Safety Data Sheet

Hexachlorocyclopentadiene

Product No: 2330093

Version: 6
Revision: 10/21/2024

SECTION 1: Identification

1.1 Product identifier

Trade Name: Hexachlorocyclopentadiene

Chemical Name and Synonym:
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene; HCCP, HCCPD, Hex

1.2 Relevant identified uses of the substance or mixture and uses advised against

1.2.1 Relevant identified uses:
Agricultural industry: Intermediate for pesticides and fungicides.
Industrial applications: used as an intermediate in the manufacture of flame retardants such as chlorendic anhydride and/or chlorendic acid; and, to a lesser extent, an intermediate in the production of a specialty coating.

1.2.2 Uses advised against:
No specific uses advised against have been identified.

1.2 Details of the supplier of the safety data sheet

Velsicol Chemical LLC
10400 W. Higgins Road, Suite 303
Rosemont, Illinois 60018 USA
Phone: +1 877-847-8351
Email: customerservice@velsicol.com

1.4 Emergency telephone number

Outside the continental U.S.A. call CHEMTREC 1-800-424-9300 (24 hours)
In the continental U.S.A. call CHEMTREC 703-527-3887 (24 hours)

SECTION 2: Hazards Identification

2.1 Hazard classification and Hazard statement(s)

Hazard classification	Hazard statement(s)
Acute toxicity - inhalation 2	Fatal if inhaled
Acute toxicity - dermal 3	Toxic in contact with skin
Acute toxicity - oral 4	Harmful if swallowed
Skin corrosion/irritation 1B	Causes severe skin burns and eye damage
Aquatic Acute 1	Very toxic to aquatic life
Aquatic Chronic 1	Very toxic to aquatic life with long lasting effects

2.2 Precautionary statements

- Do not eat, drink or smoke when using this product.
- Do not breathe dust/fume/gas/mist/ vapors/spray.
- Use only outdoors or in a well-ventilated area.
- Wear respiratory protection
- Wash any possible exposed area on body thoroughly after handling.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Store in a well-ventilated place. Keep container tightly closed.
- Store locked up.
- Dispose of contents/container in accordance with local/regional/national/international regulation
- Avoid release to the environment.

- If inhaled: Immediately call a poison center / doctor
- Remove person to fresh air and keep comfortable for breathing.
- Specific treatment is urgent (see section 4 on this label)
- If on skin: Immediately call a poison center / doctor
- Wash with plenty of water/…
- Take off immediately all contaminated clothing and wash it before reuse.
- If in eyes: Immediately call a poison center / doctor
- Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- If swallowed: Call a poison center/doctor/…/ if you feel unwell
- Rinse mouth. Do NOT induce vomiting.

2.3 Signal Word

Danger

2.4 Pictograms

Skull and Crossbones

Corrosion

Environment

2.5 Other hazards

Not known.

SECTION 3: Composition/information on ingredients:

3.1 Substances:

Chemical Name	Common name and synonyms	CAS number	% by Weight
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	Hexachlorocyclopentadiene , HCCP, HCCPD, Hex	77- 47- 4	≥99.5

3.2 Mixtures

Not applicable

SECTION 4: First-Aid Measures

4.1 Description of first aid measures

4.1.1 General information:

May be fatal if inhaled. Harmful if swallowed or absorbed through skin. Corrosive to eyes and skin. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. May cause allergic skin reaction in susceptible individuals.

4.1.2 Following inhalation:

POISON!. Get medical attention. Call a Poison Control Centre. Remove to fresh air. If breathing is difficult, give artificial respiration. If breathing is difficult, give oxygen.

4.1.3 Following skin contact:
Immediately wash skin with soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Destroy contaminated shoes.

4.1.4 Following eye contact:
Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention immediately.

4.1.5 Following ingestion:
DO NOT induce vomiting. Have conscious person drink several glasses of water or milk. Seek immediate medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

4.1.6 Self-protection of the first aider:
Wear protective gloves/protective clothing/eye protection/face protection. Do not get in eyes, on skin, or on clothing. Contaminated work clothing should not be allowed out of the workplace. Get medical attention immediately.

4.1.7 Notes for the doctor:
Not available.

4.2 Most important symptoms and effects, both acute and delayed
Highly toxic, may be fatal if inhaled, swallowed or absorbed through skin. Avoid any skin contact. Effects of contact or inhalation may be delayed. This substance may be harmful to the kidney, lungs, nervous system and liver based on animal data. Repeated or prolonged contact with spray mist may produce chronic eye irritation, severe skin irritation and respiratory tract irritation leading to frequent attacks of bronchial infection.

4.3 Indication of any immediate medical attention and special treatments needed:
Immediately call a poison center / doctor

SECTION 5: Fire-Fighting Measures

5.1 Extinguishing media
Suitable extinguishing media: Small fires: Dry chemical, CO2 or water spray. Large fires: Water spray, fog or regular foam.
Unsuitable extinguishing media: do not use straight streams

5.2 Special hazards arising from the substance or mixture
Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Fire may produce irritating, corrosive and/or toxic gases. Containers may explode when heated. Toxic hydrogen chloride, chlorine, & phosgene gases may form in fires.

Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

5.3 Advice for fire fighters
Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.

Structural fire fighter's protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible. Move containers away from fire area if you can do it without risk. Dike fire control water for later disposal; do not scatter the material.

Fire involving tanks or car/trailer loads: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SECTION 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Cover with plastic sheet to prevent spreading. Absorb or cover with dry earth, sand or other noncombustible material and transfer to containers. DO NOT GET WATER INSIDE CONTAINERS.

6.1.1. For non-emergency personnel

Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing to prevent any contact of skin, eyes and personal clothing; evacuate the danger area or to consult an expert.

6.1.2. For emergency personnel

Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing to prevent any contact of skin, eyes and personal clothing.

6.2 Environmental precautions

Do not allow to enter sewers / surface or ground water.
In case of spillage to water course or public sewers inform responsible authorities.

6.3 Methods and materials for containment and clearing up

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal container. Large Spill: Stop the leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. DO NOT get water in containers. Use water spray curtain to divert vapour drift. Use water spray to reduce vapours. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

6.4 References to other sections

See sections 8 and 13 for further advice.

SECTION 7: Handling and Storage

7.1 Precautions for safe handling

- **Protective measures:** Do not handle until all safety precautions have been read and understood; Wear suitable protective clothing, gloves and eye/face protection.
- **Measures to prevent aerosol and dust generation:** Provide ventilation to minimize exposure. Do not breathe dust/fumes/gas/mist/vapours/spray;
- **Measures to protect the environment:** Avoid release to the environment.
- **Advice on general occupational hygiene:** Do not get in eyes, on skin, or on clothing; Do not eat, drink and smoke in work areas; Work clothing that becomes wet or contaminated should be removed and replaced.

7.2 Conditions for safe storage, including any incompatibilities

Store in well-ventilated area away from sources of heat and sunlight; Keep container tightly closed; Store locked up.

7.3 Specific incompatibilities

Keep away from moisture/water and sunlight.

SECTION 8. Exposure Controls/Personal Protection

8.1 Control parameters

Occupational Exposure Limit values (TWA-value (8 hr)):
American Conference of Governmental Industrial Hygienists (ACGIH, 2001): 0.11 mg/m^3

Occupational Safety and Health Administration (OSHA, 1989): 0.11 mg/m^3
National Institute for Occupational Safety and Health (NIOSH, 2005): 0.11 mg/m^3

Assuming a human body weight of 70 kg, the acceptable daily intake for Hexachlorocyclopentadiene is 0.00462 mg/day/Inhalation.
Acceptable Intake Chronic/Excursion Limit Recommendation: Threshold Limit Values (TLV) in worker exposure levels may exceed 3 times the TLV-TWA for no more than a total of 30 minutes during a work day, and under no circumstances should they exceed 5 times the TLV-TWA, provided that the TLV-TWA is not exceeded.

Derived No(Minimal) Effect Level for workers: Not available
Derived No(Minimal) Effect Level for the general population: Not available

8.2 Exposure controls
Ref: EU RISK ASSESSMENT - HEXACHLOROCYCLOPENTADIENE [77-47-4], 2007.

8.2.1 Appropriate engineering controls:
Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substance; this is irrespective of the recommendation involving the wearing of eye protection.

Local exhaust ventilation should be applied wherever there is an incidence of point source emissions or dispersion of regulated contaminants in the work area. Ventilation control of the contaminant as close to its point of generation is both the most economical and safest method to minimize personnel exposure to airborne contaminants.

8.2.2 Environmental exposure controls:
Avoid release to the environment.

8.3 Personal protective measures:
Avoid breathing vapours. Keep upwind, Avoid bodily contact with the material, Do not handle broken packages unless wearing appropriate personal protective equipment. Wash away any material which may have contacted the body with copious amounts of water or soap and water. If contact with the material anticipated, wear appropriate chemical protective clothing. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Respiratory protection
Self-contained air-masks or full face canister gas masks of the acid gases and organic vapours type should be available at all times. Self-contained breathing apparatus face shield.

Hand Protection
Protective clothing, including rubber gloves & rubber shoes or boots. If gloves are damaged during use, remove immediately and wash hands before replacing with new gloves.

Eye and face protection
Self-contained air-masks or full face canister gas masks of the acid gases and organic vapours type.

Skin protection
Wear appropriate personal protective clothing to prevent skin contact. These should be changed after use or if contaminated.

SECTION 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties
- Appearance: Pale yellow liquid. (Dense, oily)
- Odour: Pungent (strong)

- Odour threshold: 0.15 ppm
- pH: Not available
- Freezing point: 10°C (50°F)
- Boiling point: 239°C (462.2°F)
- Flashpoint: Not applicable
- Evaporation rate: Not available
- Flammability: Not flammable
- Vapour pressure: 0.06 mm of Hg (@ 25°C)
- Vapour density 9.42 (Air = 1)
- Relative density 1.7019 (Water = 1)
- Particle size distribution: Not applicable
- Solubility in water: Very slightly soluble in cold water, hot water. 1.8 mg/l @ 22°C
- Solubility in other solvents: Soluble in all proportions in acetone, carbon tetrachloride, methanol
- and hexane.
- Surface tension: 37.5 dynes/cm= 0.0375 N/m @ 20 °C
- Partition coefficient: log Kow= 5.04
- Auto ignition temperature: Not available
- Decomposition temperature: Not available
- Viscosity Not available
- Explosive properties Not considered to be explosive
- Oxidising properties In the presence of moisture, it will corrode iron & other metals.
- Dissociation Constant: Not available
- Molecular Weight 272.77

9.2 Other information

Henry's Law constant= 2.7X10-2 atm-cu m/mol at °C

SECTION 10: Stability and Reactivity

10.1 Reactivity

The product is stable. No hazardous reaction when handled and stored according to provisions.

10.2 Chemical stability

Reacts slowly with water to form hydrochloric acid.

10.3 Others

Possibility of hazardous reactions:
Will corrode iron & most metals in presence of moisture. Explosive hydrogen gas may collect in enclosed spaces in the presence of moisture.

Conditions to avoid:
Avoid water, direct Sun light.

Incompatible materials:
Slightly reactive to reactive with reducing agents, alkalis. Very slightly to slightly reactive with organic materials, moisture.

Hazardous decomposition products:
When heated to decomposition it emits toxic fumes of hydrogen chloride.

SECTION 11: Toxicological Information

11.1 Information on toxicological effects

- **Acute toxicity**
  This substance is not classified as acute toxic for all exposure route listed below:

Acute Toxicity	Effect Dos /Concentration
Acute Oral Toxicity (Rat)	LD50: 630 mg/kg bw (male) LD50: 530 mg/kg bw (female) LD50: 584 mg/kg bw (male/female)
Acute dermal toxicity (Rabbit)	LD50: 200 mg/kg bw
Acute inhalation toxicity (Rat)	LC50: 0.041 mg/l, 4-hr

  Classification (* Minimum classification):
  Inhalation: Acute Toxicity 2*: Fatal if inhaled.
  Dermal: Acute Toxicity 3 *: Toxic in contact with skin.
  Oral: Acute Toxicity 4 *: Harmful if swallowed.

- **Skin corrosion/irritation**
  Skin Corrosive 1B: Causes severe **skin burns** and eye damage.

- **Serious eye damage/irritation**
  Skin Corrosive 1B: Causes severe skin burns and **eye damage**.

- **Respiratory/skin sensitisation**
  See Acute Toxicity.

- **Germ cell mutagenicity**
  Based on the data available, it appears that HCCP is not a bacterial mutagen and does not induce gene mutations in mammalian cells *in vitro*. No genetic effects were observed in *in vivo* studies.

- **Carcinogenicity**
  Based on the results in genotoxicity tests, the carcinogenicity tests with rats and mice, and the available epidemiological studies it is concluded that HCCP is of no concern with respect to carcinogenic activity.

- **Reproductive toxicity**
  Adverse effects on sexual function and fertility:
  Inhalation: NOAEC = 6.34 mg/m3 for rats and mice.
  Oral: NOAEL = 150 mg/kg bw for rats and 300 mg/kg bw for mice.
  Dermal: No data are available.

  Adverse effects on developmental toxicity:
  Inhalation: No data are available.
  Oral: NOAEL for maternal and developmental toxicity is concluded to be 25 mg/kg bw/day (rabbits).
  Dermal: No data are available

- **STOT-single exposure**
  No information available.

- **STOT-repeated exposure**

Toxicological endpoint	Inhalation (N(L)OAEC)	Oral (N(L)OAEL)
Repeated dose toxicity (local)	1.25 mg/m3 (subacute NOAEC in rats) 0.45 mg/m3 (semichronic NOAEC in mice) 0.11 mg/m3 (chronic LOAEC in rats and mice)	10 mg/kg bw (semichronic NOAEL in rats)
Repeated dose toxicity	1.25 mg/m3 (subacute NOAEC in rats)	10 mg/kg bw (semichronic

(systemic)	0.45 mg/m3 (semichronic NOAEC in mice) 0.11 mg/m3 (chronic NOAEC in mice)	NOAEL in rats)

Repeated dose toxicity: dermal, No suitable dermal repeated dose toxicity studies are available.

- **Aspiration hazard**
  This substance is a solid.

SECTION 12: Ecological Information

12.1. Toxicity

Acute (short-term) toxicity: Highly toxic
Fish: LC50 (96h) for freshwater fish: 0.13 mg/L (bluegill) to 0.18 mg/L (fathead minnow)
Water flea (*Daphnia magna*)**:** EC50/LC50 (48h) for freshwater invertebrates: 0.039 mg/L
Algae/aquatic plants (*Selenastrum capricornutum)*: LC50 (96h) for 0.19 mg/l

Chronic (long-term) toxicity: Not available

Predicted No Effect Concentration (PNEC)

Fresh water	Sediment (fresh water)	Soil (Terrestrial)	STP (sewage treatment plant)	Oral (mammals)
3.0 x 10^{-5} mg/l	2.81 µg/kg ww	2.26 µg/kg dw.	10 mg/l	0.74 mg/kg food

Classification:
Aquatic Acute 1: Very toxic to aquatic life.
Aquatic Chronic 1: Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability
On the basis of the available data on aquatic biodegradation, HCCP is considered to be inherently biodegradable, not fulfilling specific criteria.

12.3 Bio-accumulative potential
Actual determinations indicate that HCCP does not seem to accumulate to a great extent mainly because it is metabolized rapidly. US-EPA concluded to use the bioconcentration factors (BCF) of <11 and adjusted it for lipid content. The weighted average BCF for the edible portion of freshwater and estuarine aquatic organisms was calculated and found to be 4.34 (Agency for Toxic Substances and Disease Registry (ATSDR), 1999). Half-life in water (photolysis) is 1.03 minutes.

12.4 Mobility in soil
If released to soil, HCCP will be immobilized by strong adsorption to organic matter. Significant losses on soil surfaces may occur via photolysis. Volatilization from soil surfaces is expected to be of minor importance. In moist soil, HCCP will be subject to chemical hydrolysis (half-life 2.5 d at 22 °C) and biodegradation under aerobic and anaerobic conditions (HSDS 2001).

12.5 Results of PBT and vPvB assessment
Overall, HCCP does not meet the PBT criteria.

12.6 Other adverse effects
No information available.

SECTION 13: Disposal Considerations

Recycle to process, if possible. Recommendable Treatment and Disposable Methods: Incineration. Incinerate after mixing with another combustible fuel. Care must be exercised to assure complete combustion to prevent the formation of phosgene. Consult your local or regional authorities for disposal options.

SECTION 14: Transport Information

DOT Proper Shipping Name: Hexachlorocyclopentadiene
DOT Hazard Class: 6.1: Poisonous material.
UN Identification Number: UN2646
Packing Group: I, Inhalation Hazard

Additional Information:
International HTS#: 2903.19.10

SECTION 15: Regulatory Information

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

TSCA Section 8 (d) Reporting Termination (40 CFR 716, Subpt, B).
Clean Air Act Amendments of 1990, Statutory Hazardous Air Pollutant under Section 112.
Clean Air Act Section 112 (i) Early Reduction Program: High-Risk Hazardous Air Pollutants (40CFR 63.74).
Clean Water Act Section 304 (a) (1) Ambient Water Quality Criteria.
Clean Water Act Section 307 (2)(1) Priority Pollutants (40 CFR 401.15).
Clean Water Act Section 311 Hazardous Chemicals (40 CFR 116.4).
RCRA Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261).
RCRA Hazardous Constituents Groundwater Monitoring (40 CFR 264, Appendix IX).
RCRA Land Disposal Prohibition-Halogenated Organic Compounds (40 CFR 268.32).
RCRA Land Disposal Prohibition-Solvents, Dioxins, and California List Wastes (40 CFR 268.30-.32).
RCRA U List of Hazardous Waste (40 CFR 261.33 (f):
RCRA U-number is U130.
Safe Drinking Water Act MCLs (40 CFR 141)
SDWA Maximum Contaminant Level: 0.05 mg/l.
Safe Drinking Water Act MCLGs (40 CFR 141).
SDWA Maximum Contaminant Level Goal: 0.05 mg/l.
Safe Drinking Water Act Synthetic Organic Chemical Monitoring (40 CFR 141).
Safe Drinking Water Act 1986 Amendments Statutory Contaminants (53 Fed.Reg. 1892).
CERCLA Hazardous Substance (40 CFR 302)
The Reportable Quantity (RQ) is 10 lbs.
EPCRA (SARA Title III) Section 302 Extremely Hazardous Substance (EHS) (40 CFR 355, Appendix A)
De Minimis Concentration for Section 313 is 1.0%.
EPCRA (SARA Title III) Section 313 Toxic Chemical (40 CFR 372.65)-Supplier notification required.
De Minimis Concentration for Section 313 is 1.0%.
Research & Special Programs Administration (RSPA/DOT) Hazardous Substances other than Radionuclides (40 CFR 172.101, App. A, Tbl. 1).
The RSPA/SOT Reportable Quantity (RQ) is 10 lbs.
OSHA Hazard Communication Standard: On one of the Floor Lists of the OSHA HCS (29 CFR 1910.1200).
Connecticut Hazardous Material Survey.
Florida Toxic Substances Right-to-Know Reporting.
Illinois Toxic Substances Disclosure to Employees Act. Illinois Chemical Safety Act.
Louisiana Right-to-Know Reporting List. Louisiana Spill Reporting.
Massachusetts Right-to-Know Substance List. MA Spill List.
Michigan Critical Materials Register (1/1/96); Michigan Natural Resources and Environmental Protection Act.
New Jersey Right-to-Know Substances.

New Jersey Community Right-to-Know Survey: N.J. Environmental Hazardous Substances (EHS) List.
New Jersey Spill Tax List.
New Jersey Hazardous Substance Sub-list.
New Jersey CERCLA Substance Sub-list.
New Jersey Environmental Hazard Sub-list.
New York Release Reporting: List of Hazardous Substances.
Pennsylvania Right-to-Know Hazardous Substances.
Rhode Island Hazardous Substances Right-to-Know Act.
Canada WHMIS Ingredient Disclosure List.
Canadian National Pollutant Release Inventory (NPRI) Substances.
Canadian Accelerated Reduction/Elimination of Toxics (ARET) Candidate substances for Voluntary Action (March 1995).

15.2 Chemical Safety Assessment

HMIS Rating

Health: 3 Flammability: 0 Reactivity (Stability): 1 Personal Protection:

Key: 0=Insignificant; 1=Slight; 2=Moderate; 3=High; 4=Extreme.

SECTION 16: Other Information

16.1 Indication of changes

Version 1, 11/8/2013: first SDS under OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200(g))
Version 2, 6/7/2017: re-formatted Header/Footer
Version 3, 6/12/2017, updated Section 12 for Half-life in water (photolysis) and soil (hydrolysis)
Version 4, 1/8/2018, update Product No: from 2330021 to 2330093
Version 5, 1/25/2019, update melting/Freezing point.
Version 6, 5/19/2022, review and minor changes on format.
10/21/2024, Update in in Section 1: change phone number and delete fax number

16.2 Key literature references and sources for data

Hazard Communication Standard (HCS)(29 CFR 1910.1200(g)) and Appendix D
Hazardous Substance Data Bank (HSDB), National library of Medicine
EU RISK ASSESSMENT - HEXACHLOROCYCLOPENTADIENE [77-47-4], 2007.
Product Data Sheet and SDS information from manufacturer.

16.3 Classification for mixtures and used evaluation method according to Hazard Communication Standard (HCS)(29 CFR 1910.1200(g)), Not a mixture.

16.4 Training advice: accordance with Hazard Communication Standard (HCS)(29 CFR 1910.1200(g))

16.5 Further information: Notice to Reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.