1. PRODUCT AND COMPANY IDENTIFICATION

   Product name : Mirex
   Product Number : 36170
   Brand : Fluka
   Supplier : Sigma-Aldrich
   Telephone : +1 800-325-5832
   Fax : +1 800-325-5052
   Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555
   Preparation Information : Sigma-Aldrich Corporation
   Product Safety - Americas Region
   1-800-521-8956

2. HAZARDS IDENTIFICATION

   Emergency Overview

   OSHA Hazards
   Carcinogen, Target Organ Effect, Toxic by ingestion, Toxic by skin absorption

   Target Organs
   Liver

   GHS Classification
   Acute toxicity, Dermal (Category 3)
   Acute toxicity, Oral (Category 3)
   Carcinogenicity (Category 2)
   Reproductive toxicity (Category 2)
   Acute aquatic toxicity (Category 1)
   Chronic aquatic toxicity (Category 4)

   GHS Label elements, including precautionary statements

   Pictogram
   ![Pictogram]

   Signal word : Danger

   Hazard statement(s)
   H301 + H311 : Toxic if swallowed or in contact with skin
   H351 : Suspected of causing cancer.
   H361 : Suspected of damaging fertility or the unborn child.
   H400 : Very toxic to aquatic life.
   H413 : May cause long lasting harmful effects to aquatic life.

   Precautionary statement(s)
   P273 : Avoid release to the environment.
   P280 : Wear protective gloves/ protective clothing.
   P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
   P312 : Call a POISON CENTER or doctor/ physician if you feel unwell.
HMIS Classification

Health hazard: 2
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0

NFPA Rating

Health hazard: 2
Fire: 0
Reactivity Hazard: 0

Potential Health Effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.
Skin Toxic if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.
Ingestion Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mirex</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>2385-85-5</td>
</tr>
<tr>
<td>EC-No.</td>
<td>219-196-6</td>
</tr>
<tr>
<td>Index-No.</td>
<td>602-077-00-1</td>
</tr>
</tbody>
</table>

Molecular Weight: 545.54 g/mol

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
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.

Immersion protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested:Dermatril® (Aldrich Z677272, Size M)

Splash protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 30 min
Material tested:Dermatril® (Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**
- Form: solid
- Colour: no data available

**Safety data**
- pH: no data available
- Melting point/freezing point: no data available
- Boiling point: no data available
- Flash point: no data available
- Ignition temperature: no data available
- Autoignition temperature: no data available
- Lower explosion limit: no data available
- Upper explosion limit: no data available
- Vapour pressure: no data available
- Density: no data available
- Water solubility: no data available
- Partition coefficient: n-octanol/water: log Pow: 5.28
- Relative vapour density: no data available
- Odour: no data available
- Odour Threshold: no data available
- Evaporation rate: no data available

10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
no data available

**Conditions to avoid**
no data available

**Materials to avoid**
Strong oxidizing agents

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions.
- Carbon oxides, Hydrogen chloride gas

11. TOXICOLOGICAL INFORMATION

**Acute toxicity**
- Oral LD50: rat - 235 mg/kg
- Inhalation LC50: no data available
Dermal LD50
LD50 Dermal - rabbit - 800 mg/kg
Remarks: Behavioral: Somnolence (general depressed activity). Diarrhoea

Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
Genotoxicity in vivo - rat - Oral
Other mutation test systems
Genotoxicity in vivo - mouse - Oral
Other mutation test systems

Carcinogenicity
Carcinogenicity - rat - Oral
Tumorigenic: Carcinogenic by RTECS criteria. Liver: Tumors.
Carcinogenicity - rat - Oral
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Liver: Tumors.
Carcinogenicity - mouse - Oral
Tumorigenic: Carcinogenic by RTECS criteria. Liver: Tumors.

Limited evidence of carcinogenicity in animal studies

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Mirex)
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: Reasonably anticipated to be a human carcinogen (Mirex)
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Reproductive toxicity - rat - Oral
Reproductive toxicity - rat - Oral
Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females).
Reproductive toxicity - rat - Oral
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Specific Developmental Abnormalities: Cardiovascular (circulatory) system. Specific Developmental Abnormalities: Other developmental abnormalities.
Reproductive toxicity - rat - Oral
Effects on Fertility: Litter size (e.g., # fetuses per litter; measured before birth). Specific Developmental Abnormalities: Homeostasis Specific Developmental Abnormalities: Musculoskeletal system.
Reproductive toxicity - rat - Subcutaneous
Maternal Effects: Uterus, cervix, vagina.
Reproductive toxicity - rat - Unreported
Effects on Newborn: Stillbirth. Effects on Newborn: Viability index (e.g., # alive at day 4 per # born alive).
Reproductive toxicity - mouse - Oral
Effects on Fertility: Other measures of fertility
Reproductive toxicity - mouse - Oral
Effects on Newborn: Live birth index (# fetuses per litter; measured after birth). Effects on Newborn: Viability index (e.g., # alive at day 4 per # born alive).
Reproductive toxicity - Mammal - Unreported
Effects on Newborn: Stillbirth. Effects on Newborn: Viability index (e.g., # alive at day 4 per # born alive).

no data available

**Teratogenicity**

Developmental Toxicity - rat - Oral
Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow). Specific Developmental Abnormalities: Homeostasis

Developmental Toxicity - Mammal - Unreported
Specific Developmental Abnormalities: Eye, ear. Specific Developmental Abnormalities: Cardiovascular (circulatory) system. Specific Developmental Abnormalities: Respiratory system.

Suspected human reproductive toxicant

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<table>
<thead>
<tr>
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**Synergistic effects**

no data available

**Additional Information**

RTECS: PC8225000

### 12. ECOLOGICAL INFORMATION

**Toxicity**

- Toxicity to fish: LC50 - Oncorhynchus mykiss (rainbow trout) - 0.023 mg/l - 96.0 h
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) - 2.6 mg/l - 48 h

**Persistence and degradability**

no data available

**Bioaccumulative potential**

- Bioaccumulation: Pimephales promelas (fathead minnow) - 32 d
- Bioconcentration factor (BCF): 18,100

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811  Class: 6.1  Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (Mirex)
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2811  Class: 6.1  Packing group: III  EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Mirex)
Marine pollutant: Marine pollutant

IATA
UN number: 2811  Class: 6.1  Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (Mirex)

15. REGULATORY INFORMATION

OSHA Hazards
Carcinogen, Target Organ Effect, Toxic by ingestion, Toxic by skin absorption

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.

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16. OTHER INFORMATION

Further information
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