1. PRODUCT AND COMPANY IDENTIFICATION

Chemical product name : Dichlofenthion Formulation

Supplier's company name, address and phone number

Company name of supplier : MSD
Address : Kumagaya, Saitama Prefecture , Xicheng 810 MSD Co., Ltd. Menuma factory
Telephone : 048-588-8411
E-mail address : EHSDATASTEWARD@msd.com
Emergency telephone number : 1-908-423-6000

Recommended use of the chemical and restrictions on use
Recommended use : Veterinary product

2. HAZARDS IDENTIFICATION

GHS classification of chemical product

| Flammable liquids   | Category 3 |
| Acute toxicity (Oral) | Category 4 |
| Skin corrosion/irritation | Category 1 |
| Serious eye damage/eye irritation | Category 1 |
| Skin sensitisation | Category 1 |
| Germ cell mutagenicity | Category 2 |
| Carcinogenicity (Oral) | Category 1A |
| Reproductive toxicity | Category 2 |
| Specific target organ toxicity - single exposure | Category 1 (Nervous system) |
| Specific target organ toxicity - single exposure | Category 3 |
| Specific target organ toxicity - repeated exposure | Category 2 (Nervous system, Respiratory Tract) |
| Aspiration hazard | Category 1 |
| Short-term (acute) aquatic | Category 1 |
Long-term (chronic) aquatic hazard: Category 1

GHS label elements

Hazard pictograms:
- Flammable liquid and vapour
- Harmful if swallowed
- May be fatal if swallowed and enters airways.
- Causes severe skin burns and eye damage.
- May cause an allergic skin reaction.
- May cause respiratory irritation.
- Suspected of causing genetic defects.
- May cause cancer if swallowed.
- Suspected of damaging the unborn child.
- Causes damage to organs (Nervous system).
- May cause damage to organs (Nervous system, Respiratory Tract) through prolonged or repeated exposure.
- Very toxic to aquatic life with long lasting effects.

Signal word: Danger

Hazard statements:
- Flammable liquid and vapour.
- Harmful if swallowed.
- May be fatal if swallowed and enters airways.
- Causes severe skin burns and eye damage.
- May cause an allergic skin reaction.
- May cause respiratory irritation.
- Suspected of causing genetic defects.
- May cause cancer if swallowed.
- Suspected of damaging the unborn child.
- Causes damage to organs (Nervous system).
- May cause damage to organs (Nervous system, Respiratory Tract) through prolonged or repeated exposure.
- Very toxic to aquatic life with long lasting effects.

Precautionary statements:
**Prevention:**
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Keep container tightly closed.
- Use explosion-proof electrical/ventilating/lighting equipment.
- Use non-sparking tools.
- Take action to prevent static discharges.
- Do not breathe mist or vapours.
- Wash skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Use only outdoors or in a well-ventilated area.
- Contaminated work clothing should not be allowed out of the workplace.
- Avoid release to the environment.
- Wear protective gloves/protective clothing/eye protection/face protection.

**Response:**
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor.
- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or...
shower. Immediately call a POISON CENTER/doctor.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a
POISON CENTER/doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON
CENTER/doctor.
P308 + P311 IF exposed or concerned: Call a POISON
CENTER/doctor.
P333 + P313 If skin irritation or rash occurs: Get medical ad-
dvice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:
P501 Dispose of contents/container to an approved waste
disposal plant.

Other hazards which do not result in classification
Important symptoms and out-
lines of the emergency as-
sumed
: Vapours may form explosive mixture with air.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
<th>ENCS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tar, wood</td>
<td>91722-33-7</td>
<td>&gt;= 10 - &lt; 20</td>
<td></td>
</tr>
<tr>
<td>Rosin</td>
<td>8050-09-7</td>
<td>&gt;= 10 - &lt; 20</td>
<td>7-934</td>
</tr>
<tr>
<td>Tar, coal</td>
<td>8007-45-2</td>
<td>&gt;= 10 - &lt; 20</td>
<td>9-1741</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>9.8</td>
<td>3-28</td>
</tr>
<tr>
<td>Xylene</td>
<td>1330-20-7</td>
<td>9.3</td>
<td>3-3, 3-60</td>
</tr>
<tr>
<td>Dichlofenthion (ISO)</td>
<td>97-17-6</td>
<td>&gt;= 3 - &lt; 10</td>
<td>3-4112</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>&gt;= 2 - &lt; 3</td>
<td>1-410</td>
</tr>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>1.9</td>
<td>3-481</td>
</tr>
<tr>
<td>m-Cresol</td>
<td>108-39-4</td>
<td>1.1</td>
<td>3-499, 4-57</td>
</tr>
<tr>
<td>p-Cresol</td>
<td>106-44-5</td>
<td>1</td>
<td>3-499, 4-57</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

General advice: In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.

If inhaled: If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention immediately.

In case of skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention immediately.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.

In case of eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Get medical attention immediately.

If swallowed: If swallowed, DO NOT induce vomiting.
If vomiting occurs have person lean forward.
Call a physician or poison control centre immediately.
Rinse mouth thoroughly with water.
Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed:
Harmful if swallowed.
May be fatal if swallowed and enters airways.
May cause an allergic skin reaction.
Causes serious eye damage.
May cause respiratory irritation.
Suspected of causing genetic defects.
May cause cancer if swallowed.
Suspected of damaging the unborn child.
Causes damage to organs.
May cause damage to organs through prolonged or repeated exposure.
Causes severe burns.
Causes digestive tract burns.

Protection of first-aiders: First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Notes to physician: Treat symptomatically and supportively.

5. FIREFIGHTING MEASURES

Suitable extinguishing media:
Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media:
High volume water jet
Specific hazards during fire-fighting: Do not use a solid water stream as it may scatter and spread fire. Flash back possible over considerable distance. Vapours may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Carbon oxides
Metal oxides
Nitrogen oxides (NOx)

Specific extinguishing methods: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Remove all sources of ignition. Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

7. HANDLING AND STORAGE

Handling
Technical measures: See Engineering measures under EXPOSURE
### Local/Total ventilation
- If sufficient ventilation is unavailable, use with local exhaust ventilation.
- If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

### Advice on safe handling
- Do not get on skin or clothing.
- Do not breathe vapours or spray mist.
- Do not swallow.
- Do not get in eyes.
- Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment.
- Non-sparking tools should be used.
- Keep container tightly closed.
- Already sensitised individuals should consult their physician regarding working with respiratory irritants or sensitisers.
- Keep away from heat and sources of ignition.
- Take precautionary measures against static discharges.
- Take care to prevent spills, waste and minimize release to the environment.

### Avoidance of contact
- Oxidizing agents

### Hygiene measures
- If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
- When using do not eat, drink or smoke.
- Wash contaminated clothing before re-use.
- The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

### Storage
- Keep in properly labelled containers.
- Store locked up.
- Keep tightly closed.
- Keep in a cool, well-ventilated place.
- Store in accordance with the particular national regulations.
- Keep away from heat and sources of ignition.

### Materials to avoid
- Do not store with the following product types:
  - Oxidizing solids
  - Oxidizing liquids

### Packaging material
- Unsuitable material: None known.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Threshold limit value and permissible exposure limits for each component in the work environment

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tar, coal</td>
<td>8007-45-2</td>
<td>ACL</td>
<td>0.2 mg/m³ (soluble in ben-</td>
<td>JP OEL ISHL</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

Dichlofenthion Formulation

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Target substance</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>OEL-M</td>
<td>50 ppm</td>
<td>217 mg/m³</td>
<td>JP OEL ISHL</td>
<td>JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ACL</td>
<td>20 ppm</td>
<td>JP OEL ISHL</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TWA</td>
<td>20 ppm</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td>Xylene</td>
<td>1330-20-7</td>
<td>ACL</td>
<td>50 ppm</td>
<td>217 mg/m³</td>
<td>JP OEL ISHL</td>
<td>JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OEL-M</td>
<td>50 ppm</td>
<td>217 mg/m³</td>
<td>JP OEL ISHL</td>
<td>JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ACL</td>
<td>20 ppm</td>
<td>JP OEL ISHL</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TWA</td>
<td>20 ppm</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td>Dichlofenthion (ISO)</td>
<td>97-17-6</td>
<td>TWA</td>
<td>20 µg/m³ (OEB 3)</td>
<td>Internal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>OEL-C</td>
<td>2 mg/m³</td>
<td>JP OEL ISHL</td>
<td></td>
<td>JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C</td>
<td>2 mg/m³</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>OEL-M</td>
<td>5 ppm</td>
<td>19 mg/m³</td>
<td>JP OEL ISHL</td>
<td>JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ACL</td>
<td>5 ppm</td>
<td>JP OEL ISHL</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OEL-M</td>
<td>5 ppm</td>
<td>JP OEL ISHL</td>
<td>JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TWA</td>
<td>100 ppm</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STEL</td>
<td>150 ppm</td>
<td>ACGIH</td>
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</tr>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>OEL-M</td>
<td>5 ppm</td>
<td>19 mg/m³</td>
<td>JP OEL ISHL</td>
<td>JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ACL</td>
<td>5 ppm</td>
<td>JP OEL ISHL</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OEL-M</td>
<td>5 ppm</td>
<td>JP OEL ISHL</td>
<td>JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TWA (Inhalable fraction and vapor)</td>
<td>20 mg/m³</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td>m-Cresol</td>
<td>108-39-4</td>
<td>ACL</td>
<td>5 ppm</td>
<td>JP OEL ISHL</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>OEL-M</td>
<td>5 ppm</td>
<td>22 mg/m³</td>
<td>JP OEL ISHL</td>
<td>JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ACL</td>
<td>5 ppm</td>
<td>JP OEL ISHL</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OEL-M</td>
<td>5 ppm</td>
<td>JP OEL ISHL</td>
<td>JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TWA (Inhalable fraction and vapor)</td>
<td>20 mg/m³</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td>p-Cresol</td>
<td>106-44-5</td>
<td>ACL</td>
<td>5 ppm</td>
<td>JP OEL ISHL</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>OEL-M</td>
<td>5 ppm</td>
<td>22 mg/m³</td>
<td>JP OEL ISHL</td>
<td>JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ACL</td>
<td>5 ppm</td>
<td>JP OEL ISHL</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OEL-M</td>
<td>5 ppm</td>
<td>JP OEL ISHL</td>
<td>JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TWA (Inhalable fraction and vapor)</td>
<td>20 mg/m³</td>
<td>ACGIH</td>
<td></td>
</tr>
</tbody>
</table>

Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Target substance</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>Phenol</td>
<td>Urine</td>
<td>End of shift</td>
<td>250 mg/g Creatinine</td>
<td>JSOH</td>
</tr>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>Phenol</td>
<td>Urine</td>
<td>End of shift</td>
<td>250 mg/g</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>
**Engineering measures**

Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections). All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment. Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices). Minimize open handling.

**Personal protective equipment**

**Respiratory protection**

If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

*Filter type*

Combined particulates and organic vapour type

*Material*

Chemical-resistant gloves

*Remarks*

Consider double gloving. Take note that the product is flammable, which may impact the selection of hand protection.

**Eye protection**

Wear safety glasses with side shields or goggles. If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles. Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.

**Skin and body protection**

Work uniform or laboratory coat.
Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces. Use appropriate degowning techniques to remove potentially contaminated clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>viscous liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>dark, brown</td>
</tr>
<tr>
<td>Odour</td>
<td>strong</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point, initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (liquids)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>30 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>No data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Density and / or relative density</td>
<td></td>
</tr>
</tbody>
</table>
Relative density : No data available
Density : 1,009 - 1,051 g/cm³ (20 °C)
Relative vapour density : No data available
Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing.
Particle characteristics
Particle size : Not applicable

10. STABILITY AND REACTIVITY
Reactivity : Not classified as a reactivity hazard.
Chemical stability : Stable under normal conditions.
Possibility of hazardous reactions
: Flammable liquid and vapour.
: Vapours may form explosive mixture with air.
: Can react with strong oxidizing agents.
Conditions to avoid
: Heat, flames and sparks.
Incompatible materials
: Oxidizing agents
Hazardous decomposition products
: No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION
Information on likely routes of exposure :
Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity
Harmful if swallowed.

Product:
Acute oral toxicity : Acute toxicity estimate: 1,713 mg/kg
Method: Calculation method
Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method
Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Components:
Tar, wood:
Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
**Rosin:**
- **Acute oral toxicity**: LD50 (Rat): 2,800 mg/kg
- **Acute dermal toxicity**: LD50 (Rat): > 2,000 mg/kg

**Tar, coal:**
- **Acute oral toxicity**: LD50 (Rat): 1,700 mg/kg
- **Acute dermal toxicity**: LD50 (Rabbit): > 5,000 mg/kg

**Ethylbenzene:**
- **Acute oral toxicity**: LD50 (Rat): 3,500 mg/kg
- **Acute inhalation toxicity**: LC50 (Rat): 17.8 mg/l
  - Exposure time: 4 h
  - Test atmosphere: vapour
- **Acute dermal toxicity**: LD50 (Rabbit): > 5,000 mg/kg

**Xylene:**
- **Acute oral toxicity**: LD50 (Rat): 3,523 mg/kg
- **Acute inhalation toxicity**: LC50 (Rat): 27,571 mg/l
  - Exposure time: 4 h
  - Test atmosphere: vapour
- **Acute dermal toxicity**: LD50 (Rabbit): > 4,200 mg/kg

**Dichlofenthion (ISO):**
- **Acute oral toxicity**: LD50 (Rat): 172 mg/kg
- **Acute inhalation toxicity**: LC50 (Rat): 1.75 mg/l
- **Acute dermal toxicity**: LD50 (Rat): 355 mg/kg
  - LD50 (Rabbit): 6,000 mg/kg

**Sodium hydroxide:**
- **Acute inhalation toxicity**: Assessment: Corrosive to the respiratory tract.
Phenol:
Acute oral toxicity: LD50 (Rat): 650 mg/kg
Method: OECD Test Guideline 401

Acute toxicity estimate (Humans): 140 - 290 mg/kg
Method: Expert judgement

Acute inhalation toxicity: LC0 (Rat): 0.9 mg/l
Exposure time: 8 h
Test atmosphere: dust/mist
Assessment: Corrosive to the respiratory tract.

Acute toxicity estimate (Humans): > 0.9 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgement

Acute dermal toxicity: LD50 (Rabbit): 660 mg/kg
Method: OECD Test Guideline 402

Acute toxicity estimate (Humans): 300 mg/kg
Method: Expert judgement

m-Cresol:
Acute oral toxicity: LD50 (Rat): 121 mg/kg
Remarks: Based on data from similar materials

Acute inhalation toxicity: Assessment: Corrosive to the respiratory tract.

Acute dermal toxicity: LD50 (Rabbit): 301 mg/kg
Remarks: Based on data from similar materials

p-Cresol:
Acute oral toxicity: LD50 (Rat): 172 - 250 mg/kg

Acute inhalation toxicity: Assessment: Corrosive to the respiratory tract.

Acute dermal toxicity: LD50 (Rabbit): 213 - 426 mg/kg

Skin corrosion/irritation
Causes severe burns.

Components:

Tar, wood:
Method: OECD Test Guideline 439
Result: Skin irritation

Rosin:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation
Tar, coal:
- Species: Rabbit
- Result: Mild skin irritation

Xylene:
- Species: Rabbit
- Result: Skin irritation

Dichlofenthion (ISO):
- Result: Mild skin irritation
- Remarks: Based on data from similar materials

Sodium hydroxide:
- Result: Corrosive after 3 minutes or less of exposure

Phenol:
- Species: Rabbit
- Result: Corrosive after 3 minutes to 1 hour of exposure

m-Cresol:
- Species: Rabbit
- Result: Corrosive after 3 minutes to 1 hour of exposure

p-Cresol:
- Species: Rabbit
- Result: Corrosive after 3 minutes to 1 hour of exposure

Serious eye damage/eye irritation
Causes serious eye damage.

Components:

Tar, wood:
- Result: Irritation to eyes, reversing within 7 days

Rosin:
- Species: Rabbit
- Result: No eye irritation
- Method: OECD Test Guideline 405

Tar, coal:
- Species: Human
- Result: Irreversible effects on the eye

Xylene:
- Species: Rabbit
**Result**: Irritation to eyes, reversing within 21 days

**Sodium hydroxide**:  
- **Result**: Irreversible effects on the eye  
- **Remarks**: Based on skin corrosivity.

**Phenol**:  
- **Species**: Rabbit  
- **Result**: Irreversible effects on the eye  
- **Method**: OECD Test Guideline 405

**m-Cresol**:  
- **Species**: Rabbit  
- **Result**: Irreversible effects on the eye

**p-Cresol**:  
- **Species**: Rabbit  
- **Result**: Irreversible effects on the eye

**Respiratory or skin sensitisation**

**Skin sensitisation**
May cause an allergic skin reaction.

**Respiratory sensitisation**
Not classified based on available information.

**Components:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Test Type</th>
<th>Exposure routes</th>
<th>Species</th>
<th>Method</th>
<th>Result</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tar, wood</td>
<td>Local lymph node assay (LLNA)</td>
<td>Skin contact</td>
<td>Mouse</td>
<td>OECD Test Guideline 429</td>
<td>positive</td>
<td>Probability or evidence of low to moderate skin sensitisation rate in humans</td>
</tr>
<tr>
<td>Rosin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Probability or evidence of skin sensitisation in humans</td>
</tr>
<tr>
<td>Tar, coal</td>
<td>Local lymph node assay (LLNA)</td>
<td>Skin contact</td>
<td>Mouse</td>
<td>OECD Test Guideline 429</td>
<td>positive</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>
Assessment: Probability or evidence of skin sensitisation in humans

**Xylene:**
- **Test Type:** Local lymph node assay (LLNA)
- **Exposure routes:** Skin contact
- **Species:** Mouse
- **Result:** negative

**Dichlofenthion (ISO):**
- **Exposure routes:** Dermal
- **Assessment:** Does not cause skin sensitisation.
- **Result:** Weak sensitizer
- **Remarks:** Based on data from similar materials

**Sodium hydroxide:**
- **Test Type:** Human repeat insult patch test (HRIPT)
- **Exposure routes:** Skin contact
- **Result:** negative

**Phenol:**
- **Test Type:** Buehler Test
- **Exposure routes:** Skin contact
- **Species:** Guinea pig
- **Method:** OECD Test Guideline 406
- **Result:** negative

**p-Cresol:**
- **Test Type:** Draize Test
- **Exposure routes:** Skin contact
- **Species:** Guinea pig
- **Result:** negative

**Germ cell mutagenicity**
Suspected of causing genetic defects.

**Components:**

**Tar, wood:**
- **Genotoxicity in vitro:** Test Type: Bacterial reverse mutation assay (AMES)
  Method: OECD Test Guideline 471
  Result: negative

**Rosin:**
- **Genotoxicity in vitro:** Test Type: Bacterial reverse mutation assay (AMES)
  Method: OECD Test Guideline 471
  Result: negative
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: positive Remarks: Based on data from similar materials

Germ cell mutagenicity - Assessment: Positive result(s) from in vivo non-mammalian somatic cell mutagenicity tests, supported by positive results from in vitro mutagenicity assays. Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Ethylbenzene:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES) Result: negative
Test Type: In vitro mammalian cell gene mutation test Method: OECD Test Guideline 476 Result: negative
Test Type: Chromosome aberration test in vitro Result: negative

Genotoxicity in vivo: Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo Species: Mouse Application Route: Inhalation Method: OECD Test Guideline 486 Result: negative

Xylene:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES) Result: negative
Test Type: Chromosome aberration test in vitro Result: negative
Test Type: In vitro mammalian cell gene mutation test Result: negative
Test Type: In vitro sister chromatid exchange assay in mammalian cells Result: negative

Genotoxicity in vivo: Test Type: Rodent dominant lethal test (germ cell) (in vivo) Species: Mouse Application Route: Skin contact Result: negative

Phenol:
Genotoxicity in vitro: Test Type: Chromosome aberration test in vitro Method: OECD Test Guideline 473 Result: positive
Genotoxicity in vivo:
- Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
  - Species: Mouse
  - Application Route: Intraperitoneal injection
  - Method: OECD Test Guideline 474
  - Result: positive
  - Remarks: Annex VI From 1272/2008

Germ cell mutagenicity - Assessment:
- Positive result(s) from in vivo mammalian somatic cell mutagenicity tests.

m-Cresol:
- Genotoxicity in vitro:
  - Test Type: Chromosome aberration test in vitro
    - Method: OECD Test Guideline 473
    - Result: positive
  - Test Type: Bacterial reverse mutation assay (AMES)
    - Method: OECD Test Guideline 471
    - Result: negative

Genotoxicity in vivo:
- Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
  - Species: Mouse
  - Application Route: Ingestion
  - Method: OECD Test Guideline 475
  - Result: negative

p-Cresol:
- Genotoxicity in vitro:
  - Test Type: Chromosome aberration test in vitro
    - Method: OECD Test Guideline 473
    - Result: positive
  - Test Type: In vitro mammalian cell gene mutation test
    - Method: OECD Test Guideline 476
    - Result: negative

Genotoxicity in vivo:
- Test Type: Rodent dominant lethal test (germ cell) (in vivo)
  - Species: Mouse
  - Application Route: Ingestion
  - Method: OECD Test Guideline 478
  - Result: negative

Carcinogenicity:
May cause cancer if swallowed.

Components:

Tar, coal:
- Species: Mouse
- Application Route: Ingestion
- Exposure time: 2 Years
- Result: positive
### Carcinogenicity - Assessment

**Remarks:** Positive evidence from human epidemiological studies (oral)

**Remarks:** Based on harmonised classification in EU regulation 1272/2008, Annex VI

### Ethylbenzene:

**Species:** Rat

**Application Route:** Inhalation (vapour)

**Exposure time:** 104 weeks

**Result:** positive

**Remarks:** The mechanism or mode of action may not be relevant in humans.

### Xylene:

**Species:** Rat

**Application Route:** Ingestion

**Exposure time:** 103 weeks

**Result:** negative

### Phenol:

**Species:** Mouse

**Application Route:** Ingestion

**Exposure time:** 103 weeks

**Method:** OECD Test Guideline 451

**Result:** negative

### m-Cresol:

**Species:** Mouse, males

**Application Route:** Ingestion

**Exposure time:** 105 weeks

**Result:** equivocal

**Remarks:** Based on data from similar materials

### p-Cresol:

**Species:** Mouse

**Application Route:** Ingestion

**Exposure time:** 106 - 107 weeks

**Result:** positive

**Remarks:** Based on data from similar materials

### Reproductive toxicity

Suspected of damaging the unborn child.
Components:

Rosin:

Effects on fertility: Test Type: Reproduction/Developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 421
Result: negative

Effects on foetal development: Test Type: Reproduction/Developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 421
Result: negative

Ethylbenzene:

Effects on fertility: Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (vapour)
Method: OECD Test Guideline 416
Result: negative

Effects on foetal development: Test Type: Embryo-foetal development
Species: Rat
Application Route: Inhalation
Method: OECD Test Guideline 414
Result: negative

Xylene:

Effects on fertility: Test Type: One-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (vapour)
Result: negative

Effects on foetal development: Test Type: Embryo-foetal development
Species: Rat
Application Route: inhalation (vapour)
Result: negative

Dichlofenthion (ISO):

Effects on foetal development: Test Type: Development
Species: Mouse
Application Route: Intraperitoneal
Developmental Toxicity: LOAEL: 80 mg/kg body weight
Result: Reduced foetal weight, Embryotoxic effects.
Remarks: Based on data from similar materials

Test Type: Development
Species: Rat
Application Route: Intraperitoneal
Developmental Toxicity: LOAEL: 10 mg/kg body weight
SAFETY DATA SHEET

Dichlofenthion Formulation

Result: Reduced foetal weight, Embryotoxic effects., No teratogenic effects
Remarks: Based on data from similar materials

Reproductive toxicity - Assessment:

Phenol:
Effects on fertility:
- Test Type: Two-generation reproduction toxicity study
- Species: Rat
- Application Route: Ingestion
- Method: OECD Test Guideline 416
- Result: negative

Effects on foetal development:
- Test Type: Embryo-foetal development
- Species: Mouse
- Application Route: Ingestion
- Method: OECD Test Guideline 414
- Result: negative

m-Cresol:
Effects on fertility:
- Test Type: Two-generation reproduction toxicity study
- Species: Rat
- Application Route: Ingestion
- Result: negative

Effects on foetal development:
- Test Type: Prenatal development toxicity study (teratogenicity)
- Species: Rat
- Application Route: Ingestion
- Result: negative

p-Cresol:
Effects on fertility:
- Test Type: Two-generation reproduction toxicity study
- Species: Rat
- Application Route: Ingestion
- Result: negative

Effects on foetal development:
- Test Type: Embryo-foetal development
- Species: Rat
- Application Route: Ingestion
- Result: negative

STOT - single exposure
May cause respiratory irritation.
Causes damage to organs (Nervous system).

Components:

Tar, coal:
- Exposure routes: Ingestion
- Target Organs: Nervous system
- Assessment: Shown to produce significant health effects in animals at concentrations of 300 mg/kg bw or less.
Xylene:
Assessment: May cause respiratory irritation.

**STOT - repeated exposure**
May cause damage to organs (Nervous system, Respiratory Tract) through prolonged or repeated exposure.

**Components:**

**Tar, coal:**
Target Organs: Respiratory Tract
Assessment: Shown to produce significant health effects in animals at concentrations of >0.02 to 0.2 mg/l/6h/d.

**Exposure routes:**
- Target Organs: Respiratory Tract
- Assessment: Shown to produce significant health effects in animals at concentrations of >0.02 to 0.2 mg/l/6h/d.

**Ethylbenzene:**
Exposure routes: inhalation (vapour)
Target Organs: Auditory system
Assessment: Shown to produce significant health effects in animals at concentrations of >0.2 to 1 mg/l/6h/d.

**Xylene:**
Exposure routes: inhalation (vapour)
Target Organs: Auditory system
Assessment: Shown to produce significant health effects in animals at concentrations of >0.2 to 1 mg/l/6h/d.

**Dichlofenthion (ISO):**
Target Organs: Nervous system
Assessment: Causes damage to organs through prolonged or repeated exposure.
Remarks: Based on human experience.

**Phenol:**
Target Organs: Central nervous system, Kidney, Liver, Skin
Assessment: May cause damage to organs through prolonged or repeated exposure.

**Repeated dose toxicity**

**Components:**

**Ethylbenzene:**
- Species: Rat
- LOAEL: 0.868 mg/l
- Application Route: Inhalation (vapour)
<table>
<thead>
<tr>
<th>Substance</th>
<th>Species</th>
<th>NOAEL</th>
<th>LOAEL</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dichlofenthion Formulation</td>
<td>Rat</td>
<td>75 mg/kg</td>
<td>250 mg/kg</td>
<td>Ingestion</td>
<td>13 Weeks</td>
<td></td>
</tr>
<tr>
<td>Xylene</td>
<td>Rat</td>
<td></td>
<td>&gt;= 0.2 - 1 mg/l</td>
<td>Inhalation (vapour)</td>
<td>13 Weeks</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>Phenol</td>
<td>Rat</td>
<td>&gt;= 0.1 mg/l</td>
<td></td>
<td>Ingestion</td>
<td>90 Days</td>
<td></td>
</tr>
<tr>
<td>m-Cresol</td>
<td>Rat</td>
<td>150 mg/kg</td>
<td></td>
<td>Ingestion</td>
<td>18 Days</td>
<td></td>
</tr>
</tbody>
</table>
### Dichlofenthion Formulation

**Exposure time:** 13 Weeks  
**Method:** OECD Test Guideline 408

**p-Cresol:**  
| Species | Rat  
| NOAEL   | 50 mg/kg  
| LOAEL   | 175 mg/kg  
| Application Route | Ingestion  
| Exposure time | 90 Days  
| Method | OECD Test Guideline 408

**Aspiration toxicity**  
May be fatal if swallowed and enters airways.

**Product:**  
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

**Components:**

**Ethylbenzene:**  
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

**Xylene:**  
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

**Experience with human exposure**

**Components:**

**Dichlofenthion (ISO):**  
| Skin contact | Symptoms: irritating, central nervous system effects, sweating  
| Remarks: Can be absorbed through skin.  
| May cause sensitisation by skin contact.  
| Eye contact | Symptoms: constriction of pupils, central nervous system effects  
| Ingestion | Symptoms: Nausea, Diarrhoea, Vomiting, sweating, Lachrymation, constriction of pupils, Central nervous system depression, Gastrointestinal disturbance, bronchospasm, central nervous system effects, Oedema
12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Components:**

**Tar, wood:**
- **Toxicity to daphnia and other aquatic invertebrates**: EC50 (Daphnia magna (Water flea)): 28 mg/l  
  Exposure time: 48 h  
  Method: OECD Test Guideline 202
- **Toxicity to algae/aquatic plants**: EC50 (Desmodesmus subspicatus (green algae)): 17 mg/l  
  Exposure time: 72 h  
  Method: OECD Test Guideline 201

**Rosin:**
- **Toxicity to fish**: LL50 (Danio rerio (zebra fish)): > 1 - < 10 mg/l  
  Exposure time: 96 h  
  Test substance: Water Accommodated Fraction  
  Method: OECD Test Guideline 203
- **Toxicity to daphnia and other aquatic invertebrates**: EL50 (Daphnia magna (Water flea)): 911 mg/l  
  Exposure time: 48 h  
  Test substance: Water Accommodated Fraction  
  Method: OECD Test Guideline 202
- **Toxicity to algae/aquatic plants**: NOELR (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l  
  Exposure time: 72 h  
  Test substance: Water Accommodated Fraction  
  Method: OECD Test Guideline 201
- **Toxicity to microorganisms**: EC50: > 10,000 mg/l  
  Exposure time: 3 h  
  Method: OECD Test Guideline 209

**Tar, coal:**
- **Toxicity to fish**: LL50 (Danio rerio (zebra fish)): > 250 mg/l  
  Exposure time: 96 h  
  Test substance: Water Accommodated Fraction  
  Method: OECD Test Guideline 203  
  Remarks: Based on data from similar materials
- **Toxicity to daphnia and other aquatic invertebrates**: EL50 (Daphnia magna (Water flea)): 2.8 mg/l  
  Exposure time: 48 h  
  Test substance: Water Accommodated Fraction  
  Method: OECD Test Guideline 202  
  Remarks: Based on data from similar materials
### Dichlofenthion Formulation

**Toxicity to algae/aquatic plants**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Endpoint</th>
<th>Value</th>
<th>Exposure Time</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylbenzene</td>
<td>EL50</td>
<td>36 mg/l</td>
<td>72 h</td>
<td>OECD Test Guideline 201</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td></td>
<td>NOELR</td>
<td>5 mg/l</td>
<td>72 h</td>
<td>OECD Test Guideline 201</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>Xylene</td>
<td>EC50</td>
<td>&gt; 1 - 10 mg/l</td>
<td>24 h</td>
<td>OECD Test Guideline 202</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td></td>
<td>NOEC</td>
<td>&gt; 0.1 - &lt; 1 mg/l</td>
<td>35 d</td>
<td>OECD Test Guideline 210</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**Ethylbenzene:**

- **Toxicity to fish**
  - LC50 ( Oncorhynchus mykiss (rainbow trout)): 4.2 mg/l
  - Exposure time: 96 h
  - Method: OECD Test Guideline 203

- **Toxicity to daphnia and other aquatic invertebrates**
  - EC50 ( Daphnia magna (Water flea)): 1.8 - 2.4 mg/l
  - Exposure time: 48 h

- **Toxicity to algae/aquatic plants**
  - EC50 ( Pseudokirchneriella subcapitata (green algae)): 3.6 mg/l
  - Exposure time: 96 h
  - NOEC ( Pseudokirchneriella subcapitata (green algae)): 3.4 mg/l
  - Exposure time: 96 h

- **Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**
  - NOEC ( Ceriodaphnia dubia (water flea)): 0.96 mg/l
  - Exposure time: 7 d

- **Toxicity to microorganisms**
  - EC50 ( Nitrosomonas sp.): 96 mg/l
  - Exposure time: 24 h

**Xylene:**

- **Toxicity to fish**
  - LC50 ( Oncorhynchus mykiss (rainbow trout)): 13.5 mg/l
  - Exposure time: 96 h

- **Toxicity to daphnia and other aquatic invertebrates**
  - EC50 ( Daphnia magna (Water flea)): > 1 - 10 mg/l
  - Exposure time: 24 h
  - Method: OECD Test Guideline 202
  - Remarks: Based on data from similar materials

- **Toxicity to algae/aquatic plants**
  - EC50 ( Skeletonema costatum (marine diatom)): 10 mg/l
  - Exposure time: 72 h

- **Toxicity to fish (Chronic toxicity)**
  - NOEC ( Danio rerio (zebra fish)): > 0.1 - < 1 mg/l
  - Exposure time: 35 d
  - Method: OECD Test Guideline 210
  - Remarks: Based on data from similar materials

- **Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**
  - EL10 ( Daphnia magna (Water flea)): > 1 - 10 mg/l
  - Exposure time: 21 d
  - Method: OECD Test Guideline 211
  - Remarks: Based on data from similar materials
Dichlofenthion Formulation

Toxicity to microorganisms: NOEC: > 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

Dichlofenthion (ISO):

Toxicity to fish: LC50 (No species specified): 0.64 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

LC50 (Lepomis macrochirus (Bluegill sunfish)): 1.23 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 0.0011 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

M-Factor (Acute aquatic toxicity): 100
M-Factor (Chronic aquatic toxicity): 100

Phenol:

Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): 24.9 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Ceriodaphnia dubia (water flea)): 3.1 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants: EC50 (Selenastrum capricornutum (green algae)): 61.1 mg/l
Exposure time: 96 h

Toxicity to fish (Chronic toxicity): NOEC: 0.077 mg/l
Exposure time: 60 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC (Daphnia magna (Water flea)): 10 mg/l
Exposure time: 16 d

Toxicity to microorganisms: IC50 (Nitrosomonas sp.): 21 mg/l
Exposure time: 24 h

m-Cresol:

Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 8.6 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia pulex (Water flea)): > 99.5 mg/l
Exposure time: 48 h

Toxicity to fish (Chronic toxicity): NOEC (Pimephales promelas (fathead minnow)): 1.35 mg/l
Exposure time: 32 d
Remarks: Based on data from similar materials

Toxicity to daphnia and other: NOEC (Daphnia magna (Water flea)): 1 mg/l
 aquatic invertebrates (Chronic toxicity)
Exposure time: 21 d
Remarks: Based on data from similar materials

p-Cresol:
Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 7.4 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 7.7 mg/l
Exposure time: 48 h
Method: DIN 38412

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 7.8 mg/l
Exposure time: 48 h
EC10 (Desmodesmus subspicatus (green algae)): 2.3 mg/l
Exposure time: 48 h

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 1.35 mg/l
Exposure time: 32 d

Toxicity to daphnia and other aquatic invertebrates : NOEC (Daphnia magna (Water flea)): 1 mg/l
Exposure time: 21 d

Toxicity to microorganisms : IC50 (Nitrosomonas sp.): 260 mg/l
Exposure time: 24 h

Ethylbenzene:
Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 4.2 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.8 - 2.4 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 3.6 mg/l
Exposure time: 96 h
NOEC (Pseudokirchneriella subcapitata (green algae)): 3.4 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia dubia (water flea)): 0.96 mg/l
Exposure time: 7 d

Toxicity to microorganisms : EC50 (Nitrosomonas sp.): 96 mg/l
Exposure time: 24 h

Xylene:
Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 13.5 mg/l
Exposure time: 96 h

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l
aquatic invertebrates: Exposure time: 24 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants:
EC50 (Skeletonema costatum (marine diatom)): 10 mg/l
Exposure time: 72 h

Toxicity to fish (Chronic toxicity):
NOEC (Danio rerio (zebra fish)): > 0.1 - < 1 mg/l
Exposure time: 35 d
Method: OECD Test Guideline 210
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
EL10 (Daphnia magna (Water flea)): > 1 - 10 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211
Remarks: Based on data from similar materials

Toxicity to microorganisms:
NOEC: > 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

Phenol:
Toxicity to fish:
LC50 (Pimephales promelas (fathead minnow)): 24.9 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Ceriodaphnia dubia (water flea)): 3.1 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants:
EC50 (Selenastrum capricornutum (green algae)): 61.1 mg/l
Exposure time: 96 h

Toxicity to fish (Chronic toxicity):
NOEC: 0.077 mg/l
Exposure time: 60 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
NOEC (Daphnia magna (Water flea)): 10 mg/l
Exposure time: 16 d

Toxicity to microorganisms:
IC50 (Nitrosomonas sp.): 21 mg/l
Exposure time: 24 h

Persistence and degradability

Components:

Tar, wood:
Biodegradability:
Result: Not readily biodegradable.
Biodegradation: 47 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Rosin:
Biodegradability:
Result: Readily biodegradable.
**Ethylbenzene:**
- Biodegradation: 71%
- Exposure time: 28 d
- Method: OECD Test Guideline 301D

**Xylene:**
- Biodegradability: Result: Readily biodegradable.
- Biodegradation: > 70%
- Exposure time: 28 d
- Method: OECD Test Guideline 301F
- Remarks: Based on data from similar materials

**Phenol:**
- Biodegradability: Result: Readily biodegradable.
- Biodegradation: 62%
- Exposure time: 10 d
- Method: OECD Test Guideline 301C

**m-Cresol:**
- Biodegradability: Result: Readily biodegradable.
- Biodegradation: 90%
- Exposure time: 28 d
- Method: OECD Test Guideline 301D

**p-Cresol:**
- Biodegradability: Result: Readily biodegradable.
- Biodegradation: 100%
- Exposure time: 8 d
### Bioaccumulative potential

#### Components:

<table>
<thead>
<tr>
<th>Component</th>
<th>Bioaccumulation</th>
<th>Partition coefficient: n-octanol/water</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tar, wood</td>
<td></td>
<td>log Pow: 0.2 - 2.02</td>
<td></td>
</tr>
<tr>
<td>Rosin</td>
<td></td>
<td>log Pow: 3 - 6.2</td>
<td></td>
</tr>
<tr>
<td>Tar, coal</td>
<td></td>
<td>Remarks: No data available</td>
<td></td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td></td>
<td>log Pow: 3.6</td>
<td></td>
</tr>
<tr>
<td>Xylene</td>
<td></td>
<td>log Pow: 3.16</td>
<td>Remarks: Calculation</td>
</tr>
<tr>
<td>Dichlofenthion (ISO)</td>
<td></td>
<td>log Pow: 5.14</td>
<td></td>
</tr>
<tr>
<td>Phenol</td>
<td></td>
<td>log Pow: 1.47</td>
<td></td>
</tr>
<tr>
<td>m-Cresol</td>
<td></td>
<td>Species: Leuciscus idus (Golden orfe)</td>
<td></td>
</tr>
<tr>
<td>p-Cresol</td>
<td></td>
<td>Species: Leuciscus idus (Golden orfe)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bioconcentration factor (BCF): 17 - 20</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remarks: Based on data from similar materials</td>
<td></td>
</tr>
</tbody>
</table>

Method: OECD Test Guideline 301C
Ethylbenzene:
Partition coefficient: n-octanol/water : log Pow: 3.6

Xylene:
Partition coefficient: n-octanol/water : log Pow: 3.16
Remarks: Calculation

Phenol:
Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 17.5
Method: OECD Test Guideline 305
Partition coefficient: n-octanol/water : log Pow: 1.47

Mobility in soil
No data available

Hazardous to the ozone layer
Not applicable

Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues : Dispose of in accordance with local regulations.
Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal. Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.
If not otherwise specified: Dispose of as unused product.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number : UN 2920
Proper shipping name : CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Sodium hydroxide, Ethylbenzene)
Class : 8
Subsidiary risk : 3
Packing group : II
Labels : 8 (3)

IATA-DGR
UN/ID No. : UN 2920
Proper shipping name : Corrosive liquid, flammable, n.o.s. (Sodium hydroxide, Ethylbenzene)
Class : 8
SAFETY DATA SHEET

Dichlofenthion Formulation

Version 4.0 Revision Date: 2020/03/23 SDS Number: 1552600-00007 Date of last issue: 2019/09/13 Date of first issue: 2017/04/14

Subsidiary risk: 3
Packing group: II
Labels: Corrosive, Flammable Liquids
Packing instruction (cargo aircraft): 855
Packing instruction (passenger aircraft): 851

IMDG-Code
UN number: UN 2920
Proper shipping name: CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Sodium hydroxide, Ethylbenzene, Dichlofenthion (ISO))

Class: 8
Subsidiary risk: 3
Packing group: II
Labels: 8 (3)
EmS Code: F-E, S-C
Marine pollutant: yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations
Refer to section 15 for specific national regulation.

Special precautions for user
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15. REGULATORY INFORMATION

Related Regulations

Fire Service Law
Group 4, Type 2 petroleums, Water insoluble liquid, (1000 litre), Hazardous rank III

Chemical Substance Control Law
Priority Assessment Chemical Substance

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal tar</td>
<td>162</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>50</td>
</tr>
<tr>
<td>Xylene</td>
<td>125</td>
</tr>
<tr>
<td>Cresol</td>
<td>156</td>
</tr>
<tr>
<td>Phenol</td>
<td>62</td>
</tr>
</tbody>
</table>

Industrial Safety and Health Law

Harmful Substances Prohibited from Manufacture
Not applicable

Harmful Substances Required Permission for Manufacture
Not applicable

Substances Prevented From Impairment of Health

<table>
<thead>
<tr>
<th>Chemical name</th>
</tr>
</thead>
</table>

32 / 36
Circular concerning Information on Chemicals having Mutagenicity - Annex 2: Information on Existing Chemicals having Mutagenicity
Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 1: Information on Notified Substances having Mutagenicity
Not applicable

Substances Subject to be Notified Names
Article 57-2 (Enforcement Order Table 9)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosin</td>
<td>632</td>
<td>&gt;=10 - &lt;20</td>
</tr>
<tr>
<td>Coal tar</td>
<td>174</td>
<td>&gt;=10 - &lt;20</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>70</td>
<td>&gt;=1 - &lt;10</td>
</tr>
<tr>
<td>Xylene</td>
<td>136</td>
<td>&gt;=1 - &lt;10</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>319</td>
<td>&gt;=1 - &lt;10</td>
</tr>
<tr>
<td>Phenol</td>
<td>474</td>
<td>&gt;=1 - &lt;10</td>
</tr>
<tr>
<td>Cresol</td>
<td>141</td>
<td>&gt;=1 - &lt;10</td>
</tr>
</tbody>
</table>

Substances Subject to be Indicated Names
Article 57 (Enforcement Order Article 18)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosin</td>
<td>632</td>
</tr>
<tr>
<td>Coal tar</td>
<td>174</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>70</td>
</tr>
<tr>
<td>Xylene</td>
<td>136</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>319</td>
</tr>
<tr>
<td>Phenol</td>
<td>474</td>
</tr>
<tr>
<td>Cresol</td>
<td>141</td>
</tr>
</tbody>
</table>

Ordinance on Prevention of Hazards Due to Specified Chemical Substances - Group 2 Substance

<table>
<thead>
<tr>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>coal tar</td>
</tr>
<tr>
<td>Ethylbenzene</td>
</tr>
</tbody>
</table>

Ordinance on Prevention of Lead Poisoning
Not applicable

Ordinance on Prevention of Tetraalkyl Lead Poisoning
Not applicable

Ordinance on Prevention of Organic Solvent Poisoning
Organic Solvents Class 2

Enforcement Order of the Industrial Safety and Health Law - Attached table 1 (Dangerous Substances)
Inflammable Substance

Poisonous and Deleterious Substances Control Law
Not applicable
Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

Class I Designated Chemical Substances

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethylbenzene</td>
<td>53</td>
<td>9.8</td>
</tr>
<tr>
<td>xylene</td>
<td>80</td>
<td>9.3</td>
</tr>
<tr>
<td>phenol</td>
<td>349</td>
<td>1.9</td>
</tr>
<tr>
<td>cresol</td>
<td>86</td>
<td>2.1</td>
</tr>
</tbody>
</table>

High Pressure Gas Safety Act
Not applicable

Explosive Control Law
Not applicable

Vessel Safety Law
Corrosive substances (Article 2 and 3 of rules on shipping and storage of dangerous goods and its Attached Table 1)

Aviation Law
Corrosive substances (Article 194 of The Enforcement Rules of Aviation Law and its Attached Table 1)

Marine Pollution and Sea Disaster Prevention etc Law

Bulk transportation : Noxious liquid substance(Category X)
Pack transportation : Classified as marine pollutant

Narcotics and Psychotropics Control Act
Narcotic or Psychotropic Raw Material (Export / Import Permission)
Not applicable

Specific Narcotic or Psychotropic Raw Material (Export / Import permission)
Not applicable

Waste Disposal and Public Cleansing Law
Specially Controlled Industrial Waste

The components of this product are reported in the following inventories:
AICS : not determined
DSL : not determined
IECSC : not determined

16. OTHER INFORMATION

Further information

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.
SAFETY DATA SHEET

Dichlofenthion Formulation

Version: 4.0  Revision Date: 2020/03/23  SDS Number: 1552600-00007  Date of last issue: 2019/09/13  Date of first issue: 2017/04/14

Date format: yyyy/mm/dd

Full text of other abbreviations

ACGIH: USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI: ACGIH - Biological Exposure Indices (BEI)
JP OEL ISHL: Japan. Administrative Control Levels
JSOH: Occupational exposure limits based on biological monitoring (JSOH).

ACGIH / TWA: 8-hour, time-weighted average
ACGIH / STEL: Short-term exposure limit
ACGIH / C: Ceiling limit
JP OEL ISHL / ACL: Administrative Control level
JP OEL JSOH / OEL-M: Occupational Exposure Limit-Mean
JP OEL JSOH / OEL-C: Occupational Exposure Limit-Ceiling

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Lethal Dose to 50% of a test population; IC50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS mate-
Material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user’s end product, if applicable.

JP / EN