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

1.1 Product identifier
Trade name: Dichlofenthion Formulation

1.2 Relevant identified uses of the substance or mixture and uses advised against
Use of the Substance/Mixture: Veterinary product

1.3 Details of the supplier of the safety data sheet
Company: MSD
20 Spartan Road
1619 Spartan, South Africa
Telephone: +27119239300
E-mail address of person responsible for the SDS: EHSDATASTEWARD@msd.com

1.4 Emergency telephone number
+1-908-423-6000

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)
- Acute toxicity, Category 4: H302: Harmful if swallowed.
- Skin corrosion, Sub-category 1B: H314: Causes severe skin burns and eye damage.
- Serious eye damage, Category 1: H318: Causes serious eye damage.
- Skin sensitisation, Category 1: H317: May cause an allergic skin reaction.
- Germ cell mutagenicity, Category 1A: H341: Suspected of causing genetic defects.
- Carcinogenicity, Category 1A: H350: May cause cancer if swallowed.
- Reproductive toxicity, Category 2: H361d: Suspected of damaging the unborn child.
- Specific target organ toxicity - single exposure, Category 1: H370: Causes damage to organs.
- Specific target organ toxicity - single exposure, Category 3: H335: May cause respiratory irritation.
- Specific target organ toxicity - repeated exposure, Category 2: H373: May cause damage to organs through prolonged or repeated exposure.
- Aspiration hazard, Category 1: H304: May be fatal if swallowed and enters airways.
- Short-term (acute) aquatic hazard, Category 1: H400: Very toxic to aquatic life.
- Long-term (chronic) aquatic hazard, Category 1: H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements
Labelling (REGULATION (EC) No 1272/2008)
Dichlofenthion Formulation

Signal word: Danger

Hazard statements:
- H226 Flammable liquid and vapour.
- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H335 May cause respiratory irritation.
- H341 Suspected of causing genetic defects.
- H350 May cause cancer if swallowed.
- H361d Suspected of damaging the unborn child.
- H370 Causes damage to organs.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H410 Very toxic to aquatic life with long lasting effects.

Supplemental Hazard Statements:
- EUH071 Corrosive to the respiratory tract.

Precautionary statements:
- Prevention:
P201 Obtain special instructions before use.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:
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.
P391 Collect spillage.

Hazardous components which must be listed on the label:
- Tar, wood
- Rosin
- Tar, coal
- Ethylbenzene
- Dichlofenthion (ISO)
- Sodium hydroxide
- Phenol

Additional Labelling:
- Restricted to professional users.
2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Vapours may form explosive mixture with air.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Registration number</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Classification</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tar, wood</td>
<td>91722-33-7</td>
<td>294-436-0</td>
<td>Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1B; H317 Aquatic Chronic 3; H412</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>Rosin</td>
<td>8050-09-7</td>
<td>232-475-7</td>
<td>650-015-00-7</td>
<td>Skin Sens. 1; H317</td>
</tr>
<tr>
<td>Tar, coal</td>
<td>8007-45-2</td>
<td>232-361-7</td>
<td>648-081-00-7</td>
<td>Acute Tox. 4; H302 Eye Dam. 1; H318 Skin Sens. 1; H317 Muta. 2; H341 Carc. 1A; H350 STOT SE 1; H370 (Nervous system) STOT SE 3; H335 STOT RE 2; H373 (Respiratory Tract) Aquatic Chronic 2; H411</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>202-849-4</td>
<td>601-023-00-4</td>
<td>Flam. Liq. 2; H225 Acute Tox. 4; H332 STOT RE 2; H373 (Auditory system) Asp. Tox. 1; H304 Aquatic Chronic 3; H412</td>
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<tr>
<td>Xylene</td>
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<td>215-535-7</td>
<td>601-022-00-9</td>
<td>Flam. Liq. 3; H226 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335 STOT RE 2; H373 (Auditory system) Asp. Tox. 1; H304 Aquatic Chronic 3;</td>
</tr>
<tr>
<td>Substance</td>
<td>CAS Number</td>
<td>Hazards and Pictograms</td>
<td>M-Factor (Acute aquatic toxicity):</td>
<td></td>
</tr>
<tr>
<td>----------------------------</td>
<td>------------</td>
<td>-------------------------------------------------------------</td>
<td>-----------------------------------</td>
<td></td>
</tr>
<tr>
<td>Dichlofenthion (ISO)</td>
<td>97-17-6</td>
<td>Acute Tox. 3; H301; Acute Tox. 4; H332; Acute Tox. 3; H311 Repr. 2; H361d STOT RE 1; H372 (Nervous system) Aquatic Acute 1; H400 Aquatic Chronic 1; H410</td>
<td>100</td>
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</tr>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>Met. Corr. 1; H290; Skin Corr. 1A; H314; Eye Dam. 1; H318</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>Acute Tox. 3; H301; Acute Tox. 3; H331; Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318 Muta. 2; H341 STOT RE 2; H373 (Central nervous system, Kidney, Liver, Skin) Aquatic Chronic 2; H411</td>
<td>1 - &lt; 2,5</td>
<td></td>
</tr>
<tr>
<td>m-Cresol</td>
<td>108-39-4</td>
<td>Acute Tox. 3; H301; Acute Tox. 3; H331; Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318 Aquatic Chronic 3; H412</td>
<td>1 - &lt; 2,5</td>
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</tr>
<tr>
<td>p-Cresol</td>
<td>106-44-5</td>
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<td>1 - &lt; 2,5</td>
<td></td>
</tr>
</tbody>
</table>

For explanation of abbreviations see section 16.
SECTION 4: First aid measures

4.1 Description of 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.

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).

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.

4.2 Most important symptoms and effects, both acute and delayed

Risks: 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. Corrosive to the respiratory tract. Causes severe burns.

Causes digestive tract burns.
SECTION 5: Firefighting measures

5.1 Extinguishing media

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

Unsuitable extinguishing media:
- High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting:
- 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)

5.3 Advice for firefighters

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

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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions:
- Remove all sources of ignition.
- Use personal protective equipment.
- Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

6.2 Environmental precautions

Environmental precautions:
- Avoid release to the environment.
- 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.

### 6.3 Methods and material for containment and cleaning up

**Methods for 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.

### 6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

- **Technical measures**: See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- **Local/Total ventilation**: If sufficient ventilation is unavailable, use with local exhaust ventilation. Use explosion-proof electrical, ventilating and lighting equipment.
- **Advice on safe handling**: Do not get on skin or clothing. Do not breathe vapours. Do not swallow. Do not get in eyes. Wash skin thoroughly after handling. 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, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges. Do not eat, drink or smoke when using this product. Take care to prevent spills, waste and minimize release to the environment.
- **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. Contaminated
work clothing should not be allowed out of the workplace. 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.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: 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.

Advice on common storage: Do not store with the following product types:
- Strong oxidizing agents
- Organic peroxides
- Flammable solids
- Pyrophoric liquids
- Pyrophoric solids
- Self-heating substances and mixtures
- Substances and mixtures, which in contact with water, emit flammable gases
- Explosives
- Gases

7.3 Specific end use(s)

Specific use(s): No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosin</td>
<td>8050-09-7</td>
<td>TWA OEL-RL</td>
<td>0,1 mg/m3 (Formaldehyde)</td>
<td>ZA OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Further information: Sensitisers that may cause sensitisation by inhalation, Recommended Limit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL OEL-RL</td>
<td>0,3 mg/m3 (Formaldehyde)</td>
<td>ZA OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Further information: Sensitisers that may cause sensitisation by inhalation, Recommended Limit</td>
<td></td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>STEL OEL-RL</td>
<td>125 ppm 545 mg/m3</td>
<td>ZA OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Further information: Recommended Limit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA OEL-RL</td>
<td>100 ppm 435 mg/m3</td>
<td>ZA OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Further information: Recommended Limit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>100 ppm 442 mg/m3</td>
<td>2000/39/EC</td>
</tr>
<tr>
<td>Substance</td>
<td>CAS-No.</td>
<td>Control parameters</td>
<td>Sampling time</td>
<td>Basis</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-------------</td>
<td>---------------------------------------------------------</td>
<td>--------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>Mandelic acid: 1.5 g/g creatinine (Urine)</td>
<td>End of shift at end of workweek</td>
<td>ZA BEI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ethyl benzene: (end exhaled air)</td>
<td></td>
<td>ZA BEI</td>
</tr>
<tr>
<td>Xylene</td>
<td>1330-20-7</td>
<td>Methylhippuric acid: 1.5 g/g creatinine (Urine)</td>
<td>End of shift</td>
<td>ZA BEI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Methylhippuric acid: 2 mg/l (Urine)</td>
<td>Last 4 hours of shift</td>
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</tr>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>Total phenol: 250 mg/g Creatinine (Urine)</td>
<td>End of shift</td>
<td>ZA BEI</td>
</tr>
</tbody>
</table>
**Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:**

<table>
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<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
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<tbody>
<tr>
<td>Rosin</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>117 mg/m³</td>
</tr>
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<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>17 mg/kg bw/day</td>
</tr>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td></td>
<td>Long-term systemic effects</td>
<td>35 mg/m³</td>
</tr>
<tr>
<td>Consumers</td>
<td>Skin contact</td>
<td></td>
<td>Long-term systemic effects</td>
<td>10 mg/kg bw/day</td>
</tr>
<tr>
<td>Consumers</td>
<td>Ingestion</td>
<td></td>
<td>Long-term systemic effects</td>
<td>10 mg/kg bw/day</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>1 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>1 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>16 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>1.23 mg/kg bw/day</td>
</tr>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
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<td>Long-term systemic effects</td>
<td>1.32 mg/m³</td>
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<tr>
<td>Consumers</td>
<td>Skin contact</td>
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<td>Long-term systemic effects</td>
<td>0.4 mg/kg bw/day</td>
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<td></td>
<td>Ingestion</td>
<td></td>
<td>Long-term systemic effects</td>
<td>0.4 mg/kg bw/day</td>
</tr>
<tr>
<td>m-Cresol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>3.5 mg/m³</td>
</tr>
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<td>Workers</td>
<td>Inhalation</td>
<td>Acute systemic effects</td>
<td>343 mg/m³</td>
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<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>0.5 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Acute systemic effects</td>
<td>1.47 mg/kg bw/day</td>
</tr>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td></td>
<td>Long-term systemic effects</td>
<td>0.75 mg/m³</td>
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<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td></td>
<td>Acute systemic effects</td>
<td>222 mg/m³</td>
</tr>
<tr>
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<td>Skin contact</td>
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<td>Long-term systemic effects</td>
<td>0.25 mg/kg bw/day</td>
</tr>
<tr>
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<td>Acute systemic effects</td>
<td>0.74 mg/kg bw/day</td>
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<tr>
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<td>Long-term systemic effects</td>
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<tr>
<td></td>
<td>Ingestion</td>
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<td>Acute systemic effects</td>
<td>0.74 mg/kg bw/day</td>
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<tr>
<td>p-Cresol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>3.5 mg/m³</td>
</tr>
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### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosin</td>
<td>Fresh water</td>
<td>0.0016 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.00016 mg/l</td>
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<tr>
<td></td>
<td>Intermittent use/release</td>
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<tr>
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<td>Sewage treatment plant</td>
<td>1000 mg/l</td>
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<tr>
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<td>Fresh water sediment</td>
<td>0.007 mg/kg</td>
</tr>
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<td>Marine sediment</td>
<td>0.0007 mg/kg</td>
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</table>

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylene</td>
<td>Fresh water</td>
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<td>Marine water</td>
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<tr>
<td></td>
<td>Intermittent use/release</td>
<td>0.25 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>0.25 mg/kg</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>Fresh water</td>
<td>221 mg/m3</td>
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<tr>
<td></td>
<td>Marine water</td>
<td>442 mg/m3</td>
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<tr>
<td></td>
<td>Intermittent use/release</td>
<td>221 mg/m3</td>
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<tr>
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<td>Sewage treatment plant</td>
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<tr>
<td></td>
<td>Fresh water sediment</td>
<td>212 mg/kg</td>
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<td>Marine water</td>
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<td>Intermittent use/release</td>
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</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
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<td>Fresh water sediment</td>
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<td>Marine water</td>
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<td>Sewage treatment plant</td>
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<td>Marine water</td>
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<td></td>
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<td></td>
<td>Sewage treatment plant</td>
<td>125 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>12,5 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>12,5 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>12,5 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>12,5 mg/kg</td>
</tr>
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</table>

### Workers Ingestion Long-term systemic effects

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
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<tbody>
<tr>
<td></td>
<td>Fresh water</td>
<td>260 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>260 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>260 mg/m3</td>
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<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>260 mg/m3</td>
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<tr>
<td></td>
<td>Fresh water sediment</td>
<td>15 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>15 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>15 mg/m3</td>
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<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>15 mg/m3</td>
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<tr>
<td></td>
<td>Fresh water sediment</td>
<td>1.6 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>1.6 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>1.6 mg/kg</td>
</tr>
</tbody>
</table>

### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:
<table>
<thead>
<tr>
<th></th>
<th>Soil</th>
<th>0.00045 mg/kg</th>
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<tbody>
<tr>
<td>Tar, wood</td>
<td>Fresh water</td>
<td>0.003 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.0003 mg/l</td>
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<td></td>
<td>Fresh water sediment</td>
<td>0.006 mg/kg dry weight (d.w.)</td>
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<td>Marine sediment</td>
<td>0.0006 mg/kg dry weight (d.w.)</td>
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<tr>
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<td>Soils</td>
<td>0.002 mg/kg dry weight (d.w.)</td>
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<tr>
<td>Phenol</td>
<td>Fresh water</td>
<td>0.0077 mg/l</td>
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<td></td>
<td>Marine water</td>
<td>0.0077 mg/l</td>
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<tr>
<td></td>
<td>Intermittent use/release</td>
<td>0.031 mg/l</td>
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<td>Sewage treatment plant</td>
<td>2.1 mg/l</td>
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<td>Fresh water sediment</td>
<td>0.0915 mg/kg</td>
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<td></td>
<td>Marine sediment</td>
<td>0.00915 mg/kg</td>
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<tr>
<td></td>
<td>Soils</td>
<td>0.136 mg/kg</td>
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<tr>
<td>m-Cresol</td>
<td>Fresh water</td>
<td>0.1 mg/l</td>
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<tr>
<td></td>
<td>Marine water</td>
<td>0.01 mg/l</td>
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<tr>
<td></td>
<td>Intermittent use/release</td>
<td>0.076 mg/l</td>
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<td></td>
<td>Sewage treatment plant</td>
<td>1.14 mg/l</td>
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<td></td>
<td>Fresh water sediment</td>
<td>0.71 mg/kg</td>
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<td>Marine sediment</td>
<td>0.071 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Soils</td>
<td>0.0831 mg/kg</td>
</tr>
<tr>
<td>p-Cresol</td>
<td>Fresh water</td>
<td>0.1 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.01 mg/l</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>0.044 mg/l</td>
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<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>1.65 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>0.85 mg/kg</td>
</tr>
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<td></td>
<td>Marine sediment</td>
<td>0.085 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Soils</td>
<td>0.111 mg/kg</td>
</tr>
<tr>
<td>Xylene</td>
<td>Fresh water</td>
<td>0.327 mg/l</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>0.327 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.327 mg/l</td>
</tr>
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<td></td>
<td>Sewage treatment plant</td>
<td>6.58 mg/l</td>
</tr>
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<td></td>
<td>Fresh water sediment</td>
<td>12.46 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>12.46 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Soils</td>
<td>2.31 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>Fresh water</td>
<td>0.1 mg/l</td>
</tr>
<tr>
<td></td>
<td>Freshwater - intermittent</td>
<td>0.1 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.01 mg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>9.6 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>13.7 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>1.37 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Soils</td>
<td>2.68 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Oral (Secondary Poisoning)</td>
<td>20 mg/kg food</td>
</tr>
</tbody>
</table>
8.2 Exposure controls

**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.
Use explosion-proof electrical, ventilating and lighting equipment.

**Personal protective equipment**

**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.

**Hand protection**

**Material**: Chemical-resistant gloves
**Remarks**: Consider double gloving. Take note that the product is flammable, which may impact the selection of hand protection.

**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.

**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 (A-P)

---

**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

**Appearance**: viscous liquid
**Colour**: dark, brown
**Odour**: strong
**Odour Threshold**: No data available
**pH**: Not applicable
**Melting point/freezing point**: No data available
**Initial boiling point and boiling range**: No data available
**Flash point**: 30 °C
**Evaporation rate**: No data available
Flammability (solid, gas) : Not applicable
Upper explosion limit / Upper flammability limit : No data available
Lower explosion limit / Lower flammability limit : No data available
Vapour pressure : No data available
Relative vapour density : No data available
Relative density : No data available
Density : 1.009 - 1.051 g/cm³ (20 °C)
Solubility(ies) : No data available
Water solubility : No data available
Partition coefficient: n-octanol/water : Not applicable
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Viscosity : No data available
Viscosity, kinematic : No data available
Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing.

9.2 Other information
Flammability (liquids) : Not applicable
Particle size : Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity
Not classified as a reactivity hazard.

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
Hazardous reactions : Flammable liquid and vapour. Vapours may form explosive mixture with air. Can react with strong oxidizing agents.

10.4 Conditions to avoid
Conditions to avoid : Heat, flames and sparks.

10.5 Incompatible materials
Materials to avoid: Oxidizing agents

10.6 Hazardous decomposition products
No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
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
Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

Rosin:
Acute oral toxicity: LD50 (Rat): 2.800 mg/kg
Acute dermal toxicity: LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Tar, coal:
Acute oral toxicity: LD50 (Rat): 1.700 mg/kg
Acute toxicity estimate: 1.700 mg/kg
Method: Calculation method
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 toxicity estimate: 17.8 mg/l
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity : LD50 (Rabbit): > 5.000 mg/kg

Xylene:
Acute oral toxicity : LD50 (Rat): 3.523 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: 11 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Expert judgement
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Acute dermal toxicity : Acute toxicity estimate: 1.100 mg/kg
Method: Expert judgement
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Dichlofenthion (ISO):
Acute oral toxicity : LD50 (Rat): 172 mg/kg
LD50 (Rat): 270 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
SAFETY DATA SHEET
Dichlofenthion Formulation

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue</th>
<th>Date of first issue</th>
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<tr>
<td>3.6</td>
<td>27.08.2021</td>
<td>1552592-00010</td>
<td>09.04.2021</td>
<td>14.04.2017</td>
</tr>
</tbody>
</table>

- 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 toxicity estimate: 121 mg/kg
  - Method: Calculation method

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

**Acute dermal toxicity**: LD50 (Rabbit): 301 mg/kg
- Remarks: Based on data from similar materials
- Acute toxicity estimate: 301 mg/kg
  - Method: Calculation method

**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:**
- Species: reconstructed human epidermis (RhE)
- Method: OECD Test Guideline 439

**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
Method: OECD Test Guideline 405
Result: No eye irritation

**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
Method: OECD Test Guideline 405
Result: Irreversible effects on the eye

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:

Tar, wood:
Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Method: OECD Test Guideline 429
Result: positive
Assessment: Probability or evidence of low to moderate skin sensitisation rate in humans

Rosin:
Assessment: Probability or evidence of skin sensitisation in humans
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Tar, coal:
Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Method: OECD Test Guideline 429  
Result: positive  
Remarks: Based on data from similar materials  
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
### Tar, coal:

**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
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

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

Genotoxicity in vivo: Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

**Carcinogenicity**
May cause cancer if swallowed.

**Components:**

**Tar, coal:**
Species: Mouse  
Application Route: Ingestion
### Exposures and Results

<table>
<thead>
<tr>
<th>Substance</th>
<th>Species</th>
<th>Application Route</th>
<th>Exposure Time</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylbenzene</td>
<td>Rat</td>
<td>Inhalation (vapour)</td>
<td>104 weeks</td>
<td>Positive</td>
<td>The mechanism or mode of action may not be relevant in humans.</td>
</tr>
<tr>
<td>Xylene</td>
<td>Rat</td>
<td>Ingestion</td>
<td>103 weeks</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>Phenol</td>
<td>Mouse</td>
<td>Ingestion</td>
<td>103 weeks</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>m-Cresol</td>
<td>Mouse, males</td>
<td>Ingestion</td>
<td>105 weeks</td>
<td>Equivocal</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>p-Cresol</td>
<td>Mouse</td>
<td>Ingestion</td>
<td>106 - 107 weeks</td>
<td>Positive</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

### Carcinogenicity - Assessment

- Positive evidence from human epidemiological studies (oral)

### Remarks

Based on harmonised classification in EU regulation 1272/2008, Annex VI
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  
Result: Reduced foetal weight, Embryotoxic effects, No teratogenic effects  
Remarks: Based on data from similar materials

**Reproductive toxicity - Assessment**  
: Suspected of damaging the unborn child.

**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.  
Corrosive to the respiratory tract.
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 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: inhalation (dust/mist/fume)
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)
- Exposure time: 13 Weeks

**Xylene:**
- Species: Rat
- LOAEL: > 0.2 - 1 mg/l
- Application Route: Inhalation (vapour)
- Exposure time: 13 Weeks
- Remarks: Based on data from similar materials

**Dichlofenthion (ISO):**
- Species: Rat
  - NOAEL: 0.75 mg/kg
  - Application Route: Oral
  - Exposure time: 90 d
- Species: Dog
  - NOAEL: 0.75 mg/kg
  - Application Route: Oral
  - Exposure time: 90 d

**Phenol:**
- Species: Rat
  - LOAEL: 300 mg/kg
  - Application Route: Ingestion
  - Exposure time: 90 Days
  - Method: OECD Test Guideline 408
- Species: Rat
  - NOAEL: >= 0.1 mg/l
  - Application Route: Inhalation (vapour)
  - Exposure time: 74 Days
- Species: Rabbit
  - LOAEL: 260 mg/kg
Application Route: Skin contact  
Exposure time: 18 Days

**m-Cresol:**
Species: Rat  
NOAEL: 150 mg/kg  
Application Route: Ingestion  
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
SECTION 12: Ecological information

12.1 Toxicity

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

EC10 (Desmodesmus subspicatus (green algae)): 14 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**
- EL50 (Desmodesmus subspicatus (green algae)): 36 mg/l  
  Exposure time: 72 h  
  Method: OECD Test Guideline 201  
  Remarks: Based on data from similar materials

- NOELR (Desmodesmus subspicatus (green algae)): 5 mg/l  
  Exposure time: 72 h  
  Method: OECD Test Guideline 201  
  Remarks: Based on data from similar materials

**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

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

- **Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**
  - NOEC: 0,96 mg/l  
    Exposure time: 7 d  
    Species: Ceriodaphnia dubia (water flea)

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

- **Toxicity to fish (Chronic toxicity)**
  - NOEC: > 0,1 - < 1 mg/l  
    Exposure time: 35 d  
    Species: Danio rerio (zebra fish)  
    Method: OECD Test Guideline 210
### Dichlofenthion Formulation

#### Remarks
Based on data from similar materials

### Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
- **EL10**: \( > 1 - 10 \text{ mg/l} \)
  - Exposure time: 21 d
  - Species: *Daphnia magna* (Water flea)
  - Method: OECD Test Guideline 211
  - 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 microorganisms
- IC50 (Nitrosomonas sp.): 21 mg/l
  - Exposure time: 24 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: 10 mg/l
  - Exposure time: 16 d
  - Species: *Daphnia magna* (Water flea)

### 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: 1,35 mg/l
Exposure time: 32 d
Species: Pimephales promelas (fathead minnow)
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC: 1 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
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 microorganisms: IC50 (Nitrosomonas sp.): 260 mg/l
Exposure time: 24 h

Toxicity to fish (Chronic toxicity): NOEC: 1,35 mg/l
Exposure time: 32 d
Species: Pimephales promelas (fathead minnow)

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

12.2 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.
Biodegradation: 71 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Ethylbenzene:
Biodegradability: Result: Readily biodegradable.
Biodegradation: 70 - 80 %
Exposure time: 28 d

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

12.3 Bioaccumulative potential

Components:

Tar, wood:
Partition coefficient: n-octanol/water : log Pow: 0,2 - 2,02

Rosin:
Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
Bioconcentration factor (BCF): < 100
Partition coefficient: n-octanol/water : log Pow: 3 - 6,2

Tar, coal:
Partition coefficient: n-octanol/water : Remarks: No data available

Ethylbenzene:
Partition coefficient: n-octanol/water : log Pow: 3,6

Xylene:
Partition coefficient: n-octanol/water : log Pow: 3,16
octanol/water Remarks: Calculation

**Dichlofenthion (ISO):**
Partition coefficient: n-octanol/water : log Pow: 5.14

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

**m-Cresol:**
Bioaccumulation : Species: Leuciscus idus (Golden orfe)
Bioconcentration factor (BCF): 17 - 20
Partition coefficient: n-octanol/water : log Pow: 1.96

**p-Cresol:**
Bioaccumulation : Species: Leuciscus idus (Golden orfe)
Bioconcentration factor (BCF): 17 - 20
Remarks: Based on data from similar materials
Partition coefficient: n-octanol/water : log Pow: 1.94

### 12.4 Mobility in soil
No data available

### 12.5 Results of PBT and vPvB assessment

**Product:**
Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Other adverse effects

**Product:**
Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

**Product** : Dispose of in accordance with local regulations.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

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.

SECTION 14: Transport information

14.1 UN number

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<th>ADR</th>
<th>RID</th>
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14.2 UN proper shipping name

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<td>CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Sodium hydroxide, Ethylbenzene)</td>
<td>CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Sodium hydroxide, Ethylbenzene)</td>
<td>CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Sodium hydroxide, Ethylbenzene, Dichlofenthion (ISO))</td>
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14.3 Transport hazard class(es)

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14.4 Packing group

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<td>Hazard Identification Number: 83</td>
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14.5 Environmental hazards

ADN
Environmentally hazardous : yes

ADR
Environmentally hazardous : yes

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : yes

14.6 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.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Remarks : Not applicable for product as supplied.
SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

The components of this product are reported in the following inventories:

- AICS: not determined
- DSL: not determined
- IECSC: not determined

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Other information: Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Full text of H-Statements

- H225: Highly flammable liquid and vapour.
- H226: Flammable liquid and vapour.
- H290: May be corrosive to metals.
- H301: Toxic if swallowed.
- H302: Harmful if swallowed.
- H304: May be fatal if swallowed and enters airways.
- H311: Toxic in contact with skin.
- H312: Harmful in contact with skin.
- H314: Causes severe skin burns and eye damage.
- H315: Causes skin irritation.
- H317: May cause an allergic skin reaction.
- H318: Causes serious eye damage.
- H319: Causes serious eye irritation.
- H331: Toxic if inhaled.
- H332: Harmful if inhaled.
- H335: May cause respiratory irritation.
- H341: Suspected of causing genetic defects.
- H350: May cause cancer if swallowed.
- H361d: Suspected of damaging the unborn child.
- H370: Causes damage to organs.
- H372: Causes damage to organs through prolonged or repeated exposure.
- H373: May cause damage to organs through prolonged or repeated exposure.
- H400: Very toxic to aquatic life.
- H410: Very toxic to aquatic life with long lasting effects.
- H411: Toxic to aquatic life with long lasting effects.
- H412: Harmful to aquatic life with long lasting effects.
- EUH014: Reacts violently with water.
- EUH071: Corrosive to the respiratory tract.
Full text of other abbreviations

Acute Tox. : Acute toxicity
Aquatic Acute : Short-term (acute) aquatic hazard
Aquatic Chronic : Long-term (chronic) aquatic hazard
Asp. Tox. : Aspiration hazard
Carc. : Carcinogenicity
Eye Dam. : Serious eye damage
Eye Irrit. : Eye irritation
Flam. Liq. : Flammable liquids
Met. Corr. : Corrosive to metals
Muta. : Germ cell mutagenicity
Repr. : Reproductive toxicity
Skin Corr. : Skin corrosion
Skin Irrit. : Skin irritation
Skin Sens. : Skin sensitisation
STOT RE : Specific target organ toxicity - repeated exposure
STOT SE : Specific target organ toxicity - single exposure
ZA BEI : South Africa. Hazardous Chemical Substances Regulations, Biological Exposure Indices.
ZA OEL : South Africa. Hazardous Chemical Substances Regulations, Occupational Exposure Limits
2000/39/EC / TWA : Limit Value - eight hours
2000/39/EC / STEL : Short term exposure limit
2009/161/EU / TWA : Limit Value - eight hours
2009/161/EU / STEL : Short term exposure limit
ZA OEL / TWA OEL-RL : Long term occupational exposure limits - recommended limit
ZA OEL / STEL OEL-RL : Short term occupational exposure limits - recommended limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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; 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 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of
SAFETY DATA SHEET

Dichlofenthion Formulation

Version 3.6  Revision Date: 27.08.2021  SDS Number: 1552592-00010  Date of last issue: 09.04.2021  Date of first issue: 14.04.2017

Further information


Classification of the mixture:

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<th>Code</th>
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<td>Flam. Liq. 3</td>
<td>H226</td>
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<tr>
<td>Acute Tox. 4</td>
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<td>Skin Corr. 1B</td>
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<tr>
<td>Aquatic Chronic 1</td>
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Classification procedure:

- Based on product data or assessment
- Calculation method

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 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.

ZA / EN