Chemi caI Safety Data Sheet

Section 1 IDENTIFICATION

GHS Product identifier: Tetrachloroethylene.

Other means of identification: Perchloroethylene.

Recommended use of the chemical and restrictions on use: This product can be used as solvent, metal surface cleaners, etc. It can also be used in organic synthesis.

Supplier's details:

Emergency phone number: /

Section 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Skin corrosion/irritation Category 2

Serious eye damage/eye irritation Category 2

Carcinogenicity Category 1

Specific target organ toxicity, repeated exposure Category 2 (oral, inhalation, liver)

Hazardous to the aquatic environment, acute-term hazard Category 1

Hazardous to the aquatic environment, long-term hazard Category 2

GHS Label elements, including precautionary statements:

Symbol:

Signal word: Danger

Hazard statement(s): Causes skin irritation. Causes serious eye irritation. May cause cancer. May cause damage to organs through prolonged or repeated exposure (oral, inhalation, liver). Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Precautionary statement(s):

Prevention:

Wash ...thoroughly after handling. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection/hearing protection. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid release to the environment.

Response:

If on skin: Wash with plenty water/...Specific treatment (see under for further information). If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. If exposed or concerned: Get medical advice/attention. Get medical advice/attention if you feel unwell. Collect spillage.

Storage:

Store locked up.

Disposal:

Dispose of contents/container in accordance with local/regional/national/intemational regulations.

Other hazards which do not result in classification: /

Section 3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration%
Tetrachloroethylene	127-18-4	99.99%

Section 4 FIRST AID MEASURES

Description of necessary first aid measures

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Wash off with soap and plenty of running water. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of running water for at least 15 minutes and consult a physician.

If ingestion: Rinse mouth with water. Consult a physician.

Most important symptoms/effects, acute and delayed: /

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

Section 5 FIREFIGHTING MEASURES

Suitable extinguishing media: Use fbam, dry powder, water spray, etc.

Special hazards arising from the chemical: This material may decompose at high temperature and fire and release toxic fumes.

Special protective actions for fire-fighters: Wear self-contained breathing apparatus for firefighting if necessary. Use water spray to cool unopened containers. In case of fire in the surroundings, use appropriate extinguishing media.

Section 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: It is recommended that emergency personnel wear gas masks and anti-poison suits. Do not touch the spill directly.

Environmental precautions: Isolate contaminated areas and restrict access.

Methods and materials for containment and cleaning up: Small amount of leakage: adsorption with sand or other inert materials. Do not allow products to enter restricted areas such as sewers. A large amount of leakage: building a dike or digging a pit to contain. Transfer to a tank truck or special collector with a pump and transport to a waste disposal site for disposal.

Section 7 HANDLING AND STORAGE

Precautions for safe handling: There should be sufficient local exhaust in workplace. Operators should be trained and strictly follow the operating procedures. Operators are advised to wear gas masks, anti-poison suits and rubber gloves. Operators should load and unload lightly during handling to prevent damage to the package. There should be leakage treatment equipment in workplace. There may be harmful residues in empty containers.

Conditions for safe storage, including any incompatibilities: Store in a cool, dry, well-ventilated warehouse. Keep away from fire and heat. Protect from direct sunlight. The package should be sealed and not exposed to moisture. It should be stored separately from oxidants, flammable materials, etc., and should not be mixed. The storage area should be provided with suitable materials to contain spills.

Section 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters:

Source	Material name	TWA STEL
China Occupational Exposure Limits fbr Hazardous Agents in the Workplace	Tetrachloroethylene 200 (mg/m)	/

Appropriate engineering controls: Close strictly and provide sufficient local exhaust.

Individual protection measures

Eye/face protection: Wear a gas mask.

Skin protection: Wear an anti-poison suit.

Respiratory protection: Air respirators should be worn during emergency rescue or evacuation.

Thermal hazards: /

Section 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, colour etc)	Colorless transparent liquid.
Odour	/
Odour Threshold	/
PH	6.73.
Melting point/freezing point	-22C.
Initial boiling point and boiling range	121°C.
Flash point	/
Evaporation rate	/
Flammability (solid, gas)	/
Upper/lower flammability or explosive limits	/
Vapour pressure	1.9 kPa (20°C).
Vapour density	5.7.
Relative density	1.62.
Solubility (ies)	0.015 g/lOOml (20°C).
Partition coefficient: n-octanol/water	3.4.
Auto-ignition temperature	>650°C.
Decomposition temperature	/
Viscosity	/

Section 10 STABILITY AND REACTIVITY

Reactivity: /

Chemical stability: This material is stable in normal temperature.

Possibility of hazardous reactions: Decomposes on contact with hot surfaces or flames. This produces toxic and corrosive fumes of hydrogen chloride, phosgene and chlorine. Decomposes slowly on contact with moisture. This produces trichloroacetic acid and hydrochloric acid. Reacts violently with finely divided metals. This generates fire and explosion hazard.

Conditions to avoid: Spark, static electricity and high temperature.

Incompatible materials: Flammable materials and oxidizers.

Hazardous decomposit 妬 n products: hydrogen chloride, phosgene and chlorine.

Section 11 TOXICOLOGICAL INFORMATION

Information on the likely routes of exposure: Inhaled, swallowed, skin, eyes.
Symptoms related to the physical, chemical and toxicological characteristics: /

Acute health effects: Accidental ingestion of the material may be harmful and cause cough and throat irritation. Oral intake may cause bellyache, nausea, vomit and other symptoms. This material may produce skin and eyes irritation.
Chronic health effects: Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the liver, kidneys and central nervous system. This substance is probably carcinogenic to humans.

Numerical measures of toxicity(such as acute toxicity estimates): /

Section 12 ECOLOGICAL INFORMATION

Toxicity:

Endpoint	Test Duration (hr)	Species	Value
LC50	96	Fish	0.797mg/L
EC50	48	Crustacea	2.49mg/L
EC50	72	Algae or other aquatic plants	~0.2mg/L
BCF	240	**Fish**	350mg/L
NOEC	168	Crustacea	O.33mg/L

Persistence and degradability: High (Half-life = 720 days).
Bioaccumulative potential: Low (BCF = 77.1).
Mobility in soil: Low (KOC =106.8).
Other adverse effects: /

Section 13 DISPOSAL CONSIDERATIONS

Disposal methods: Dispose this product by safe burial. Damaged containers are prohibited from being reused and should be buried in the prescribed place.

Section 14 TRANSPORT INFORMATION

UN number: 1897.
UN proper shipping name: TETRACHLOROETHYLENE.
Transport hazard class(es) : 6.1.
Packing group, if applicable: III.
Environmental hazards: Severe marine pollutant.
Special precautions for user: /

Section 15 REGULATORY INFORMATION

Regulations: This safety data sheet is in compliance with the following national standards: GB/T 16483-2008, GB 13690-2009, GB 18218-2009, GB 15258-2009, GB 6944-2012, GB 190-2009, GB/T 191-2008, GB 12268-2012, GA 57-1993, GB/T 15098-2008, GBZ 2.1-2007, GBZ 2.2-2007 as well as the following national regulations: Dangerous Goods Transport Administrative Regulation [Published by the Ministry of Railways, 2008], Dangerous Chemicals Safety Administrative Regulation [Published by the State Council, 2011].

Section 16 OTHER INFORMATION

References	UN Recommendations on the Transport of Dangerous Goods Model Regulations UN Globally Harmonized System of Classification and Labelling of Chemicals
Form Date	17-Apr-2018

Note 1: When products contain two or more hazardous substances, Safety Data Sheets should be prepared based on the risk of the mixture.

Note 2: Manufacturer/supplier should ensure the correctness of the information contained in the safety data sheets, and updated in a timely manner.

Note 3: As a result of product features without the existence of certain information or no data available (such as boiling point does not exist fbrthe solid) in the table with logo.