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ISO 9001: 2015

MATERIAL SAFETY DATA SHEET

1. Identification

1.1 GHS Product identifier

Hexachloro ethane, 98%
Code H 1315

2. Hazard identification

2.1 Classification of the substance or mixture

Skin irritation, Category 2

Eye irritation, Category 2

Specific target organ toxicity \u2013 single exposure, Category 3

Carcinogenicity, Category 2

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Hazard statement(s)

Warning

H315 Causes skin irritation

H319 Causes serious eye irritation

H335 May cause respiratory irritation

H351 Suspected of causing cancer

H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P273 Avoid release to the environment.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P321 Specific treatment (see ... on this label).

P332+P313 If skin irritation occurs: Get medical advice/attention.

P362+P364 Take off contaminated clothing and wash it before reuse.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312 Call a POISON CENTER/doctor/\u2013 if you feel unwell.

P308+P313 IF exposed or concerned: Get medical advice/ attention.

P391 Collect spillage.

Storage

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
hexachloroethane	hexachloroethane	67-72-1	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest.

In case of skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

In case of eye contact

Rinse with plenty of water for several minutes (remove contact lenses if easily possible). Refer for medical attention.

If swallowed

Rinse mouth. Refer for medical attention .

4.2Most important symptoms/effects, acute and delayed

Compound is a powerful narcotic and liver poison; may also cause changes in blood composition and neurological disturbances.

Repeated exposure by inhalation can be fatal. Ingestion causes vomiting, diarrhea, severe mucosal injury, liver necrosis, cyanosis, unconsciousness, loss of reflexes, and death. Contact with eyes causes irritation and lachrymation. Can be absorbed through the skin and may produce severe skin lesions. (USCG, 1999)

4.3Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary.

Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Military Smoke Agents/

5.Fire-fighting measures

5.1Extinguishing media

Suitable extinguishing media

If material involved in fire: Extinguish fire using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.) Use water in flooding quantities as fog. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible.

5.2Specific hazards arising from the chemical

Special Hazards of Combustion Products: Irritating hydrogen chloride vapor may form in fire. (USCG, 1999)

5.3Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6.Accidental release measures

6.1Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3Methods and materials for containment and cleaning up

1. Ventilate area of spill; 2. Collect spilled material in the most convenient and safe manner for reclamation or for disposal. ... Liquid containing hexachloroethane should be absorbed in vermiculite, dry sand, earth or a similar material.

7.Handling and storage

7.1Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2Conditions for safe storage, including any incompatibilities

Separated from strong oxidants, alkali metals and food and feedstuffs. See Chemical Dangers. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing....Hexachloroethane must be stored to avoid contact with hot iron, zinc, aluminum, and alkalis, since violent reactions occur. Store in tightly closed containers in a cool, well-ventilated area away from heat.

8.Exposure controls/personal protection

8.1Control parameters

Occupational Exposure limit values

Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 1 ppm (10 mg/cu m), skin.

NIOSH considers hexachloroethane to be a potential occupational carcinogen.

NIOSH considers ethylene dichloride; hexachloroethane; 1,1,2,2-tetrachloroethane; and 1,1,2-trichloroethane; to be potential occupational carcinogens. Additionally, NIOSH recommends that the other five chloroethane compounds: 1,1-dichloroethane; ethyl chloride; methyl chloroform; pentachloroethane; and 1,1,1,2-tetrachloroethane be treated in the workplace with caution because of their structural similarity to the four chloroethanes shown to be carcinogenic in animals.

Biological limit values

no data available

8.2Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. 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. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state	white crystalline powder
Colour	Colorless crystals
Odour	Camphor-like odor
Melting point/ freezing point	133\u00b0C(dec.)(lit.)
Boiling point or initial boiling point and boiling range	155\u00b0C/15mmHg(lit.)
Flammability	Noncombustible Solid Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit / flammability limit	no data available
Flash point	152\u00b0C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water:0.05 g/L (22 \u00b0C)
Partition coefficient n-octanol/water (log value)	log Kow = 4.14
Vapour pressure	0.4 mm Hg (20 \u00b0C)
Density and/or relative density	2.091
Relative vapour density	8.16 (vs air)
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Not flammable by standard tests in air. HEXACHLOROETHANE can react with hot iron, zinc and aluminum. Dehalogenation of this material by reaction with alkalis and metals will produce unstable chloroacetylenes. It can also react with strong oxidizing agents. .

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Hexachloroethane was among a number of chemicals studied for vigorous reactions with zinc, cadmium, or mercury.

10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /hydrogen chloride/ and phosgene.

11. Toxicological information

Acute toxicity

Oral: LD50 Rat female oral, diluent: corn oil, 4460 mg/kg /From table/

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

NTP: Reasonably anticipated to be a human carcinogen

Reproductive toxicity

No information is available on the reproductive or developmental effects of hexachloroethane in humans. At the highest concentrations, rats exposed to hexachloroethane by inhalation exhibited maternal toxicity, but there was no evidence of fetotoxicity or teratogenicity (birth defects). In rats exposed to high doses of hexachloroethane via gavage, maternal toxicity, a reduced gestation index, a reduction in the number of fetuses per female, and increased fetal resorption rates were observed.

STOT-single exposure
no data available
STOT-repeated exposure
no data available
Aspiration hazard
no data available

12. Ecological information

12.1 Toxicity

Toxicity to fish: LC50; Species: Lepomis macrochirus (Bluegill, 0.7 g); Conditions: freshwater, flow through, 17.3°C, pH 7.1-7.8, hardness 44.4 mg/L CaCO₃ (40.7-46.6 mg/L CaCO₃), alkalinity 45.4 mg/L CaCO₃ (42.3-57.0 mg/L CaCO₃), dissolved oxygen 6.7 mg/L (4.0-8.4 mg/L); Concentration: 1820 ug/L for 24 hr

Toxicity to daphnia and other aquatic invertebrates: LC50 Daphnia magna 2.9 mg/L/48 hr /Conditions of bioassay not specified/.

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Hexachloroethane at 100 mg/L achieved 0% of its theoretical BOD using an activated sludge inoculum at 30 mg/L over a 2 week incubation period and the Japanese MITI test(1). The biodegradation half-life of hexachloroethane in a non-adapted aerobic sandy soil was reported as 25-48 days(2).

12.3 Bioaccumulative potential

Bioconcentration factors of 139, 708, and 510 were measured for hexachloroethane in bluegill sunfish(1), fathead minnows(2) and rainbow trout(3), respectively. BCF values of 1.4-8.5 and 1.0-6.8 have been measured for hexachloroethane at 5 ug/L and 0.5 ug/L in carp(4). According to a classification scheme(5), BCF values of zero to 30 indicate the potential for bioconcentration in aquatic organisms are low and from 100 to 1,000 are high(SRC).

12.4 Mobility in soil

Measured Koc values ranging from 1,380 to 2,360 have been reported for hexachloroethane(1,2). According to a classification scheme(3), this range of Koc values suggests that hexachloroethane is expected to have low to slight mobility in soil.

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: UN3077

IMDG: UN3077

IATA: UN3077

14.2 UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

14.3 Transport hazard class(es)

ADR/RID: 9

IMDG: 9

IATA: 9

14.4 Packing group, if applicable

ADR/RID: III

IMDG: III

IATA: III

14.5 Environmental hazards

ADR/RID: yes

IMDG: yes

IATA: yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15. Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
hexachloroethane	hexachloroethane	67-72-1	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Not Listed.

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

