SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0
Creation Date: July 15, 2019
Revision Date: July 15, 2019

SECTION 1: Identification

1.1 GHS Product identifier

Product name Chlordecone

1.2 Other means of identification

Product number -
Other names Merex; Compound 1189; Decachloroketone

1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research use.
Uses advised against no data available

1.4 Supplier's details

Company Shanghai Yien Chemical Technology Co., Ltd
Address Building 6, 28 Yingong Road, Fengxian District, Shanghai Chemical Industry Zone, Shanghai, 201400, China
Telephone +86-400-133-2688

1.5 Emergency phone number

Emergency phone number +86-400-133-2688
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 3, Oral
Acute toxicity - Category 3, Dermal
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 Danger
Hazard statement(s) H301 Toxic if swallowed
H311 Toxic in contact with skin

H351 Suspected of causing cancer
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention	P264 Wash ... thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P203 Obtain, read and follow all safety instructions before use. P273 Avoid release to the environment.
Response	P301+P316 IF SWALLOWED: Get emergency medical help immediately. P321 Specific treatment (see ... on this label). P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P316 Get emergency medical help immediately. P361+P364 Take off immediately all contaminated clothing and wash it before reuse. P318 IF exposed or concerned, get medical advice. P391 Collect spillage.
Storage	P405 Store locked up.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Chlordecone	Chlordecone	143-50-0	205-601-3	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Induce vomiting (ONLY IN CONSCIOUS PERSONS!). See Notes. Give a slurry of activated charcoal in water to drink. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

INHALATION AND INGESTION: These symptoms present in all affected patients - Neurologic Impairment - anxiety, irritability, memory disturbance, headache, tremors, opsiclonus, stuttering, slurred speech, and abnormal tandem gait. (USCG, 1999)

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

Emergency and supportive measures; 1. Maintain an open airway and assist ventilation if necessary. Administer supplemental oxygen. As most liquid products are formulated in

organic solvents, observe for evidence of pulmonary aspiration. 2. Treat seizures, coma, and respiratory depression if they occur. Ventricular arrhythmias may respond to beta-adrenergic blockers such as propranolol or esmolol. 3. Attach an electrocardiographic monitor, and observe the patient for at least 6-8 hours /Chlorinated hydrocarbon pesticides/.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

5.2 Specific hazards arising from the chemical

Flash point data for this chemical are not available; however, it is probably combustible. (NTP, 1992)

5.3 Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment. Personal protection: P3 filter respirator for toxic particles.

6.2 Environmental precautions

Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment. Personal protection: P3 filter respirator for toxic particles.

6.3 Methods and materials for containment and cleaning up

Survey reports six case histories employing EPA's hazardous materials spills treatment trailer are reviewed. The trailer's ... treatment system has three mixed-media filters and three activated carbon columns to remove suspended, precipitated, and organic soluble materials. Spills of PCB, pentachlorophenol, kepone, termide (chlordane), heptachlor, aldrin, and dieldrin, toxaphene, and dinitrobutylphenol were treated by the EPA trailer, which was generally successful in mitigating environmental effects by filtering and carbon-adsorption. 90% removal was achieved for 21 of 23 compounds.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Provision to contain effluent from fire extinguishing. Separated from acids.PRECAUTIONS FOR "CARCINOGENS": Storage site should be as close as practicable to lab in which carcinogens are to be used, so that only small quantities required for ... expt need to be carried. Carcinogens should be kept in only one section of cupboard, an explosion-proof refrigerator or freezer (depending on chemicophysical properties ...) that bears appropriate label. An inventory ... should be kept, showing quantity of carcinogen & date it was acquired ... Facilities for dispensing ... should be contiguous to storage area. Chemical Carcinogens

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

MAK: skin absorption (H); carcinogen category: 2

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

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

Eye/face protection

Wear face shield.

Skin protection

Protective clothing. Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Kepone is an odorless colorless crystalline solid. (USCG, 1999)
Colour	Crystals
Odour	Odorless
Melting point/freezing point	350°C (decomp)
Boiling point or initial boiling point and boiling range	459.7°C at 760 mmHg
Flammability	Noncombustible Solid
Lower and upper explosion limit/flammability limit	no data available
Flash point	>100°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	less than 1 mg/mL at 73° F (NTP, 1992)
Partition coefficient n-octanol/water	log Kow = 5.41
Vapour pressure	1.24E-08mmHg at 25°C
Density and/or relative density	2.27g/cm3
Relative vapour density	16.94 (NTP, 1992) (Relative to Air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

NIOSH considers kepone to be a potential occupational carcinogen.

On combustion, forms chlorine fumes and hydrogen chloride. Decomposes on contact with acids. This produces toxic fumes.

10.2 Chemical stability

Stable to about 350 deg C; readily hydrates on exposure to room temp & humidity

10.3 Possibility of hazardous reactions

NON-FLAMMABLEA halogenated ketone. Ketones are reactive with many acids and bases liberating heat and flammable gases (e.g., H2). The amount of heat may be sufficient to start a fire in the unreacted portion of the ketone. Ketones react with reducing agents such as hydrides, alkali metals, and nitrides to produce flammable gas (H2) and heat. Ketones are incompatible with isocyanates, aldehydes, cyanides, peroxides, and anhydrides. They react violently with aldehydes, HNO3, HNO3 + H2O2, and HClO4.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Acids, acid fumes.

10.6 Hazardous decomposition products

Decomposes at 350 deg C.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 95 mg/kg
- Inhalation: no data available
- Dermal: LD50 Rabbit (male) percutaneous 410 mg/kg

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 data available

STOT-single exposure

The substance may cause effects on the central nervous system and liver. This may result in impaired functions and liver impairment. The effects may be delayed.

STOT-repeated exposure

Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the endocrine system. This substance is possibly carcinogenic to humans. Causes toxicity to human reproduction or development.

Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 Salmo gairdnerii (Rainbow trout, 1.1 g) 30 ug/L/96 hr @ 12 deg C (95% confidence limit 24-38), static /Technical material, 90.7%
- Toxicity to daphnia and other aquatic invertebrates: EC50 Daphnia magna (first instar) 260 ug/L/48 hr @ 17 deg C (95% confidence limit 200-345 ug/L), static /Technical material, 90.7%
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Kepone is not expected to be susceptible to biodegradation under aerobic conditions. An experiment using activated sludge found that <0.1% of the applied kepone was metabolised after three days(1). A similar study employed a freshwater laboratory microcosm and the results showed a half-life in estuarine sediments for kepone to be >312 days(2). In a study conducted on James River sediments with added autoclaved silty loam soil, kepone showed no degradation after 52 days at pH=7(3). Hydrosoils from a reservoir with no prior exposure to kepone and that were subsequently exposed to kepone and hydrosoils from a kepone-contaminated creek both showed no biodegradation under aerobic conditions after 56 days(4). The amount of kepone recovered from sea water under aerobic conditions for 1 year was 95%(5).

12.3 Bioaccumulative potential

A BCF range from 900-13,500 was measured for kepone(1) using sheepshead minnows, spot fish, and oysters(1). Other reported BCFs of kepone: fathead minnow, 1,100-2,200(2); Cyprinodon variegatus, 1,548, Leiostomus xanthrus, 1,221; Palaemonetes pugio, 698, Callinectes sapidus, 8.1(4); no species reported, 8,400(3); Brevoortia tyrannus (Atlantic menhaden), 2,300-9,750; Menidia menidia (Atlantic silversides), 217,00-602,00(5). According to a classification scheme(6), these BCFs suggest that bioconcentration in aquatic organisms is high to very high(SRC).

12.4 Mobility in soil

The Koc of kepone is estimated as 21,000(SRC), using a log Kow of 5.41(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that kepone is expected to be immobile. Percent kepone leached through soil cylinders 80 cm deep: clay loam, 1.2%; clay, 17.2%; sandy clay loam, 36.8%; sandy loam, 28.1%(4).

12.5 Other adverse effects

no data available

SECTION 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.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN2996 (For reference only, please check.) IMDG: UN2996 (For reference only, please check.) IATA: UN2996 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC (For reference only, please check.) IMDG: ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC (For reference only, please check.) IATA: ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.) IMDG: 6.1 (For reference only, please check.) IATA: 6.1 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.) IMDG: I (For reference only, please check.) IATA: I (For reference only, please check.)

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 IMO instruments

no data available

SECTION 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
Chlordecone	Chlordecone	143-50-0	205-601-3
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Not Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Not Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not Listed.
Korea Existing Chemicals List (KECL)			Not Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date July 15, 2019

Abbreviations and acronyms

- CAS: Chemical Abstracts Service

- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

Carrier solvents used in commercial formulations may change physical and toxicological properties.Do NOT take working clothes home.Consult national legislation.

Any questions regarding this SDS, Please send your inquiry to sds@xixisys.com

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