






# Safety Data Sheet

<b>Section 1. Identification of the substance/preparation and of the company/undertaking</b>			
Product Identity / Trade Name	<b>Hexachlorocyclopentadiene</b>	CAS# EINECS #	77-47-4 201-029-3
Chemical Name	Hexachlorocyclopentadiene	Chemical Formula	C <sub>5</sub> Cl <sub>6</sub>
Synonym	1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	Chemical Family	Not Available
Supplier	Velsicol Chemical LLC 10400 W. Higgins Road Rosemont, IL 60018 U.S.A. Phone: 847-298-9000 Fax: 847-298-9018	Manufacturer	Velsicol Chemical LLC 10400 W. Higgins Road Rosemont, IL 60018 U.S.A. Phone: 847-298-9000 Fax: 847-298-9018
In Case of Emergency	In the continental U.S.A. call CHEMTREC 800-424-9300 (24 hours)  Outside the continental U.S.A. call CHEMTREC 703-527-3887 (24 hours)	Use of Substance / Preparation	Agricultural industry: Intermediate for pesticides and fungicides. Industrial applications: Shock proof plastic, acids, esters, ketones, and fluorocarbons.

<b>Section 2. Hazards identification</b>			
Potential Acute Health Effects	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.		
Regulation (EC) No 1272/2008	<b>Classification:</b>  Acute Tox. 2 * Acute Tox. 3 * Acute Tox. 4 * Skin Corr. 1B Aquatic Acute 1 Aquatic Chronic 1	<b>Labeling:</b>  H302, H311, H314, H330, H400, H410  P260, P270, P271, P273, P280, P284  <b>Signal Word:</b> Danger	<b>Pictograms:</b>   GHS06  GHS09  GHS05
Directive 67/548/EEC	<b>Classification:</b>  T+, R26; T, R24; Xn, R22; C, R34; N, R50-53	<b>Labeling:</b>  T+ and N Symbol R: 22-24-26-34-50/53 S: (1/2)-25-39-45-53-60-61	<b>Symbol:</b>   N  T
Potential Chronic Health Effects	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.		

<b>Section 3. Composition/information on ingredients</b>			
Name	CAS#	EINECS #	% by Weight
Hexachlorocyclopentadiene	77-47-4	201-029-3	100

<b>Section 4. First-aid measures</b>	
Eye Contact	Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention immediately.
Skin Contact	Immediately flush with plenty of water for 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.
Inhalation	POISON. Get medical attention. Call a Poison Control Center. Remove to fresh air. If breathing is difficult, give artificial respiration. If breathing is difficult, give oxygen.
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.

<b>Section 5. Fire-fighting measures</b>	
Fire Fighting Media and Instructions	Non-flammable. May explode on contact with sodium.

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<b>Section 6. Accidental release measures</b>	
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 vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

<b>Section 7. Handling and storage</b>	
Handling	Do not breathe vapor or mist. Do not taste or swallow. Do not get in eyes, on skin or on clothing. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Avoid release to the environment.
Storage	Store in well ventilated area.
<b>Section 8. Exposure controls/personal protection</b>	
Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the workstation location.
Personal Protection	Splash goggles. Full suit. Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Gloves (impervious). Boots.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	TWA: 0.11 (mg/m <sup>3</sup> ) from ACGIH (1995). Consult local authorities for acceptable exposure limits.

<b>Section 9. Physical and chemical properties</b>			
Appearance	Liquid. (Dense, oily)	Odor	Pungent (strong)
Molecular Weight	272.77	Color	Pale yellow to Amber (Light).
pH (1% soln/water)	Not available.		
Boiling Point	234°C (453.2°F)		
Melting Point	-9°C (15.8°F)		
Critical Temperature	Not available.		
Relative Density	1.7019 (Water = 1)		
Vapor Pressure	0.08 mm of Hg (@ 20°C)		
Vapor Density	9.42 (Air = 1)		
Volatility	Not available		
Relative Density	0.15 ppm		
Evaporation Rate	Not available.		
Viscosity	Not available.		
Partition Coefficient Log n-Octanol/Water	Not available.		
Ionicity (In Water)	Log Pow = 5.04		
Dispersion Properties	See solubility in water, acetone.		
Solubility	Easily soluble in acetone. Very slightly soluble in cold water, hot water. 1.03-1.25 mg/l @ 22°C		
Flash Point	Not available.		
Auto Ignition Temp.	Not available.		
Flammability	Non-flammable.		
Explosive Properties	May explode on contact with sodium		
Oxidising Properties	Not available.		

<b>Section 10. Stability and reactivity</b>	
Stability	The product is stable.
Instability Temperature	Not available.
Conditions to Avoid	No additional remark.
Incompatibility with Various Substances	Slightly reactive to reactive with reducing agents, alkalis. Very slightly to slightly reactive with organic materials, moisture.
Corrosivity	In the presence of moisture, HEX will corrode iron and other metals.
Hazardous Polymerization	Not available.
Hazardous Decomposition Products	Not available.

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<b>Section 11. Toxicological information</b>	
Routes of Entry	Inhalation. Skin contact.
Toxicity to Animals	Acute oral toxicity (LD50): 113-1300 mg/kg (Rat), Slightly to moderately toxic. Acute oral toxicity (LD50): 505 mg/kg (Mouse), Slightly toxic. Acute dermal toxicity (LD50): 200-430 mg/kg (Rabbit), Moderately toxic. Acute inhalation toxicity (LC50): 0.041 mg/l, 4-hr (Rat), Highly toxic.

<b>Section 12. Ecological information</b>	
Ecotoxicology	<p><b>FRESHWATER ORGANISMS</b></p> <p>24-hr EC50 Daphnia magna: 0.093-0.130 mg/l (static), Highly toxic 24-hr LC50 Fathead minnow: 0.075-0.240 mg/l (static), Highly toxic 24-hr LC50 Channel catfish: 0.190 mg/l (static), Highly toxic 24-hr LC50 Bluegill: 0.170 mg/l (static), Highly toxic 48-hr EC50 Daphnia magna: 0.039-0.052 mg/l (static), Highly toxic 48-hr LC50 Channel catfish: 0.150 mg/l (static), Highly toxic 48-hr LC50 Bluegill sunfish: 0.150 mg/l (static), Highly toxic 48-hr LC50 Fathead minnow: 0.059-0.210 mg/l (static), Highly toxic 96-hr LC50 Fathead minnow: 0.059-0.180 mg/l (static), Highly toxic 96-hr LC50 Bluegill sunfish: 0.13 mg/l (static), Highly toxic 96-hr LC50 Goldfish: 0.078 mg/l (not reported), Highly toxic 96-hr LC50 Channel catfish: 0.097 mg/l (static), Highly toxic</p> <p><b>MARINE ORGANISMS</b></p> <p>96-hr LC50 Polychaete: 0.371 mg/l (static), Highly toxic 96-hr LC50 Grass shrimp: 0.042 mg/l (static), Highly toxic 96-hr LC50 Mysid shrimp: 0.032 mg/l (static), Highly toxic 96-hr LC50 Mysid shrimp: 0.007-0.012 mg/l (flowthrough), Highly toxic 96-hr Pinfish: 0.048 mg/l (static), Highly toxic 96-hr Spot: 0.037 mg/l (static), Highly toxic 96-hr Sheepshead minnow: 0.045 mg/l (static), Highly toxic</p>
Chemical Fate	Not applicable.

<b>Section 13. Disposal considerations</b>	
Waste Disposal	Recycle to process, if possible. Consult your local or regional authorities for disposal options. May be disposed of in a secured chemical landfill or by incineration. HEX is a toxic waste under RCRA (U130).

<b>Section 14. Transport information</b>						
ADR Classification	ADR CLASS 6.1: Organic substance with a flash point of 23°C or over or non-flammable organic substances.					
Special Provisions for Transport	Transport	Proper Shipping Name	Hazard Class	UN ID#	Packing group	Required Label
	ICAO/IATA (Air)	Hexachlorocyclopentadiene	6.1	UN2646	I	Forbidden by air (Passenger or Cargo)
	IMO/IMDG (Sea)	Hexachlorocyclopentadiene	6.1	UN2646	I	Poison
	TDG (Canada)	Hexachlorocyclopentadiene	6.1, 9.2	UN2646	I	
	DOT (USA)	Hexachlorocyclopentadiene	6.1	UN2646	I	Poison
Customs Classification	International HTS# 2903.59.3000					

<b>Section 15. Regulatory information</b>		
Global Inventories	Europe (EINECS, ELINCS, NLP)	In Compliance with the EINECS (201-029-3)
	Australia (AICS)	In Compliance with the AICS
	Canada (DSL, NDSL)	In Compliance with the DSL
	China (IECSC)	In Compliance with the IECSC

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<b>Section 15. Regulatory information</b>		
	Japan (ENCS)	In Compliance with the ENCS ((3)-2253)
	Korea (KECI)	In Compliance with the KECI (KE-18409)
	New Zealand (NZIoC)	In Compliance with the NZIoC
	Philippines (PICCS)	In Compliance with the PICCS
	United States (TSCA)	In Compliance with the TSCA
Other Regulations	<p>The ECRES List of Regulation 793/93, 1993 O.J. (L 84) 1, 5 April 1993, and The Organization for Economic Cooperation and Development (OECD) Representative List of High Production Volume Chemicals.</p> <p>Germany: Ordinance on Classification of Water-Endangering Substances. The substance has been assigned WGK Class: 3 (very water endangering) through “self-classification” by chemical companies pursuant to criteria of the Verband Chemischer Industry (VCI).</p> <p>Switzerland: Federal Health Agency, Giftliste 1 (Stoffe), Ausgabe 1995 (Toxics List 1 (1995). Toxicity Category: 2; Identification Number: G-2094</p> <p>Switzerland: TWA – 0.1 mg/m<sup>3</sup></p> <p>Belgium: TWA 0.1 mg/m<sup>3</sup></p> <p>Finland: TWA 1.0 mg/m<sup>3</sup>, STEL 3.0 mg/m<sup>3</sup></p> <p>Netherlands: TWA 0.11</p> <p>United States: OSHA Hazard Communication Standard (29 CFR 1910.1200) classification: This product is on one of the Floor Lists.</p> <p>Canada: On WHMIS Ingredient Disclosure List – Item number 813. 1% Disclosure. Canada: TWA – 0.1 mg/m<sup>3</sup></p> <p>Australia: TWA 0.1 mg/m<sup>3</sup>, STEL 0.3 mg/m<sup>3</sup>.</p> <p>South Korea: Korean Gazette Number:97-1-402 This is a toxic chemical as defined in Article 2 of the Toxic Chemicals Control Law.</p>	

<b>Section 16. Other information</b>		
Regulation (EC) No 1272/2008	<p><b>Classification</b> <b>(* Minimum classification):</b> Acute Toxicity 2 * Acute Toxicity 3 * Acute Toxicity 4 * Skin Corrosive 1B Aquatic Acute 1 Aquatic Chronic 1</p>	<p><b>Hazard statement:</b></p> <p>H330: Fatal if inhaled H311: Toxic in contact with skin. H302: Harmful if swallowed. H314: Causes severe skin burns and eye damage H400: Very toxic to aquatic life. H410: Very toxic to aquatic life with long lasting effects.</p>
<p><b>GHS Pictograms:</b> GHS06 : Skull and Crossbones GHS05 : Environment GHS09 : Corrosion</p>		
<p><b>Precautionary Statement:</b> P260: Do not breathe dust/fume/gas/mist/vapors/spray. P264: Wash ... thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P284: Wear respiratory protection. P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P301+P330+P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P302+P352: IF ON SKIN: Wash with plenty of soap and water. P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340: IF INHALED: 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 contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor/physician.</p>		

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<b>Section 16. Other information</b>		
	<p>P312: Call a POISON CENTER or doctor/physician if you feel unwell.            P320/321/322: Specific treatment is urgent (see ... on this label).            P361: Remove/Take off immediately all contaminated clothing.            P363: Wash contaminated clothing before reuse.            P391: Collect spillage.            P405: Store locked up.            P501: Dispose of contents/container in accordance with local/regional/national/international regulation</p>	
Directive 67/548/EEC	<p><b>Risk phrases:</b>            R22 – Harmful if swallowed.            R24 – Toxic in contact with skin.            R26 – Very toxic by inhalation.            R34 – Causes burns.            R50/53 – Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.</p>	<p><b>Safety advice phrases:</b>            S25 – Avoid contact with eyes.            S39 – Wear eye / face protection.            S45 – In case of accident or if you feel unwell, seek medical advice immediately.            S53 – Avoid exposure – obtain special instructions before use.            S60 – This material and its container must be disposed of as hazardous waste.            S61 – Avoid release to the environment. Refer to special instructions / safety data sheet.</p>
Amendments	Update to Section 2 and 16 in compliance with regulation (EC) No. 1272/2008, and section 1 and 16 for contact information.	
Prepared by:	Dawei Li	
References	<ul style="list-style-type: none"> <li>-REGISTRY Database, Chemical Abstract Service, 6/3/96</li> <li>-CHEMLIST Database, Chemical Abstract Service, 6/3/96</li> <li>-MEDITEXT Medical Management Database, Micromedex Inc., Vol. 28, 4/30/96</li> <li>-HAZARTEXT Database, Micromedex Inc., 9/2/95</li> <li>-Department of Transportation, Emergency Response Guides, Vol. 26, 10/31/95</li> <li>-Registry of Toxic Effects of Chemical Substances (RTECS), 10/1/95</li> <li>-SARATEXT System, Micromedex Inc., 9/1/95</li> <li>-New Jersey Hazardous Substance Fact Sheet, 10/30/86</li> <li>-Hazardous Substance Data Bank (HSDB), National Library of Medicine, #4011, 1/20/95</li> <li>-Chemical Hazard Response Information System (CHRIS), Micromedex Inc., Vol. 26, 10/31/95</li> <li>-Oil and Hazardous Materials/Technical Assistance Data Systems (OHM/TADS), Micromedex Inc., Vol. 26, 10/31/95</li> <li>-Integrated Risk Information System (IRIS), U.S. EPA, 4/1/92</li> <li>-The Guide to Chemical Hazards, National Institute for Occupational Safety and Health, Vol. 26, 10/31/95</li> <li>-LOLI Database, Chem Advisor via Micromedex Inc., 2/19/96</li> <li>-Transportation Database, U.S. DOT, Micromedex Inc., 7/10/96</li> <li>-Transportation Database, Canadian TDG, Micromedex Inc., 7/10/96</li> <li>-ICRMS North American Database, Ariel Research Corporation, 3/4/96</li> <li>-ICRMS U.S. DOT Database, Ariel Research Corporation, 7/10/96</li> <li>-ICRMS European Database, Ariel Research Corporation, 7/10/96</li> <li>-ICRMS Inventories Database, Ariel Research Corporation, 3/4/96</li> <li>-Velsicol Chemical LLC, unpublished studies, 7/12/74</li> </ul>	
Information Contact	<p>For MSDS or Regulatory information, contact:            Dawei Li            Velsicol Chemical LLC            1199 Warford Street            Memphis, TN 38108            Phone: 901-323-6226, ext. 124            Fax: 901-324-5897            Email: dli@velsicol.com</p>	<p>For Technical or Product Support Information, contact:            Sherman Friedman            Velsicol Chemical LLC            10400 W. Higgins Road            Rosemont, IL 60018 U.S.A.            Phone: 847-635-3486            Fax: 847-298-9018            Email: sfriedman@velsicol.com</p>
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