



# SRF LIMITED

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## SAFETY DATA SHEET

Perchloroethylene

### SECTION 1: IDENTIFICATION OF SUBSTANCE OR MIXTURE AND COMPANY

- 1.1 Product Name** : Perchloroethylene
- Trade Names / Synonyms** : Ethylene Tetrachloride; Tetrachloroethene; Tetrachloroethylene; Carbon Bichloride; Carbon Dichloride
- CAS Number** : 127-18-4
- 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
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- SDS Contact** : Sharma Anil +91-9687694067  
Kumar
- Relevant Identified Uses of The Substance or Mixture And Uses Advised Against Identified Uses:** : Commonly used as solvent and cleaning/washing agent.
- 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).**

<b>Classification of the substance or mixture</b>	SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A GERM CELL MUTAGENICITY - Category 2 CARCINOGENICITY - Category 2 Specific target organ toxicity (single exposure) - Category 3
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GHS leble element  
Hazard Pictogram:



Single word: **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
H351	Suspected of causing cancer
H411	Toxic 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
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
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 lenses, if present and easy to do. Continue rinsing
P-501	Dispose of contents and container to an approved waste disposal plant.

### SECTION 3: COMPOSITION & INFORMATION ON INGREDIENTS

Chemical name	Common name and synonyms	Formula	CAS No.	Concentration % (w/w)
PERCHLOROETHYLENE	Ethylene Tetrachloride, Tetrachloroethene Carbon Bichloride; Carbon Dichloride.	C <sub>2</sub> Cl <sub>4</sub>	127-18-4	>= 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, 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
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**

5.1	<p><b>General Fire Hazards</b></p> <p><b>Extinguishing media Suitable extinguishing media:</b></p>	<p>:</p> <p>:</p>	<p>Heat may cause the containers to explode.</p> <p>Use an extinguishing agent suitable for the surrounding fire.</p> <p>Apply water from a safe distance to cool container and protect surrounding area.</p> <p>If involved in fire, shut off flow immediately if it can be done without risk.</p>
5.2	<p><b>Special hazards arising from the substance or mixture</b></p> <p><b>Hazardous Combustion Products:</b></p> <p><b>Advice for firefighters Special fire fighting procedures:</b></p> <p><b>Special protective equipment for firefighters:</b></p>	<p>:</p> <p>:</p> <p>:</p> <p>:</p>	<p>Carbon oxides, hydrogen chloride gas are expected to be the primary hazardous products.</p> <p>If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: carbon monoxide; Carbonyl difluoride; Hydrogen chloride.</p> <p>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.</p> <p>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.</p> <p>Fire-fighters must use standard protective equipment including flame retardant coat, helmet with face shield, Gloves, rubber boots, and in enclosed spaces, SCBA.</p>

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

6.1	<p><b>Personal precautions, protective equipment and emergency procedures</b></p>	<p>:</p>	<p>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.</p>
6.2	<p><b>Environmental Precautions</b></p>	<p>:</p>	<p>Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.</p>
6.3	<p><b>Methods and material for containment and cleaning up</b></p>	<p>:</p>	<p>Absorb with an inert dry material and place in an appropriate waste disposal container. Keep disposal containers closed when finished.</p>

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 containers. 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	Value	Note
Perchloroethylene	US (OSHA)	(Vacated) TWA: 25 ppm (Vacated) TWA: 170 mg/m3 Ceiling: 200 ppm TWA: 100 ppm	OSHA Occupational Exposure Limits (Table Z2)
Perchloroethylene	NIOSH IDLH	150 ppm	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants.
Perchloroethylene	US (ACGIH)	TWA: 25 ppm STEL: 100 ppm	ACGIH Hreshold Exposure Limit Values
Perchloroethylene	Mexico OEL (TWA)	TWA: 25 ppm STEL: 100 ppm	

8.2 **Exposure controls**

**Engineering controls** : Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

**Personal protective equipment**

<b>Respiratory protection</b>	:	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).
<b>Hand protection</b>	:	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.
<b>Eye protection</b>	:	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.
<b>Protective Hygiene measures</b>	:	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
<b>Environmental exposure controls</b>	:	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
Colour	:	Colourless
Odor	:	Characteristic, sweet
Molecular Weight	:	165.83 g/mol
pH (15 aqueous solution)	:	Specific data not available
Melting point/freezing point	:	-22 °C / -7.6 °F

Initial boiling point and boiling range	:	121 °C (250 °F)
Evaporation Rate	:	6.0 (Ether = 1.0)
Flash point	:	Specific data not available
Flammability (solid, gas)	:	Not applicable
Viscosity	:	0.89 mPa s at 20 °C
Partition coefficient; n-octanol/water	:	No data available
Vapour pressure	:	18 mbar @ 20 °C
Vapour density	:	No information available
Relative density	:	1.619
Specific Gravity	:	1.625
Flammability Range	:	No data available
Auto-ignition temperature	:	No information available
Decomposition temperature	:	Specific data not available
Water solubility	:	0.15 g/L water (20°C)
Partition coefficient n-octanol/water(ies)	:	No data available

## SECTION 10: STABILITY & REACTIVITY

10.1	Reactivity	:	None known, based on information available
10.2	<b>Chemical stability</b>	:	Stable under recommended storage conditions
10.3	<b>Possibility of hazardous reactions</b>	:	Under normal conditions of storage and use, hazardous reactions will not occur
10.4	<b>Conditions to avoid:</b>	:	Incompatible products. Excess heat. Exposure to light. Exposure to moist air or water
10.5	<b>Incompatible materials:</b>	:	Strong acids, Strong oxidizing agents, Strong bases, Metals, Zinc, Amines, Aluminium
10.6	<b>Hazardous decomposition products:</b>	:	Decomposition products are hazardous., This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming Chlorine, Phosgene, Hydrogen chloride gas.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Actuate Toxicity





LC50 inhalation rat (mg/l)	> 10000 mg/kg (Rat)
LD50 Oral	2629 mg/kg (Rat)
LD50 Dermal	27.8 mg/L (Rat) 4 h

Sensitization	Not available
Mutagenicity	Not available
Reproductive toxicity	Not available
Teratogenicity	Not available
Specific target organ toxicity (single exposure)	Central nervous system (CNS)
Specific target organ toxicity (repeated exposure)	Kidney Liver Blood
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
Perchloroethylene	127-18-4	2A	Reasonably Anticipated	A3	X	A3
Tetrachloroethylene						

IARC (International Agency for Research on Cancer)	IARC (International Agency for Research on Cancer)
	Group 1 - Carcinogenic to Humans
	Group 2A - Probably Carcinogenic to Humans
	Group 2B - Possibly Carcinogenic to Humans
	IARC (International Agency for Research on Cancer)

NTP (National Toxicity Program)	NTP: (National Toxicity Program)
	Known - Known Carcinogen
	Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)	A1 - Known Human Carcinogen
	A2 - Suspected Human Carcinogen
	A3 - Animal Carcinogen
	ACGIH: (American Conference of Governmental Industrial Hygienists)

	Mexico - Occupational Exposure Limits - Carcinogens
	A1 - Confirmed Human Carcinogen

Mexico - Occupational Exposure Limits - Carcinogens	A2 - Suspected Human Carcinogen
	A3 - Confirmed Animal Carcinogen
	A4 - Not Classifiable as a Human Carcinogen
	A5 - Not Suspected as a Human Carcinogen

**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:, 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

Not available

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.

Symptoms / effects, both acute and delayed : Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

**SECTION 12: ECOLOGICAL INFORMATION**

**12.1- Toxicity**

Product /ingredient name	Result	Species	Exposure
Tetrachloroethylene (Perchloroethylene)	EC50: > 500 mg/L	Freshwater Algae Pseudokirchneriella subcapitata)	96 hours
	LC50: 4.73 - 5.27 mg	Freshwater Fish-Oncorhynchus mykiss)	96 h Flow through
	LC50: 11.0 - 15.0 mg/L	Freshwater Fish Lepomis macrochirus	96 h Static
	LC50: 8.6 - 13.5 mg/L,	Freshwater Fish Pimephales promelas)	96 h Static
	LC50: 12.4 - 14.4 mg/L	Freshwater Fish Pimephales promelas)	96 h Flow through
	EC50 = 100 mg/L	Microtox	24 hours
	EC50 = 112 mg/L	Microtox	24 hours
	EC50 = 120.0 mg/L	Microtox	30 Minutes
	EC50: 6.1 - 9.0 mg/L	Water Flea (Daphnia magna)	48 h Static

**12.2-Persistence and degradability**

Persistence and degradability	Insoluble in water Persistence is unlikely based on information available.
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**12.3-Bioaccumulative potential**

BCF fish	49
Log Pow	2.88
Log Kow	Not applicable.
Bioaccumulative potential	Low

**12.4-Mobility in Soil**

Mobility in soil	Is not likely mobile in the environment due its low water solubility.
Ecology - soil	Will likely be mobile in the environment due to its volatility

**12.5-Other adverse effect**

No known significant effects or critical hazards




### SECTION 13: DISPOSAL CONSIDERATIONS

#### 13.1 Waste Treatment Methods

**Product** : Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

**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	1897	1897	1897
Proper shipping name	TETRACHLOROETHYLENE	TETRACHLOROETHYLENE	TETRACHLOROETHYLENE
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 : No supplementary information available

Special transport precautions : 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

Tetrachloroethylene (127-18-4) is found on the following regulatory list

#### 15.1 US Federal regulations

##### SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Tetrachloroethylene	127-18-4	>95	0.1

SARA 311/312 Hazard Categories	See section 2 for more information
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**CWA (Clean Water Act)**

Component	CWA Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Tetrachloroethylene	-	-	X	X

**Clean Air Act**

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Tetrachloroethylene	X	-	-

**OSHA**

OSHA - Occupational Safety and Health Administration	Not applicable
CERCLA	This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

U.S. Department of Homeland Security	This product does not contain any DHS chemicals.
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California Proposition 65	This product contains the following Proposition 65 chemicals.
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Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Tetrachloroethylene	127-18-4	Carcinogen	14 µg/day	Carcinogen

State or local regulations	U.S. - Massachusetts – Right to Know U.S. - New Jersey - Right to Know U.S. - New York - Right to Know U.S. - Pennsylvania - Right to Know
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**U.S. Department of Transportation**

Reportable Quantity (RQ)	Y
DOT Marine Pollutant	Y
DOT Severe Marine Pollutant	N

**15.2 International regulations**

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Europe - EINEC / ELINCS / NLP	204-825-9
Japan - ENCS	Y
China	Y
Taiwan	Y
Korea - KECI	KE-33294



New Zealand - NZIoC	Y
Philippines	Y
State or local regulations	U.S. - Massachusetts – Right to Know U.S. - New Jersey - Right to Know U.S. - New York - Right to Know U.S. - Pennsylvania - Right to Know

**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.