

## Chemical Safety Data Sheet MSDS / SDS

**MIREX**

Revision Date:2024-03-16 Revision Number:1

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name : MIREX  
CBnumber : CB8102322  
CAS : 2385-85-5  
EINECS Number : 219-196-6  
Synonyms : Dechlorane plus,mirex

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

**SECTION 2: Hazards identification****Classification of the substance or mixture**

Acute toxicity - Category 4, Oral  
Acute toxicity - Category 4, Dermal  
Carcinogenicity, Category 2  
Reproductive toxicity, Additional category for effects on or via lactation  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1  
Reproductive toxicity, Category 2

**Label elements****Pictogram(s)**

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Signal word : Danger

**Hazard statement(s)**

H225 Highly Flammable liquid and vapour  
H302 Harmful if swallowed

H312 Harmful in contact with skin

H319 Causes serious eye irritation

H332 Harmful if inhaled

H336 May cause drowsiness or dizziness

H351 Suspected of causing cancer

H362 May cause harm to breast-fed children

H410 Very toxic to aquatic life with long lasting effects

H412 Harmful to aquatic life with long lasting effects

#### **Precautionary statement(s)**

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P263 Avoid contact during pregnancy/while nursing.

P273 Avoid release to the environment.

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

P281 Use personal protective equipment as required.

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.

P403+P235 Store in a well-ventilated place. Keep cool.

P501 Dispose of contents/container to.....

#### **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.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P263 Avoid contact during pregnancy and while nursing.

P273 Avoid release to the environment.

#### **Response**

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

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

P317 Get medical help.

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

P362+P364 Take off 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.

#### **Other hazards**

## SECTION 3: Composition/information on ingredients

### Substance

Product name	: MIREX
Synonyms	: Dechlorane plus,mirex
CAS	: 2385-85-5
EC number	: 219-196-6
MF	: C10Cl12
MW	: 545.51

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## SECTION 4: First aid measures

### Description of first aid measures

#### If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

#### Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

#### Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

#### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

### Most important symptoms and effects, both acute and delayed

INGESTION, INHALATION, OR SKIN EXPOSURE: Gas- trointestinal irritation with nausea, vomiting, and possible diarrhea. Malaise, headache, CNS excitation with tremor, paresthesias, ataxia, confusion, convulsions, and ventricular fibrillation. CNS depression and central respiratory paralysis may occur. (USCG, 1999)

### Indication of any immediate medical attention and special treatment needed

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal . Lindane and related compounds

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## SECTION 5: Firefighting measures

## **Extinguishing media**

Liquid products containing organic solvents may be flammable. Extinguish fires with alcohol-resistant foam, carbon dioxide, or powder. With sufficient burning or external heat, mirex will decompose, emitting toxic fumes. Fire-fighters should wear a self-contained breathing apparatus, eye protection, and full protective clothing.

## **Specific Hazards Arising from the Chemical**

Behavior in Fire: Supports combustion (USCG, 1999)

## **Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

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# SECTION 6: Accidental release measures

## **Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

## **Environmental precautions**

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

## **Methods and materials for containment and cleaning up**

Before dealing with any spillage, precautions should be taken as required and appropriate personal protection should be used. Prevent liquid from spreading or contaminating other cargo and vegetation, and avoid pollution of surface waters and ground water by using the most suitable available material, e.g., earth or sand. Absorb spilled liquid with sawdust, sand, or earth, sweep up and place it in a closeable container for later transfer to a safe place for disposal. As soon as possible after the spillage and before re-use, cover all contaminated areas with damp sawdust, sand, or earth. Sweep up and place in a closeable container for later transfer to a safe place for disposal. Care should be taken to avoid run-off into surface waters or drains.

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# SECTION 7: Handling and storage

## **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.

## **Conditions for safe storage, including any incompatibilities**

Products should be stored in locked buildings, preferably dedicated to insecticides. Keep products out of reach of children and unauthorized personnel. Do not store near foodstuffs or animal feed.

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# SECTION 8: Exposure controls/personal protection

## **Control parameters**

## Occupational Exposure limit values

<b>Component</b>	Dodecachloropentacyclo[5.2.1.02,6.03,9.05,8]decane			
<b>CAS No.</b>	2385-85-5			
	<b>Limit value - Eight hours</b>		<b>Limit value - Short term</b>	
	<b>ppm</b>	<b>mg/m<sup>3</sup></b>	<b>ppm</b>	<b>mg/m<sup>3</sup></b>
<b>Hungary</b>	?	POP	?	?
	<b>Remarks</b>			
<b>Hungary</b>	POP = Persistent Organic Pollutant			

## Biological limit values

no data available

## Exposure controls

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

## Individual protection measures

### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

### Skin protection

Wear fire/flammable resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. 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

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical state	neat
Colour	White to Off-White
Odour	Odorless
Melting point/freezing point	905° F (decomposes) (NTP, 1992)
Boiling point or initial boiling point and boiling range	421.1°C at 760mmHg
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	201.9°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available

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Kinematic viscosity	no data available
Solubility	Chloroform (Slightly)
Partition coefficient n-octanol/water	log Kow = 6.89
Vapour pressure	6.55E-07mmHg at 25°C
Density and/or relative density	2.25g/cm <sup>3</sup>
Relative vapour density	18.8 (NTP, 1992) (Relative to Air)
Particle characteristics	no data available

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## SECTION 10: Stability and reactivity

### Reactivity

no data available

### Chemical stability

Very stable at normal temperatures.

### Possibility of hazardous reactions

Supports combustionMIREX is sensitive to exposure to sunlight. This compound may react with strong oxidizers. It reacts with lithium and tertiary butyl alcohol. (NTP, 1992)

### Conditions to avoid

no data available

### Incompatible materials

no data available

### Hazardous decomposition products

Decomposes above 500 deg C to give hexachlorobenzene; hexachloropentadiene was found in small amounts in the thermal residue; the products identified from vapor phase were carbon monoxide, carbon dioxide, hydrogen chloride, chlorine, carbon tetrachloride, & phosgene.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat male oral 306 mg/kg
- 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**

Classification of carcinogenicity: 1) evidence in humans: no data; 2) evidence in animals: sufficient. Overall summary evaluation of carcinogenic risk to humans is Group 2B: The agent is possibly carcinogenic to humans. From table

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

no data available

### **STOT-repeated exposure**

no data available

### **Aspiration hazard**

no data available

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## SECTION 12: Ecological information

### **Toxicity**

Toxicity to fish: LC50 *Pimephales promelas* (fathead minnow), greater than 100 mg/l/96 hr at 18 deg C, wt 1.3 g /wetable powder, 50%; static bioassay without aeration

Toxicity to daphnia and other aquatic invertebrates: EC50 *Daphnia magna* (daphnid), >1.0 mg/L/48 hr at 17 deg C, 1st instar; Effect: intoxication, immobilization /technical material, 98%; static bioassay without aeration

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

### **Persistence and degradability**

AEROBIC: Following the application of 0.5 grams mirex to 100 grams of soil (nine different soils), followed by addition of distilled water to bring the soil moisture to the field capacity, 88-99% of the initially applied amount of mirex was recovered following a 3 month incubation period, and 93-99% was recovered in the soils 6 months post application(1). Generally mirex is resistant to attack by bacteria and fungi, and can inhibit the growth of actinomycetes(1). Although mirex is taken up by micro-organisms(1), plants(2,4) and higher animals including fish(5) and rats(2), it is not metabolized(2). Analysis of soils from spill sites 5 and 12 years after the accidents, suggests that dechlorination takes place very slowly and kepone is a biotransformation product of mirex(3). Twelve years after the application of mirex to soil at one pound per acre, 50% of the mirex and mirex-related organochlorine compounds remained in the soil; 65-73% of the residues consisted of mirex and 3-6% consisted of chlordecone(3). Although concentrations were slightly higher, similar ratios of mirex (76-81%) and chlordecone (1-6%) residues were seen five years after an accidental spill of mirex bait on soil. Kepone was also identified as a transformation product of mirex in estuaries(4). Neither C(14) labeled mirex or kepone degraded in aerobic hydrosols from the Little Dixie Reservoir and James River tributary, Richmond VA(5).

## Bioaccumulative potential

There is evidence for degradation of mirex to chlordecone (kepone) in the environment. both mirex & kepone are highly persistent & have high lipid:water partition coefficients & have been shown to bioconcentrate several thousandfold in food chains.

## Mobility in soil

The average Koc value for mirex in 4 samples of sediment obtained from Coyote Creek, CA was  $2.4 \times 10^7$ (1). The Koc value of mirex in an unspecified soil was 5800(2). According to a classification scheme(3), this average Koc value suggests that mirex is expected to be immobile in soil(SRC).

## Other adverse effects

no data available

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# SECTION 13: Disposal considerations

## 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.

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# SECTION 14: Transport information

## UN Number

ADR/RID: UN2762 (For reference only, please check.)

IMDG: UN2762 (For reference only, please check.)

IATA: UN2762 (For reference only, please check.)

## UN Proper Shipping Name

ADR/RID: ORGANOCHLORINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C (For reference only, please check.)

IMDG: ORGANOCHLORINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C (For reference only, please check.)

IATA: ORGANOCHLORINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C (For reference only, please check.)

## Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)

IMDG: 3 (For reference only, please check.)

IATA: 3 (For reference only, please check.)

## 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.)

### **Environmental hazards**

ADR/RID: Yes

IMDG: Yes

IATA: Yes

### **Special precautions for user**

no data available

### **Transport in bulk according to IMO instruments**

no data available

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## SECTION 15: Regulatory information

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

#### **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.

#### **PICCS**

Not Listed.

#### **Vietnam National Chemical Inventory**

Not Listed.

#### **IECSC**

Not Listed.

#### **Korea Existing Chemicals List (KECL)**

Not Listed.

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## SECTION 16: Other information

### **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?pagelD=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pagelD=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/>

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.