



SRF LIMITED

Issue: 02

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SAFETY DATA SHEET

Trichloroethylene

SECTION 1: IDENTIFICATION OF SUBSTANCE OR MIXTURE AND COMPANY

- 1.1 Product Name** : Trichloroethylene
- Trade Names / Synonyms** : Trichloroethene, Ethylene trichloride, Acetylene trichloride.
- CAS Number** : 79-01-6
- 1.2 Manufacturer/supplier** : SRF Limited, D-2/1 GIDC Phase-II, PCPIR, Dahej, Tal. Vagra, Dist. Bharuch 392 130, Gujarat (India)
- Further information obtainable from:** : Vikas Yadav
e-mail: vikas.yadav1@srf.com
Mobile no. +91-9978445120
- 1.3 Emergency Call**
- Emergency Contact** : Balwada Ashish +91-9099002602
- Primary Contact** : Prabhat Kumar +91-7069057087
- SDS Contact** : Sharma Anil Kumar +91-9687694067
- Relevant Identified Uses Of The Substance Or Mixture And Uses Advised Against**
- Identified Uses** : General solvent use.
- Uses advised against** : Do not use product for anything outside of the above specified uses

SECTION 2: HAZARDS IDENTIFICATION

- 2.1 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 1 AQUATIC HAZARD (LONG-TERM) - Category 3
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GHS label element

Hazard Pictogram:



01.09.2020

Single Danger: Danger

Hazard Statement(s):

H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H336 May cause drowsiness or dizziness
 H341 Suspected of causing genetic defects
 H350 May cause cancer.
 H412 Harmful to aquatic life with long lasting effects.

Precautinary Statement(s):

P202 Do not handle until all safety precautions have been read and understood
 P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 P273 Avoid release to the environment
 P281 Use personal protective equipment as required
 P391 Collect spillage
 P308 + P313 IF exposed or concerned: Get medical advice/attention
 P304 + P340 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

SECTION 3 : COMPOSITION & INFORMATION ON INGREDIENTS

Chemical name	Common name and synonyms	Formula	CAS No.	Concentration % (w/w)
TRICHLOROETHYLENE	Trichloroethene, Ethylene trichloride, Acetylene trichloride.	C ₂ HCl ₃	79-01-6	>= 99.9 - <= 100

SECTION 3: FIRST AID MEASURES

4.1 Description of first aid measures

General advice : In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs,

01.09.2020

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 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. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- 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 10 minutes. Get medical attention.
- 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. 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.

4.2 Most Important Symptoms and Effects, Both Acute And Delayed:

Potential acute health effects

- Eye contact : Causes serious eye irritation
- Inhalation : No known significant effects or critical hazards.
- Ingestion : No known significant effects or critical hazards
- Inhalation : No known significant effects or critical hazards.
- Ingestion

Over-exposure signs/symptoms

Eye contact	Adverse symptoms may include the following pain or irritation, watering, redness
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01.09.2020

Inhalation	No specific data
Skin contact	Adverse symptoms may include the following:., irritation, redness
Ingestion	No specific data.

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.
Specific treatments	: No specific treatment.
Protection of first aiders	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.

SECTION 5. FIRE FIGHTING MEASURE

- General Fire Hazards : Heat may cause the containers to explode.
- 5.1 **Extinguishing media Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
Apply water from a safe distance to cool container and protect surrounding area.
If involved in fire, shut off flow immediately if it can be done without risk.
- 5.2 **Special hazards arising from the substance or mixture** : Carbon oxides, hydrogen chloride gas is expected to be the primary hazardous products.
- 5.3 **Hazardous Combustion Products** : If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: carbon monoxide; Carbonyl difluoride; Hydrogen chloride.
- 5.4 **Advice for firefighters Special fire fighting procedures** : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Wear neoprene gloves during cleaning up work after a fire.



- Exposure to decomposition products may be a hazard to health.
- 5.5 **Special protective equipment for firefighters:** : In case of fire: Stop leak if safe to do so. Continue water spray from protected position until container stays cool. Use extinguisher to contain the fire. Isolate the source of the fire or let it burn out. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
- : Fire-fighters must use standard protective equipment including flame retardant coat, helmet with face shield, Gloves, rubber boots, and in enclosed spaces, SCBA.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1 **Personal precautions, protective equipment and emergency procedures:** : Evacuate area. Provide adequate ventilation. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Do not inhale vapors, mist or gas. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
- 6.2 **Environmental Precautions** : Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.
- 6.3 **Methods and material for containment and cleaning up** : Absorb with an inert dry material and place in an appropriate waste disposal container. Keep disposal containers closed when finished.
- 6.4 **Reference to other sections** : **Refer to sections 8 and 13.**

SECTION 7: HANDLING & STORAGE

- 7.1 **Precautions for safe handling:** : Only experienced and properly instructed persons should handle containners. Handle in accordance with good industrial hygiene and safety practice.
- Use proper personal protective equipment when handling material to prevent contact with skin and eyes. Do not inhale vapor or mist.
- 7.2 **Conditions for safe storage, including any incompatibilities:** : Observe all regulations and local requirements regarding storage of containers. Protect from sunlight. Store in a well-ventilated place. Containers should not be stored in conditions likely to encourage corrosion. Handle under inert gas. Light sensitive.
- 7.3 **Storage temperature** : Protect from sunlight. Store in a cool and well-ventilated place.
- 7.4 **Storage period:** : No data available



SECTION 8 : EXPOSURE CONTROL / PERSONAL PROTECTION CONTROL PARAMETERS

8.1 Control parameters, e.g., occupational exposure limit values or biological limit values

Occupational Exposure Limits:

Component	Source	Type	Value	Note
Trichloroethylene	US (OSHA)	TWA	100 ppm	OSHA Occupational Exposure Limits (Table Z2)
Trichloroethylene	US (OSHA)	TWA	50 ppm / 270 mg/m3	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants.
Trichloroethylene	US (ACGIH)	TWA	10 ppm	ACGIH Hreshold Exposure Limit Values

8.2 Exposure controls

- Engineering controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits
- Personal protective equipment Respiratory protection** : Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
- Hand protection** : Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
- Eye protection** : Use chemical safety goggles and/or a full-face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU) Maintain eye wash fountain and quick-drench facilities in work area.
- Protective 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

01.09.2020

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels

SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance : Clear colorless liquid

Physical state : Liquid. Watery liquid

Colour : Colourless

Odor : Characteristic.

Molecular Weight : 131.39 g/mol

pH (15 aqueous solution) : Specific data not available

Melting point/freezing point : -84.8°C (-120.6°F)

Initial boiling point and boiling range : 86.7°C (188.1°F)

Flash point : Specific data not available

Flammability (solid, gas) : Not applicable

Viscosity : 0.55 mPa.s (25°C)

Partition coefficient; n-octanol/water : No data available

Vapour pressure : 31 psig at 20.0 °C

Vapour density : 4.5 (Air = 1)

Relative density : 1.463 g/mL at 25 °C (77 °F)

Flammability Range : 10.5%(V) / 8%(V)

Auto-ignition temperature : 410 °C (770 °F)

Decomposition temperature : Specific data not available

Water solubility : 1.1 g/l

SECTION 10: STABILITY & REACTIVITY

10.1 Reactivity : None known, based on information available

10.2 **Chemical stability** : Stable under recommended storage conditions



- 10.3 **Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur
- 10.4 **Conditions to avoid** : Incompatible products. Excess heat. Exposure to light. Exposure to moist air or water
- 10.5 **Incompatible materials** : Strong oxidizing agents, Strong bases, Amines, Alkali metals, Metals
- 10.6 **Hazardous decomposition products** : Decomposition products are hazardous., This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming Carbon oxides and Hydrogen chloride gas are expected to be, under fire conditions, the primary hazardous decomposition products.

SECTION 11 : TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Actuate Toxicity

LC50 inhalation rat (mg/l)	26 mg/L (Rat) 4 h
LD50 Oral	4920 mg/kg
LD50 Dermal	> 20 g/kg (Rabbit)

IDLH :1000ppm

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Trichloroethylene	Eyes - Moderate irritant Skin - Severe irritant	Rabit	-	24 hours 20 milligrams	-
		Rabit	-	24 hours 2 milligrams	-
Sensitization			Not available		
Mutagenicity			Not available		
Reproductive toxicity			Not available		
Teratogenicity			Not available		
Specific target organ toxicity (single exposure)			Not available		
Specific target organ toxicity (repeated exposure)			Not available		
Aspiration hazard			Not available		
Carcinogenicity			The table below indicates whether each agency has listed any ingredient as a carcinogen		

Carcinogenicity table						
Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Trichloroethylene	79-01-6	2A	Reasonably Anticipated	A2	X	Not listed

Potential acute health effects

Eye contact : Causes serious eye irritation
 Inhalation : Not known significant effects or critical hazards.
 Skin contact : Causes skin irritation.
 Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following: pain or irritation, watering, redness
 Inhalation : Not known significant effects or critical hazards.
 Skin contact : Adverse symptoms may include the following: irritation, redness
 Ingestion : No specific data.

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

Short term exposure

Potential immediate effect : Not available
 Potential delayed effects : Not available

Long term exposure

Potential immediate effect : Not available
 Potential delayed effects : Not available

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.

SECTION 12 : ECOLOGICAL INFORMATION

12.1- 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 18 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 3100 µg/l Fresh water	Fish - Jordanella floridae- Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic EC10 12.3 mg/l Fresh water	Algae – Chlamydomonas reinhardtii - Exponential growth phase	72 hours
	Chronic NOEC 10 mg/l Fresh water	Daphnia - Daphnia magna	21 Days

12.2-Persistence and degradability

Persistence and degradability	Not available
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12.3-Bioaccumulative potential

BCF fish	17
Log Pow	2.53
Log Kow	Not applicable.
Bioaccumulative potential	Low

12.4-Mobility in Soil

Mobility in soil	No data available.
Ecology - soil	Because of its volatility, the product is likely to cause ground or water pollution

12.5-Other adverse effect

No known significant effects or critical hazards

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Product : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times 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






01.09.2020

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 emptied 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.

Contaminated packaging

: Evaporate or incinerate residue at an approved site. Return empty containers to supplier.

SECTION 14: TRANSPORT INFORMATION

ITEM	DOT	IMDG	IATA
UN number	1710	1710	1710
Proper shipping name	TRICHLOROETHYLENE	TRICHLOROETHYLENE	TRICHLOROETHYLENE
Transport hazard class(es)/ Labelling Number	 6.1	 6.1	 6.1
Packaging Group	III	III	III
Environmental hazards	No	No	No

Additional information

Other information
 Special transport precautions

: No supplementary information available
 : 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

15. REGULATORY INFORMATION

TRICHLOROETHYLENE (79-01-6) is found on the following regulatory list

15.1 US Federal regulations

U.S. Federal regulations	TSCA 5(a)2 final significant new use rules: trichloroethylene
	TSCA 8(a) CDR Exempt/Partial exemption: Not determined
	TSCA 12(b) one-time export: trichloroethylene
	United States inventory (TSCA 8b): This material is listed or exempted.
	Clean Water Act (CWA) 307: trichloroethylene
	Clean Water Act (CWA) 311: trichloroethylene



01.09.2020

SARA 302/304

Composition/information on ingredients

No products were found.

SARA Section 311/312 Hazard Classes

Immediate (acute) health hazard

Delayed (chronic) health hazard

15.2 International regulations

National Inventory	Status
Australia - AICS	This material is listed or exempted.
Canada - DSL	This material is listed or exempted.
Europe - EINEC / ELINCS / NLP	This material is listed or exempted.
Japan - ENCS	This material is listed or exempted.
China	This material is listed or exempted
Taiwan	
Korea - KECI	This material is listed or exempted.
New Zealand - NZIoC	This material is listed or exempted.
Philippines	This material is listed or exempted.
USA TSCA	This material is listed or exempted
U.S. - California - Proposition 65 - Carcinogens List	YES
U.S. - California - Proposition 65 – Reproductive	YES
U.S. - California - Proposition 65 - No significant risk level	14 µg/day (ingestion) 50 µg/day (inhalation)
U.S. - California - Proposition 65 – Maximum acceptable dosage level	No
State or local regulations	U.S. - Massachusetts - This material is listed U.S. - New Jersey - This material is listed U.S. - New York - This material is listed U.S. - Pennsylvania - This material is listed

SECTION 16: OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. SRF Limited-Chemical business shall not be held liable for any damage resulting from handling or from contact with the above product