58 mm Hg at 68°F (20°C)

BOILING POINT: 189°F (87°C)

FREEZING/MELTING POINT: -99°F (-73°C)

pH: Not applicable.

EVAPORATION RATE: 0.7 (carbon tetrachloride = 1)

SOLUBILITY IN WATER: Insoluble.

FLASH POINT: Not applicable.

FLAMMABLE LIMITS IN AIR: **LOWER:** 8 VOL% 77°F (25°C)
UPPER: 10.5 VOL% 77°F (25°C)

AUTOIGNITION TEMPERATURE: 788°F (420°C)

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SECTION 10: STABILITY AND REACTIVITY

- STABILITY:** Stable under normal temperatures and pressures. Avoid heat, sparks, or flame.
- INCOMPATIBILITY:** Avoid acids, alkalis, oxidizing agents (explosive mixtures may be formed), reactive halogens, powdered metals, or reactive metals.
- REACTIVITY:** Polymerization is not known to occur under normal temperatures and pressures. Not reactive with water.
- HAZARDOUS DECOMPOSITION PRODUCTS:** None under normal temperatures and pressures. Also see **SECTION 5: HAZARDOUS COMBUSTION PRODUCTS.**

SECTION 11: TOXICOLOGICAL INFORMATION

- SENSITIZATION:** Trichloroethylene has demonstrated human effects of skin sensitization. 1,1,1-Trichloroethane has demonstrated human effects of cardiac sensitization.
- Based on best current information, the other components listed in **SECTION 2** are not sensitizers.
- MUTAGENICITY:** Trichloroethylene and perchloroethylene have demonstrated human effects of mutagenicity. 1,1,1-Trichloroethane and 1,2-butylene oxide have demonstrated animal effects of mutagenicity.
- CARCINOGENICITY:** Trichloroethylene and perchloroethylene are categorized by IARC as probably carcinogenic to humans (Group 2A). 1,2-Butylene oxide is categorized by IARC as possibly carcinogenic to humans (Group 2B). Trichloroethylene and perchloroethylene are listed by NTP as having limited evidence of carcinogenicity in humans or sufficient evidence of carcinogenicity in experimental animals.
- As per ACGIH, perchloroethylene is categorized as a confirmed animal carcinogen with unknown relevance to humans (A3). This agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) that may not be relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence does not suggest that the agent is likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

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Based on best current information, the other component listed in **SECTION 2** is not a carcinogen.

Also see **SECTION 3: CANCER INFORMATION** and **SECTION 15: CALIFORNIA**.

REPRODUCTIVE TOXICITY: Trichloroethylene, 1,1,1-trichloroethane, and perchloroethylene have demonstrated animal effects of reproductive toxicity.

Based on best current information, the other component listed in **SECTION 2** is not a reproductive toxicant.

TERATOGENICITY: Trichloroethylene, 1,1,1-trichloroethane, perchloroethylene, and 1,2-butylene oxide have demonstrated animal effects of teratogenicity.

TOXICOLOGICALLY SYNERGISTIC PRODUCT(S): Based on best current information, there are no known toxicologically synergistic products associated with this product.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY: 31 mg/L 96 hours LC₅₀ Flagfish (*Jordanella floridae*)

OCTANOL/WATER PARTITION COEFFICIENT: Log P_{ow}= 2.42

VOLATILE ORGANIC COMPOUNDS: 98 to 100 WT%; 11.8 to 12 LB/US gal; 1430 to 1460 g/l
As per 40 CFR Part 51.100(s).

SECTION 13: DISPOSAL CONSIDERATIONS

DISPOSAL: Dispose in accordance with federal, state, provincial, and local regulations. Regulations may also apply to empty containers. The responsibility for proper waste disposal lies with the owner of the waste. Contact Safety-Kleen regarding proper recycling or disposal.

USEPA WASTE CODE(S): U228
Based on available data, this information applies to the product as supplied to the user. Processing, use, or contamination by the user may change the waste code(s) applicable to the disposal of this product.

If this product is used or spent prior to discard, the following waste code(s) may apply: F001 for degreasing and F002 for all other uses; D040

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SECTION 14: TRANSPORT INFORMATION

DOT: TRICHLOROETHYLENE, 6.1, UN1710, PG III

TDG: Trichloroethylene, Class 6.1 (9.2), UN1710, PG III

EMERGENCY RESPONSE 160

GUIDE NUMBER: Reference *North American Emergency Response Guidebook*

SECTION 15: REGULATORY INFORMATION

USA REGULATIONS

SARA SECTIONS 302 AND 304: Based on the ingredients listed in **SECTION 2**, this product does not contain any "extremely hazardous substances" listed pursuant to Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) Section 302 or Section 304 as identified in 40 CFR Part 355, Appendix A and B.

SARA SECTIONS 311 AND 312: This product poses the following health hazards as defined in 40 CFR Part 370 and is subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA):

- Immediate (Acute) Health Hazard
- Delayed (Chronic) Health Hazard

SARA SECTION 313: The following components are subject to the requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

Material	CAS
Trichloroethene	79-01-6
1,1,1-Trichloroethane	71-55-6
Tetrachloroethene	127-18-4
Oxirane, ethyl-	106-88-7

CERCLA: Based on the ingredients listed in **SECTION 2**, this product contains the following "hazardous substances" listed under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) in 40 CFR Part 302, Table 302.4 with the following reportable quantities (RQ):

Material	CAS	RQ
Trichloroethene	79-01-6	100 LB
1,1,1-Trichloroethane	71-55-6	1000 LB
Tetrachloroethene	127-18-4	100 LB
Oxirane, ethyl-	106-88-7	100 LB

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TSCA: All the components of this product are listed on the TSCA Inventory.

CALIFORNIA: This product contain trichloroethylene CAS 79-01-6 and perchloroethylene CAS 127-18-4. **WARNING:** These chemicals are known to the State of California to cause cancer.

This product does not contain detectable amounts of any chemical known to the State of California to cause birth defects or other reproductive harm.

CANADIAN REGULATIONS

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

WHMIS: D1B, D2A, D2B

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):

All the components of this product are listed on the Canadian Domestic Substances List (DSL).

SECTION 16: OTHER INFORMATION

REVISION INFORMATION: Updated with Safety-Kleen Texas address, modified Medical Emergency phone number, modified Transportation Spill number and modified Technical Information phone number.

LABEL/OTHER INFORMATION: Not available.

User assumes all risks incident to the use of this product. To the best of our knowledge, the information contained herein is accurate. However, Safety-Kleen assumes no liability whatsoever for the accuracy or completeness of the information contained herein. No representations or warranties, either express or implied, or merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to information or the product to which information refers. The data contained on this sheet apply to the product as supplied to the user.



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