

SECTION-1: Identification of the substance / mixture and the company / undertaking

Catalogue Number	CS-DB-00133
Product Name	1,1,2,2-Tetrachloroethane
CAS No.	79-34-5
Category	Fine Chemicals
Synonyms	Acetylene Tetrachloride
Brand	Clearsynth Labs Ltd.
Identified uses	Laboratory Chemicals
Uses advised against	Not available
Company	Clearsynth Labs Ltd. Mumbai, India
Emergency Phone #	+91-22-245045900
REACH No.	Not available

SECTION 2: Hazards identification

Disclaimer: This is sample MSDS. Please email sales@clearsynth.com for more details.

2.1 Classification of the substance or mixture-Regulation (EC) No 1272/2008:

Skin irritation (Category 2)
 Serious eye damage/eye irritation (Category 2)
 Acute toxicity (Category 4)

2.2 Label Elements

Signal Word: Warning



Hazard Statement(s)

Code	Statement
H310	Not available
H330	Not available

H411	Toxic to aquatic life with long lasting effects.
H302	Harmful if swallowed.
H350	Not available
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Not available
H335	Not available
H336	Not available
H341	Not available
H351	Not available
H370	Not available
H372	Not available
H227	Not available
H301	Not available
H401	Not available

Precautionary Statement(s)

Code	Statement
P260	Not available
P262	Not available
P264	Wash hands thoroughly after handling.
P270	Not available
P271	Use only outdoors or in a well-ventilated area.
P273	Not available
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	Not available
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316	Not available
P320	Not available

P321	Specific treatment (see ... on this label).
P361+P364	Not available
P391	Not available
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulation
P301+P317	Not available
P330	Not available
P203	Not available
P318	Not available
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264+P265	Not available
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present
P308+P316	Not available
P319	Get medical help if you feel unwell.
P332+P317	If skin irritation occurs: Get medical help.
P337+P317	If eye irritation persists: Get medical help.
P362+P364	Take off contaminated clothing and wash it before reuse.
P210	Not available
P370+P378	Not available
P403	Not available
P301+P316	Not available

SECTION 3: Composition / information on ingredients

3.1 Substance

Component : 1,1,2,2-Tetrachloroethane

CAS Number : 79-34-5

Molecular Formula : C₂H₂Cl₄

Molecular Weight : 167.85

Parent Chemical : .

Synonyms : Acetylene Tetrachloride

Concentration : Not available

SECTION 4: First aid measures

SECTION 4: First-aid measures

4.1 Description of first aid measures

General advice: Remove from exposure. Show this safety data sheet to the doctor in attendance.

Inhalation: Move person to fresh air. Keep at rest in a position comfortable for breathing. If breathing is difficult, seek medical attention.

Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. Seek medical attention if irritation or symptoms occur.

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Not available.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Not available.

SECTION 5: Firefighting measures

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5.1 Extinguishing media

Suitable extinguishing media: Use extinguishing measures appropriate to surrounding fire.

Unsuitable extinguishing media: Not available.

5.2 Special hazards arising from the substance or mixture

May release hazardous decomposition products under fire conditions. Thermal decomposition may produce hydrogen chloride and other chlorinated compounds. Not available.

5.3 Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective gear. Cool containers with water spray if exposed to fire. Avoid inhalation of combustion products.

SECTION 6: Accidental release measures

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6.1 Personal precautions, protective equipment and emergency procedures

Evacuate unnecessary personnel. Ensure adequate ventilation. Avoid breathing vapors/mist. Avoid contact with skin and eyes. Wear appropriate personal protective equipment.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Avoid release to the environment. Prevent entry into drains, surface waters, and soil.

6.3 Methods and material for containment and cleaning up

Contain spill. Absorb with inert absorbent material (e.g., sand, earth, vermiculite). Collect in suitable, labeled containers for disposal. Clean contaminated area. Dispose of waste in accordance with local regulations.

6.4 Reference to other sections

See Section 8 for personal protective equipment. See Section 13 for disposal considerations.

SECTION-7: Handling and storage

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Use only with adequate ventilation (preferably in a fume hood). Avoid breathing vapors/mist. Avoid contact with skin, eyes, and clothing. Keep container tightly closed when not in use.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well-ventilated place. Keep container tightly closed. Protect from heat and direct sunlight. Incompatibilities: Not available.

7.3 Specific end use(s)

Fine chemical / laboratory use. Not available.

SECTION 8: Exposure controls / personal protection

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8.1 Control parameters

Occupational exposure limits: Not available.

Biological limit values: Not available.

8.2 Exposure controls

Engineering controls: Provide adequate ventilation. Use local exhaust ventilation or fume hood where appropriate.

Personal protective equipment (PPE):

- Eye/face protection: Safety glasses with side shields or chemical splash goggles.
 - Skin protection: Wear chemical-resistant gloves and protective clothing. Specific glove material: Not available.
 - Respiratory protection: If ventilation is inadequate, use appropriate respiratory protection. Specific respirator type: Not available.
 - Hygiene measures: Wash hands thoroughly after handling. Remove contaminated clothing and wash before reuse.
- Environmental exposure controls: Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Test	Result
Appearance	No data available
IR spectrum	No data available

Test	Result
pH	No data available
Solubility	No data available

Property	Value
a) Physical State	No data available
b) Color	No data available
c) Odor	No data available
d) pH	No data available
e) Vapour Pressure	No data available
f) Viscosity	No data available
g) Initial Boiling Point and boiling range	No data available
h) Melting Point / Freezing Point	No data available
i) Auto Ignition Temperature	No data available
j) Flash Point	No data available
k) Explosion Limit, Lower	No data available
l) Explosion Limit, Upper	No data available
m) Decomposition Temperature	No data available
n) Loss on Drying	No data available
o) Relative Density	No data available
p) Solubility (in DMSO)	No data available
q) Oxidizing Properties	No data available

SECTION 10: Stability and reactivity

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10.1 Reactivity

Not available.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Not available.

10.4 Conditions to avoid

Heat, flames, and other ignition sources. Not available.

10.5 Incompatible materials

Not available.

10.6 Hazardous decomposition products

Hydrogen chloride and other chlorinated compounds. Not available.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- Acute toxicity: IDENTIFICATION AND USE: 1,1,2,2-Tetrachloroethane is a volatile synthetic chemical that is used as intermediate in the synthesis of other chlorinated hydrocarbons. HUMAN EXPOSURE AND TOXICITY: Intoxications have been fatal. Central nervous system and the liver are the target tissues in acute exposures. Liver, gastro-intestinal tract and nervous system (central peripheral) are the targets in chronic exposure. Toxic effects are also reported in the hematopoietic system. Acute and chronic exposures produce jaundice, liver enlargement, fatty degeneration, hepatic necrosis, and cirrhosis. Respiratory irritation and pulmonary edema may follow inhalation exposures. Skin contact may result in dryness, scaling, and inflammation. Severe lesions may occur. Eye contact may result in burning and serious eye damage. Inhalation may cause a burning sensation, wheezing, coughing, laryngitis, and shortness of breath. Ingestion may cause diarrhea and severe mucosal injury. Numerous deaths due to its ingestion, inhalation and cutaneous absorption have been recorded. The solvent effects primarily the central nervous system and the liver and caused polyneuritis and paralysis. Of 380 workers exposed to the solvent 133 (35%) exhibited tremor and other nervous symptoms. Accidental and occupational exposure produced liver damage, ranging from severe fatty degeneration to necrosis and acute atrophy, which was frequently fatal, and gastrointestinal disorders; toxic effects were also observed in the hematopoietic system. In case of emergency, it is important to wash skin with soap and water after removing contaminated clothing. Like others of this class, 1,1,2,2-tetrachloroethane could generate some hyperexcitability of the heart. The prognosis following intoxication with this chemical is that rapid progression of jaundice indicates a poor outcome. In some instances, mild symptoms will persist up to 3 months and then progress to acute yellow atrophy and death. Anuria may persist for as long as 2 weeks and still be followed by complete recovery. ANIMAL STUDIES: The acute toxicity of 1,1,2,2-tetrachloroethane in experimental animals is slight to moderate. The liver appears to be the most sensitive target organ. Minimal effects on the liver (reversible increase in lipid content) and other endpoints (an increase in levels of adrenocorticotrophic hormone and reversible alteration in hematological parameters) have been observed in rats exposed to 13.3 mg/cu m for up to nine months. Reproductive and developmental effects have been observed in experimental animals only at doses that caused reductions in body weight. Long term ingestion of this chemical resulted in increased incidences of liver tumors in both male and female mice. However, similar exposure was not associated with a significant increase in tumors at any site in rats, although both species were exposed only for up to 78 wk. Based on the results of available in vivo and in vitro assays, 1,1,2,2-tetrachloroethane has, at most, weak genotoxic potential. 1,1,2,2-Tetrachloroethane was a potent promoter, but not an initiator, of gamma-glutamyltranspeptidase positive foci in the liver of rats. The profile for tumor induction by 1,1,2,2-tetrachloroethane is similar to that of dichloroacetic acid, its primary metabolite. ECOTOXICITY STUDIES: Exposure to 1,1,2,2-tetrachloroethane has been demonstrated to inhibit the activities of environmental bacteria (lowest reported IC50 was 1.4 mg/L) and cause immobilization of *Daphnia magna* (48 hr EC50 values of 23 mg/L and above). In fresh water fish species, the lowest LC50 (96 hr) was 18.5 mg/L in flagfish (*Jordanella floridae*), where the lowest observed effect concentration (LOEC) for longer term exposure was 7.2 mg/L, which resulted in reduced larval survival in the same species. The presence of the functional group consisting of a terminal

dichloromethyl moiety in a molecule is known to confer toxicity. Moreover, the metabolism of 1,1,2,2-tetrachloroethane to reactive products is also likely to play a key role in its toxicity. Both nuclear and microsomal cytochrome P450 enzymes (of the CYP1A, CYP1B, CYP1E, and CYP1A subfamilies) have been implicated in the metabolism of the compound, possibly releasing a number of biologically active compounds, including aldehydes, alkenes, acids, and free radicals that may react with biological tissues. In general, the highly lipophilic nature of chlorinated hydrocarbons, such as 1,1,2,2-tetrachloroethane, allows them to cross the blood-brain barrier readily and partition into lipids in neuronal membranes. This property allows them to interfere with neural membrane function, bringing about central nervous system depression, behavioral changes, and anesthesia. 1,1,2,2-Tetrachloroethane has been shown to bind to DNA in the liver and several other organs, indicating that this mechanism may contribute to the carcinogenic process. Several studies of 1,1,2,2-tetrachloroethane toxicity have reported increases in the number of hepatocytes in mitosis, but the possible role these effects may have on the carcinogenicity of 1,1,2,2-tetrachloroethane has not been evaluated. (L336)

- Skin corrosion/irritation: No data available.

- Serious eye damage/eye irritation: IDENTIFICATION AND USE: 1,1,2,2-Tetrachloroethane is a volatile synthetic chemical that is used as intermediate in the synthesis of other chlorinated hydrocarbons. HUMAN EXPOSURE AND TOXICITY: Intoxications have been fatal. Central nervous system and the liver are the target tissues in acute exposures. Liver, gastro-intestinal tract and nervous system (central peripheral) are the targets in chronic exposure. Toxic effects are also reported in the hematopoietic system. Acute and chronic exposures produce jaundice, liver enlargement, fatty degeneration, hepatic necrosis, and cirrhosis. Respiratory irritation and pulmonary edema may follow inhalation exposures. Skin contact may result in dryness, scaling, and inflammation. Severe lesions may occur. Eye contact may result in burning and serious eye damage. Inhalation may cause a burning sensation, wheezing, coughing, laryngitis, and shortness of breath. Ingestion may cause diarrhea and severe mucosal injury. Numerous deaths due to its ingestion, inhalation and cutaneous absorption have been recorded. The solvent effects primarily the central nervous system and the liver and caused polyneuritis and paralysis. Of 380 workers exposed to the solvent 133 (35%) exhibited tremor and other nervous symptoms. Accidental and occupational exposure produced liver damage, ranging from severe fatty degeneration to necrosis and acute atrophy, which was frequently fatal, and gastrointestinal disorders; toxic effects were also observed in the hematopoietic system. In case of emergency, it is important to wash skin with soap and water after removing contaminated clothing. Like others of this class, 1,1,2,2-tetrachloroethane could generate some hyperexcitability of the heart. The prognosis following intoxication with this chemical is that rapid progression of jaundice indicates a poor outcome. In some instances, mild symptoms will persist up to 3 months and then progress to acute yellow atrophy and death. Anuria may persist for as long as 2 weeks and still be followed by complete recovery. ANIMAL STUDIES: The acute toxicity of 1,1,2,2-tetrachloroethane in experimental animals is slight to moderate. The liver appears to be the most sensitive target organ. Minimal effects on the liver (reversible increase in lipid content) and other endpoints (an increase in levels of adrenocorticotrophic hormone and reversible alteration in hematological parameters) have been observed in rats exposed to 13.3 mg/cu m for up to nine months. Reproductive and developmental effects have been observed in experimental animals only at doses that caused reductions in body weight. Long term ingestion of this chemical resulted in increased incidences of liver tumors in both male and female mice. However, similar exposure was not associated with a significant increase in tumors at any site in rats, although both species were exposed only for up to 78 wk. Based on the results of available in vivo and in vitro assays, 1,1,2,2-tetrachloroethane has, at most, weak genotoxic potential. 1,1,2,2-Tetrachloroethane was a potent promoter, but not an initiator, of gamma-glutamyltranspeptidase positive foci in the liver of rats. The profile for tumor induction by 1,1,2,2-tetrachloroethane is similar to that of dichloroacetic acid, its primary metabolite. ECOTOXICITY STUDIES: Exposure to 1,1,2,2-tetrachloroethane has been demonstrated to inhibit the activities of environmental bacteria (lowest reported IC50 was 1.4 mg/L) and cause immobilization of *Daphnia magna* (48 hr EC50 values of 23 mg/L and above). In fresh water fish species, the lowest LC50 (96 hr) was 18.5 mg/L in flagfish (*Jordanella floridae*),

where the lowest observed effect concentration (LOEC) for longer term exposure was 7.2 mg/L, which resulted in reduced larval survival in the same species. | **LABORATORY ANIMALS:** Acute Exposure/ Guinea pigs show eye irritation when exposed at 576 ppm, /CNS depression/ at 5050 ppm, and death at 6310 ppm.

- Respiratory or skin sensitization: No data available.

- Germ cell mutagenicity: **IDENTIFICATION AND USE:** 1,1,2,2-Tetrachloroethane is a volatile synthetic chemical that is used as intermediate in the synthesis of other chlorinated hydrocarbons. **HUMAN EXPOSURE AND TOXICITY:** Intoxications have been fatal. Central nervous system and the liver are the target tissues in acute exposures. Liver, gastro-intestinal tract and nervous system (central peripheral) are the targets in chronic exposure. Toxic effects are also reported in the hematopoietic system. Acute and chronic exposures produce jaundice, liver enlargement, fatty degeneration, hepatic necrosis, and cirrhosis. Respiratory irritation and pulmonary edema may follow inhalation exposures. Skin contact may result in dryness, scaling, and inflammation. Severe lesions may occur. Eye contact may result in burning and serious eye damage. Inhalation may cause a burning sensation, wheezing, coughing, laryngitis, and shortness of breath. Ingestion may cause diarrhea and severe mucosal injury. Numerous deaths due to its ingestion, inhalation and cutaneous absorption have been recorded. The solvent effects primarily the central nervous system and the liver and caused polyneuritis and paralysis. Of 380 workers exposed to the solvent 133 (35%) exhibited tremor and other nervous symptoms. Accidental and occupational exposure produced liver damage, ranging from severe fatty degeneration to necrosis and acute atrophy, which was frequently fatal, and gastrointestinal disorders; toxic effects were also observed in the hematopoietic system. In case of emergency, it is important to wash skin with soap and water after removing contaminated clothing. Like others of this class, 1,1,2,2-tetrachloroethane could generate some hyperexcitability of the heart. The prognosis following intoxication with this chemical is that rapid progression of jaundice indicates a poor outcome. In some instances, mild symptoms will persist up to 3 months and then progress to acute yellow atrophy and death. Anuria may persist for as long as 2 weeks and still be followed by complete recovery. **ANIMAL STUDIES:** The acute toxicity of 1,1,2,2-tetrachloroethane in experimental animals is slight to moderate. The liver appears to be the most sensitive target organ. Minimal effects on the liver (reversible increase in lipid content) and other endpoints (an increase in levels of adrenocorticotrophic hormone and reversible alteration in hematological parameters) have been observed in rats exposed to 13.3 mg/cu m for up to nine months. Reproductive and developmental effects have been observed in experimental animals only at doses that caused reductions in body weight. Long term ingestion of this chemical resulted in increased incidences of liver tumors in both male and female mice. However, similar exposure was not associated with a significant increase in tumors at any site in rats, although both species were exposed only for up to 78 wk. Based on the results of available in vivo and in vitro assays, 1,1,2,2-tetrachloroethane has, at most, weak genotoxic potential. 1,1,2,2-Tetrachloroethane was a potent promoter, but not an initiator, of gamma-glutamyltranspeptidase positive foci in the liver of rats. The profile for tumor induction by 1,1,2,2-tetrachloroethane is similar to that of dichloroacetic acid, its primary metabolite. **ECOTOXICITY STUDIES:** Exposure to 1,1,2,2-tetrachloroethane has been demonstrated to inhibit the activities of environmental bacteria (lowest reported IC50 was 1.4 mg/L) and cause immobilization of *Daphnia magna* (48 hr EC50 values of 23 mg/L and above). In fresh water fish species, the lowest LC50 (96 hr) was 18.5 mg/L in flagfish (*Jordanella floridae*), where the lowest observed effect concentration (LOEC) for longer term exposure was 7.2 mg/L, which resulted in reduced larval survival in the same species. |

- Carcinogenicity: **IDENTIFICATION AND USE:** 1,1,2,2-Tetrachloroethane is a volatile synthetic chemical that is used as intermediate in the synthesis of other chlorinated hydrocarbons. **HUMAN EXPOSURE AND TOXICITY:** Intoxications have been fatal. Central nervous system and the liver are the target tissues in acute exposures. Liver, gastro-intestinal tract and nervous system (central peripheral) are the targets in chronic exposure. Toxic effects are also reported in the hematopoietic system. Acute and chronic exposures produce jaundice, liver enlargement, fatty degeneration, hepatic necrosis, and cirrhosis. Respiratory irritation and pulmonary edema may follow inhalation exposures. Skin contact may result in dryness, scaling, and inflammation. Severe lesions may occur. Eye contact

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exposures. Skin contact may result in dryness, scaling, and inflammation. Severe lesions may occur. Eye contact may result in burning and serious eye damage. Inhalation may cause a burning sensation, wheezing, coughing, laryngitis, and shortness of breath. Ingestion may cause diarrhea and severe mucosal injury. Numerous deaths due to its ingestion, inhalation and cutaneous absorption have been recorded. The solvent effects primarily the central nervous system and the liver and caused polyneuritis and paralysis. Of 380 workers exposed to the solvent 133 (35%) exhibited tremor and other nervous symptoms. Accidental and occupational exposure produced liver damage, ranging from severe fatty degeneration to necrosis and acute atrophy, which was frequently fatal, and gastrointestinal disorders; toxic effects were also observed in the hematopoietic system. In case of emergency, it is important to wash skin with soap and water after removing contaminated clothing. Like others of this class, 1,1,2,2-tetrachloroethane could generate some hyperexcitability of the heart. The prognosis following intoxication with this chemical is that rapid progression of jaundice indicates a poor outcome. In some instances, mild symptoms will persist up to 3 months and then progress to acute yellow atrophy and death. Anuria may persist for as long as 2 weeks and still be followed by complete recovery. **ANIMAL STUDIES:** The acute toxicity of 1,1,2,2-tetrachloroethane in experimental animals is slight to moderate. The liver appears to be the most sensitive target organ. Minimal effects on the liver (reversible increase in lipid content) and other endpoints (an increase in levels of adrenocorticotrophic hormone and reversible alteration in hematological parameters) have been observed in rats exposed to 13.3 mg/cu m for up to nine months. Reproductive and developmental effects have been observed in experimental animals only at doses that caused reductions in body weight. Long term ingestion of this chemical resulted in increased incidences of liver tumors in both male and female mice. However, similar exposure was not associated with a significant increase in tumors at any site in rats, although both species were exposed only for up to 78 wk. Based on the results of available in vivo and in vitro assays, 1,1,2,2-tetrachloroethane has, at most, weak genotoxic potential. 1,1,2,2-Tetrachloroethane was a potent promoter, but not an initiator, of gamma-glutamyltranspeptidase positive foci in the liver of rats. The profile for tumor induction by 1,1,2,2-tetrachloroethane is similar to that of dichloroacetic acid, its primary metabolite. **ECOTOXICITY STUDIES:** Exposure to 1,1,2,2-tetrachloroethane has been demonstrated to inhibit the activities of environmental bacteria (lowest reported IC50 was 1.4 mg/L) and cause immobilization of *Daphnia magna* (48 hr EC50 values of 23 mg/L and above). In fresh water fish species, the lowest LC50 (96 hr) was 18.5 mg/L in flagfish (*Jordanella floridae*), where the lowest observed effect concentration (LOEC) for longer term exposure was 7.2 mg/L, which resulted in reduced larval survival in the same species.

- STOT-single exposure: **IDENTIFICATION AND USE:** 1,1,2,2-Tetrachloroethane is a volatile synthetic chemical that is used as intermediate in the synthesis of other chlorinated hydrocarbons. **HUMAN EXPOSURE AND TOXICITY:** Intoxications have been fatal. Central nervous system and the liver are the target tissues in acute exposures. Liver, gastro-intestinal tract and nervous system (central peripheral) are the targets in chronic exposure. Toxic effects are also reported in the hematopoietic system. Acute and chronic exposures produce jaundice, liver enlargement, fatty degeneration, hepatic necrosis, and cirrhosis. Respiratory irritation and pulmonary edema may follow inhalation exposures. Skin contact may result in dryness, scaling, and inflammation. Severe lesions may occur. Eye contact may result in burning and serious eye damage. Inhalation may cause a burning sensation, wheezing, coughing, laryngitis, and shortness of breath. Ingestion may cause diarrhea and severe mucosal injury. Numerous deaths due to its ingestion, inhalation and cutaneous absorption have been recorded. The solvent effects primarily the central nervous system and the liver and caused polyneuritis and paralysis. Of 380 workers exposed to the solvent 133 (35%) exhibited tremor and other nervous symptoms. Accidental and occupational exposure produced liver damage, ranging from severe fatty degeneration to necrosis and acute atrophy, which was frequently fatal, and gastrointestinal disorders; toxic effects were also observed in the hematopoietic system. In case of emergency, it is important to wash skin with soap and water after removing contaminated clothing. Like others of this class, 1,1,2,2-tetrachloroethane could generate some hyperexcitability of the heart. The prognosis following intoxication with this chemical is that rapid progression of jaundice indicates a poor outcome. In some instances,

mild symptoms will persist up to 3 months and then progress to acute yellow atrophy and death. Anuria may persist for as long as 2 weeks and still be followed by complete recovery. **ANIMAL STUDIES:** The acute toxicity of 1,1,2,2-tetrachloroethane in experimental animals is slight to moderate. The liver appears to be the most sensitive target organ. Minimal effects on the liver (reversible increase in lipid content) and other endpoints (an increase in levels of adrenocorticotrophic hormone and reversible alteration in hematological parameters) have been observed in rats exposed to 13.3 mg/cu m for up to nine months. Reproductive and developmental effects have been observed in experimental animals only at doses that caused reductions in body weight. Long term ingestion of this chemical resulted in increased incidences of liver tumors in both male and female mice. However, similar exposure was not associated with a significant increase in tumors at any site in rats, although both species were exposed only for up to 78 wk. Based on the results of available in vivo and in vitro assays, 1,1,2,2-tetrachloroethane has, at most, weak genotoxic potential. 1,1,2,2-Tetrachloroethane was a potent promoter, but not an initiator, of gamma-glutamyltranspeptidase positive foci in the liver of rats. The profile for tumor induction by 1,1,2,2-tetrachloroethane is similar to that of dichloroacetic acid, its primary metabolite. **ECOTOXICITY STUDIES:** Exposure to 1,1,2,2-tetrachloroethane has been demonstrated to inhibit the activities of environmental bacteria (lowest reported IC50 was 1.4 mg/L) and cause immobilization of *Daphnia magna* (48 hr EC50 values of 23 mg/L and above). In fresh water fish species, the lowest LC50 (96 hr) was 18.5 mg/L in flagfish (*Jordanella floridae*), where the lowest observed effect concentration (LOEC) for longer term exposure was 7.2 mg/L, which resulted in reduced larval survival in the same species.

- STOT-repeated exposure: **IDENTIFICATION AND USE:** 1,1,2,2-Tetrachloroethane is a volatile synthetic chemical that is used as intermediate in the synthesis of other chlorinated hydrocarbons. **HUMAN EXPOSURE AND TOXICITY:** Intoxications have been fatal. Central nervous system and the liver are the target tissues in acute exposures. Liver, gastro-intestinal tract and nervous system (central peripheral) are the targets in chronic exposure. Toxic effects are also reported in the hematopoietic system. Acute and chronic exposures produce jaundice, liver enlargement, fatty degeneration, hepatic necrosis, and cirrhosis. Respiratory irritation and pulmonary edema may follow inhalation exposures. Skin contact may result in dryness, scaling, and inflammation. Severe lesions may occur. Eye contact may result in burning and serious eye damage. Inhalation may cause a burning sensation, wheezing, coughing, laryngitis, and shortness of breath. Ingestion may cause diarrhea and severe mucosal injury. Numerous deaths due to its ingestion, inhalation and cutaneous absorption have been recorded. The solvent effects primarily the central nervous system and the liver and caused polyneuritis and paralysis. Of 380 workers exposed to the solvent 133 (35%) exhibited tremor and other nervous symptoms. Accidental and occupational exposure produced liver damage, ranging from severe fatty degeneration to necrosis and acute atrophy, which was frequently fatal, and gastrointestinal disorders; toxic effects were also observed in the hematopoietic system. In case of emergency, it is important to wash skin with soap and water after removing contaminated clothing. Like others of this class, 1,1,2,2-tetrachloroethane could generate some hyperexcitability of the heart. The prognosis following intoxication with this chemical is that rapid progression of jaundice indicates a poor outcome. In some instances, mild symptoms will persist up to 3 months and then progress to acute yellow atrophy and death. Anuria may persist for as long as 2 weeks and still be followed by complete recovery. **ANIMAL STUDIES:** The acute toxicity of 1,1,2,2-tetrachloroethane in experimental animals is slight to moderate. The liver appears to be the most sensitive target organ. Minimal effects on the liver (reversible increase in lipid content) and other endpoints (an increase in levels of adrenocorticotrophic hormone and reversible alteration in hematological parameters) have been observed in rats exposed to 13.3 mg/cu m for up to nine months. Reproductive and developmental effects have been observed in experimental animals only at doses that caused reductions in body weight. Long term ingestion of this chemical resulted in increased incidences of liver tumors in both male and female mice. However, similar exposure was not associated with a significant increase in tumors at any site in rats, although both species were exposed only for up to 78 wk. Based on the results of available in vivo and in vitro assays, 1,1,2,2-tetrachloroethane has, at most, weak genotoxic potential. 1,1,2,2-Tetrachloroethane was a potent promoter, but not an initiator, of

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- Aspiration hazard: No data available.

Likely routes of exposure

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genotoxic potential. 1,1,2,2-Tetrachloroethane was a potent promoter, but not an initiator, of gamma-glutamyltranspeptidase positive foci in the liver of rats. The profile for tumor induction by 1,1,2,2-tetrachloroethane is similar to that of dichloroacetic acid, its primary metabolite. ECOTOXICITY STUDIES: Exposure to 1,1,2,2-tetrachloroethane has been demonstrated to inhibit the activities of environmental bacteria (lowest reported IC50 was 1.4 mg/L) and cause immobilization of *Daphnia magna* (48 hr EC50 values of 23 mg/L and above). In fresh water fish species, the lowest LC50 (96 hr) was 18.5 mg/L in flagfish (*Jordanella floridae*), where the lowest observed effect concentration (LOEC) for longer term exposure was 7.2 mg/L, which resulted in reduced larval survival in the same species.

Symptoms related to the physical, chemical and toxicological characteristics

- IDENTIFICATION AND USE: 1,1,2,2-Tetrachloroethane is a volatile synthetic chemical that is used as intermediate in the synthesis of other chlorinated hydrocarbons. HUMAN EXPOSURE AND TOXICITY: Intoxications have been fatal. Central nervous system and the liver are the target tissues in acute exposures. Liver, gastro-intestinal tract and nervous system (central peripheral) are the targets in chronic exposure. Toxic effects are also reported in the hematopoietic system. Acute and chronic exposures produce jaundice, liver enlargement, fatty degeneration, hepatic necrosis, and cirrhosis. Respiratory irritation and pulmonary edema may follow inhalation exposures. Skin contact may result in dryness, scaling, and inflammation. Severe lesions may occur. Eye contact may result in burning and serious eye damage. Inhalation may cause a burning sensation, wheezing, coughing, laryngitis, and shortness of breath. Ingestion may cause diarrhea and severe mucosal injury. Numerous deaths due to its ingestion, inhalation and cutaneous absorption have been recorded. The solvent effects primarily the central nervous system and the liver and caused polyneuritis and paralysis. Of 380 workers exposed to the solvent 133 (35%) exhibited tremor and other nervous symptoms. Accidental and occupational exposure produced liver damage, ranging from severe fatty degeneration to necrosis and acute atrophy, which was frequently fatal, and gastrointestinal disorders; toxic effects were also observed in the hematopoietic system. In case of emergency, it is important to wash skin with soap and water after removing contaminated clothing. Like others of this class, 1,1,2,2-tetrachloroethane could generate some hyperexcitability of the heart. The prognosis following intoxication with this chemical is that rapid progression of jaundice indicates a poor outcome. In some instances, mild symptoms will persist up to 3 months and then progress to acute yellow atrophy and death. Anuria may persist for as long as 2 weeks and still be followed by complete recovery. ANIMAL STUDIES: The acute toxicity of 1,1,2,2-tetrachloroethane in experimental animals is slight to moderate. The liver appears to be the most sensitive target organ. Minimal effects on the liver (reversible increase in lipid content) and other endpoints (an increase in levels of adrenocorticotrophic hormone and reversible alteration in hematological parameters) have been observed in rats exposed to 13.3 mg/cu m for up to nine months. Reproductive and developmental effects have been observed in experimental animals only at doses that caused reductions in body weight. Long term ingestion of this chemical resulted in increased incidences of liver tumors in both male and female mice. However, similar exposure was not associated with a significant increase in tumors at any site in rats, although both species were exposed only for up to 78 wk. Based on the results of available in vivo and in vitro assays, 1,1,2,2-tetrachloroethane has, at most, weak genotoxic potential. 1,1,2,2-Tetrachloroethane was a potent promoter, but not an initiator, of gamma-glutamyltranspeptidase positive foci in the liver of rats. The profile for tumor induction by 1,1,2,2-tetrachloroethane is similar to that of dichloroacetic acid, its primary metabolite. ECOTOXICITY STUDIES: Exposure to 1,1,2,2-tetrachloroethane has been demonstrated to inhibit the activities of environmental bacteria (lowest reported IC50 was 1.4 mg/L) and cause immobilization of *Daphnia magna* (48 hr EC50 values of 23 mg/L and above). In fresh water fish species, the lowest LC50 (96 hr) was 18.5 mg/L in flagfish (*Jordanella floridae*), where the lowest observed effect concentration (LOEC) for longer term exposure was 7.2 mg/L, which resulted in reduced larval survival in the same species.

SECTION 12: Ecological information

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12.1 Toxicity

Not available.

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

Not available.

12.5 Results of PBT and vPvB assessment

Not available.

12.6 Endocrine disrupting properties

Not available.

12.7 Other adverse effects

Not available.

SECTION 13: Disposal considerations

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Dispose of contents/container in accordance with local/regional/national/international regulations. Do not discharge to drains or the environment.

Waste classification: Not available.

Contaminated packaging: Dispose of as unused product unless cleaned. Not available.

SECTION 14: Transport information

SECTION 14: Transport information

14.1 UN number

Not available.

14.2 UN proper shipping name

Not available.

14.3 Transport hazard class(es)

Not available.

14.4 Packing group

Not available.

14.5 Environmental hazards

Not available.

14.6 Special precautions for user

Not available.

14.7 Maritime transport in bulk according to IMO instruments

Not available.

SECTION 15: Regulatory information

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Not available.

15.2 Chemical safety assessment

Not available.

SECTION 16: Other information

SECTION 16: Other information

Product name: 1,1,2,2-Tetrachloroethane

Synonyms: Acetylene Tetrachloride

CAS No.: 79-34-5

Catalog No.: CS-DB-00133

Supplier: Clearsynth Labs Ltd., Mumbai, India

Emergency phone: +91-22-245045900

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Revision date: Not available.

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