



SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Revision date 10-Feb-2023

Revision Number 1

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

1.1. Product identifier

| | |
|---------------------------------|------------------------------------|
| Product Code(s) | DRE-XA14073000CY |
| Product Name | gamma-HCH 100 µg/mL in Cyclohexane |
| Form | Not applicable |
| Unique Formula Identifier (UFI) | ES0E-H0W3-N009-T1JF |
| Pure substance/mixture | Mixture |

1.2. Relevant identified uses of the substance or mixture and uses advised against

| | |
|----------------------|--------------------------|
| Recommended use | Laboratory use |
| Uses advised against | No information available |

1.3. Details of the supplier of the safety data sheet

Supplier

LGC Limited
Queens Road
Teddington
Middlesex TW11 0LY
UNITED KINGDOM
:+44 (0) 20 8943 7000
Fax :+44 (0) 20 8943 2767
eMail : gb@lgcstandards.com

Web : www.lgcstandards.com

For further information, please contact

E-mail address sds-request@lgcgroup.com

1.4. Emergency telephone number

| | |
|---------------------|--|
| Emergency Telephone | For Hazardous Materials or Dangerous Goods Incident Spill, Leak, Fire Exposure, or Accident Call CHEMTREC: USA & Canada 1-800-424-9300 Rest of the world +1 703-741-5970 |
|---------------------|--|

Emergency Telephone - §45 - (EC)1272/2008



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| | |
|----------------|--------------------------|
| Europe | 112 |
| Austria | No information available |
| Bulgaria | |
| Croatia | |
| Cyprus | |
| Czech Republic | |
| Denmark | |
| France | |
| Hungary | |
| Ireland | |
| Italy | |
| Lithuania | |
| Luxembourg | |
| Netherlands | |
| Norway | |
| Portugal | |
| Romania | |
| Slovakia | |
| Slovenia | |
| Spain | |
| Sweden | |
| Switzerland | |

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

| | |
|--|---------------------|
| Aspiration hazard | Category 1 - (H304) |
| Skin corrosion/irritation | Category 2 - (H315) |
| Specific target organ toxicity — single exposure | Category 3 - (H336) |
| Category 3 Narcotic effects | |
| Acute aquatic toxicity | Category 1 - (H400) |
| Chronic aquatic toxicity | Category 1 - (H410) |
| Flammable liquids | Category 2 - (H225) |

2.2. Label elements

Contains Cyclohexane



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Signal word
Danger

Hazard statements

H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H336 - May cause drowsiness or dizziness
H410 - Very toxic to aquatic life with long lasting effects
H225 - Highly flammable liquid and vapour

Precautionary Statements - EU (§28, 1272/2008)

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P273 - Avoid release to the environment
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor
P331 - Do NOT induce vomiting
P370 + P378 - In case of fire: Use dry chemical, CO₂, water spray or alcohol-resistant foam to extinguish
P391 - Collect spillage
P403 + P235 - Store in a well-ventilated place. Keep cool

2.3. Other hazards

No information available.

This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors.

| Chemical name | EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation | EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances |
|---------------|---|--|
| Cyclohexane | - | - |
| Lindane | - | - |

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable



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3.2 Mixtures

| Chemical name | Weight-% | REACH registration number | EC No (EU Index No) | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) |
|-------------------------|----------|---------------------------|---------------------|--|------------------------------------|----------|----------------------|
| Cyclohexane 110-82-7 | 80 - 100 | - | 203-806-2 | Flam. Liq. 2 (H225) Skin Irrit. 2 (H315) STOT SE 3 (H336) Asp. Tox. 1 (H304) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) | | | |
| Lindane 58-89-9 | <0.1 | - | 200-401-2 | Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 4 (H332) Lact. (H362) (H362) STOT RE 2 (H373) Carc. 1A (H350) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) | | 10 | 10 |

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate

If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

| Chemical name | Oral LD50 mg/kg | Dermal LD50 mg/kg | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapour - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|-------------------------|-----------------|-------------------|---|--|--------------------------------------|
| Cyclohexane 110-82-7 | 12705 | 2000 | No data available | No data available | No data available |
| Lindane 58-89-9 | 76 | 50 | 1.56 | No data available | No data available |

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures



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| | |
|---|--|
| General advice | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required. |
| Inhalation | Remove to fresh air. Aspiration into lungs can produce severe lung damage. If breathing has stopped, give artificial respiration. Get medical attention immediately. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If breathing is difficult, (trained personnel should) give oxygen. Get immediate medical advice/attention. Delayed pulmonary edema may occur. |
| Eye contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. |
| Skin contact | Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation develops and persists. |
| Ingestion | Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Get immediate medical advice/attention. |
| Self-protection of the first aider | Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment as required. See section 8 for more information. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Avoid contact with skin, eyes or clothing. |

4.2. Most important symptoms and effects, both acute and delayed

| | |
|-----------------|--|
| Symptoms | Difficulty in breathing. Coughing and/ or wheezing. Dizziness. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. |
|-----------------|--|

4.3. Indication of any immediate medical attention and special treatment needed

| | |
|------------------------|---|
| Note to doctors | Because of the danger of aspiration, emesis or gastric lavage should not be used unless the risk is justified by the presence of additional toxic substances. |
|------------------------|---|

SECTION 5: Firefighting measures

5.1. Extinguishing media

| | |
|---------------------------------------|---|
| Suitable Extinguishing Media | Dry chemical. Carbon dioxide (CO ₂). Water spray. Alcohol resistant foam. |
| Large Fire | CAUTION: Use of water spray when fighting fire may be inefficient. |
| Unsuitable extinguishing media | Do not scatter spilled material with high pressure water streams. |

5.2. Special hazards arising from the substance or mixture



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Specific hazards arising from the chemical

Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions

Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material.

Other information

Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

For emergency responders

Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions

Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up

Methods for containment

Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapour suppressing foam may be used to reduce vapours. Dyke far ahead of spill to collect run-off water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up

Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

Prevention of secondary hazards

Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections

See section 8 for more information. See section 13 for more information.



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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Use personal protection equipment. Avoid breathing vapours or mists. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use grounding and bonding connection when transferring this material to prevent static discharge, fire or explosion. Use with local exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Keep in an area equipped with sprinklers. Use according to package label instructions. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse. In case of insufficient ventilation, wear suitable respiratory equipment.

General hygiene considerations

Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labelled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Store locked up. Keep out of the reach of children. Store away from other materials. Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA.

7.3. Specific end use(s)

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

| Chemical name | European Union | Austria | Belgium | Bulgaria | Croatia |
|-------------------------|--|--|--|--|---|
| Cyclohexane 110-82-7 | TWA: 200 ppm TWA: 700 mg/m ³ | TWA: 200 ppm TWA: 700 mg/m ³ STEL 800 ppm | TWA: 100 ppm TWA: 350 mg/m ³ | TWA: 200 ppm TWA: 700.0 mg/m ³ | TWA: 200 ppm TWA: 700 mg/m ³ * |



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| | | | | | |
|-------------------------|---|--|---|--|--|
| | | STEL 2800 mg/m ³ | | | |
| Lindane 58-89-9 | - | TWA: 0.5 mg/m ³ STEL 5 mg/m ³ H* | TWA: 0.5 mg/m ³ * | - | - |
| Chemical name | Cyprus | Czech Republic | Denmark | Estonia | Finland |
| Cyclohexane 110-82-7 | TWA: 200 ppm TWA: 700 mg/m ³ | TWA: 700 mg/m ³ Ceiling: 2000 mg/m ³ | TWA: 50 ppm TWA: 172 mg/m ³ | TWA: 200 ppm TWA: 700 mg/m ³ | TWA: 100 ppm TWA: 350 mg/m ³ STEL: 250 ppm STEL: 875 mg/m ³ |
| Lindane 58-89-9 | - | - | TWA: 0.5 mg/m ³ H* | TWA: 0.5 mg/m ³ | TWA: 0.1 mg/m ³ iho* |
| Chemical name | France | Germany | Germany MAK | Greece | Hungary |
| Cyclohexane 110-82-7 | TWA: 200 ppm TWA: 700 mg/m ³ STEL: 375 ppm STEL: 1300 mg/m ³ | TWA: 200 ppm TWA: 700 mg/m ³ | TWA: 200 ppm TWA: 700 mg/m ³ Peak: 800 ppm Peak: 2800 mg/m ³ | TWA: 200 ppm TWA: 700 mg/m ³ | TWA: 700 mg/m ³ |
| Lindane 58-89-9 | TWA: 0.5 mg/m ³ * | H* | TWA: 0.1 mg/m ³ Peak: 0.8 mg/m ³ * | TWA: 0.5 mg/m ³ STEL: 1.5 mg/m ³ skin - potential for cutaneous absorption | TWA: 0.1 mg/m ³ STEL: 0.8 mg/m ³ * |
| Chemical name | Ireland | Italy | Italy REL | Latvia | Lithuania |
| Cyclohexane 110-82-7 | TWA: 200 ppm TWA: 700 mg/m ³ STEL: 600 ppm STEL: 2100 mg/m ³ | TWA: 100 ppm TWA: 350 mg/m ³ | TWA: 100 ppm TWA: 344 mg/m ³ | TWA: 23 ppm TWA: 80 mg/m ³ | TWA: 200 ppm TWA: 700 mg/m ³ |
| Lindane 58-89-9 | TWA: 0.5 mg/m ³ STEL: 1.5 mg/m ³ Sk* | - | TWA: 0.5 mg/m ³ * | - | Sensitizer * TWA: 0.1 mg/m ³ |
| Chemical name | Luxembourg | Malta | Netherlands | Norway | Poland |
| Cyclohexane 110-82-7 | TWA: 200 ppm TWA: 700 mg/m ³ | TWA: 200 ppm TWA: 700 mg/m ³ | TWA: 700 mg/m ³ STEL: 1400 mg/m ³ | TWA: 150 ppm TWA: 525 mg/m ³ STEL: 187.5 ppm STEL: 656.25 mg/m ³ | STEL: 1000 mg/m ³ TWA: 300 mg/m ³ * |
| Lindane 58-89-9 | - | - | - | TWA: 0.5 mg/m ³ STEL: 1.5 mg/m ³ H* | TWA: 0.17 mg/m ³ * |
| Chemical name | Portugal | Romania | Slovakia | Slovenia | Spain |
| Cyclohexane 110-82-7 | TWA: 200 ppm TWA: 700 mg/m ³ | TWA: 200 ppm TWA: 700 mg/m ³ | TWA: 200 ppm TWA: 700 mg/m ³ | TWA: 200 ppm TWA: 700 mg/m ³ STEL: STEL mg/m ³ STEL: STEL ppm | TWA: 200 ppm TWA: 700 mg/m ³ |
| Lindane 58-89-9 | TWA: 0.5 mg/m ³ P* | TWA: 0.3 mg/m ³ STEL: 0.5 mg/m ³ * | TWA: 0.1 mg/m ³ * | - | TWA: 0.5 mg/m ³ vía dérmica* |
| Chemical name | Sweden | | Switzerland | | United Kingdom |
| Cyclohexane | NGV: 200 ppm | | TWA: 200 ppm | | TWA: 100 ppm |



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| | | | |
|--------------------|----------------------------|---|---|
| 110-82-7 | NGV: 700 mg/m ³ | TWA: 700 mg/m ³ STEL: 800 ppm STEL: 2800 mg/m ³ | TWA: 350 mg/m ³ STEL: 300 ppm STEL: 1050 mg/m ³ |
| Lindane 58-89-9 | - | TWA: 0.1 mg/m ³ H* | - |

Biological occupational exposure limits

| Chemical name | European Union | Austria | Bulgaria | Croatia | Czech Republic |
|-------------------------|----------------|---------|----------|---|---|
| Cyclohexane 110-82-7 | - | - | - | 150 mg/g Creatinine - urine (1,2-Cyclohexanediol) - at the end of the work shift; at chronic exposure after several successive shifts 450 µg/L - blood (Cyclohexanol) - during exposure 3.20 mg/g Creatinine - urine (Cyclohexanol) - during the second half of the work shift | - |
| Lindane 58-89-9 | - | - | - | 25.0 µg/L - plasma/serum (Lindane) - not critical | - |
| Chemical name | Denmark | Finland | France | Germany | Germany |
| Cyclohexane 110-82-7 | - | - | - | 150 mg/g Creatinine (urine - total 1,2-Cyclohexanediol (after hydrolysis) end of shift) 150 mg/g Creatinine (urine - total 1,2-Cyclohexanediol (after hydrolysis) for long-term exposures: at the end of the shift after several shifts) 150 mg/g Creatinine - BAT (for long-term exposures: at the | 150 mg/g Creatinine (urine - total 1,2-Cyclohexanediol (after hydrolysis) end of shift) 150 mg/g Creatinine (urine - total 1,2-Cyclohexanediol (after hydrolysis) for long-term exposures: at the end of the shift after several shifts) |



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| | | | | | |
|-------------------------|--|---|---|--|---|
| | | | | end of the shift after several shifts) urine | |
| Lindane 58-89-9 | - | - | - | 25 µg/L (plasma/serum - Lindane end of shift) 25 µg/L - BAT (end of exposure or end of shift) plasma/serum | 25 µg/L (plasma/serum - Lindane end of shift) |
| Chemical name | Hungary | Ireland | Italy | Italy REL | |
| Lindane 58-89-9 | - | 35 nmol/L (blood - Lindane end of shift or pre-shift) 10 µg/L (blood - Lindane end of shift or pre-shift) 70 nmol/L (plasma - Lindane end of shift or pre-shift) | - | - | |
| Chemical name | Latvia | Luxembourg | Romania | Slovakia | |
| Lindane 58-89-9 | - | - | - | 25 µg/L (blood plasma and serum - Lindane end of exposure or work shift) | |
| Chemical name | Slovenia | Spain | Switzerland | United Kingdom | |
| Cyclohexane 110-82-7 | 150 mg/g Creatinine - urine (1,2-Cyclohexanediol (after hydrolysis)) - at the end of the work shift; for long-term exposure: at the end of the work shift after several consecutive workdays | - | 150 mg/g creatinine (urine - total 1,2-Cyclohexanediol end of shift, and after several shifts (for long-term exposures)) | - | |
| Lindane 58-89-9 | 25 µg/L - plasma/serum (Lindane) - at the end of the work shift | - | 25 µg/L (plasma/serum - Lindane end of shift) | 35 nmol/L - blood (Lindane) - random 10 µg/L - blood (Lindane) - random 70 nmol/L - plasma (Lindane) - random | |

Derived No Effect Level (DNEL) No information available.

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Personal protective equipment



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| | |
|---------------------------------|---|
| Eye/face protection | Tight sealing safety goggles. Avoid contact with eyes. Wear safety glasses with side shields (or goggles). |
| Hand protection | Wear protective nitrile rubber gloves. Wear suitable gloves. Impervious gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. |
| Skin and body protection | Long sleeved clothing. Chemical resistant apron. Antistatic boots. Wear suitable protective clothing. |
| Respiratory protection | No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. |
| General hygiene considerations | Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. |
| Environmental exposure controls | Do not allow into any sewer, on the ground or into any body of water. |

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|-----------------|--------------------------|
| Physical state | Liquid |
| Appearance | Liquid |
| Colour | colourless |
| Odour | Odourless. |
| Odour threshold | No information available |

| Property | Values | Remarks • Method |
|---|---------------------------------|--------------------------|
| Melting point / freezing point | 6.5 °C | None known |
| Initial boiling point and boiling range | 80.7 °C | None known |
| Flammability | No data available | None known |
| Flammability Limit in Air | | None known |
| Upper flammability or explosive limits | 9,3 Vol% - 326 g/m ³ | |
| Lower flammability or explosive limits | 1 Vol% - 35 g/m ³ | |
| Flash point | -20 °C | None known |
| Autoignition temperature | 260 °C | None known |
| Decomposition temperature | | None known |
| pH | No data available | None known |
| pH (as aqueous solution) | No data available | No information available |
| Kinematic viscosity | No data available | None known |



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| | | |
|----------------------------|--------------------------|------------|
| Dynamic viscosity | 0.894 mPa s | @ 20°C |
| Water solubility | No data available | None known |
| Solubility(ies) | No data available | None known |
| Partition coefficient | 3.44 | None known |
| Vapour pressure | 103 hPa | @ 20°C |
| Relative density | 0.78 | None known |
| Bulk density | No data available | |
| Liquid Density | No data available | |
| Relative vapour density | 2.9 | None known |
| Particle characteristics | | |
| Particle Size | No information available | |
| Particle Size Distribution | No information available | |

9.2. Other information

9.2.1. Information with regards to physical hazard classes
Not applicable

9.2.2. Other safety characteristics
No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge Yes.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Heat, flames and sparks.

10.5. Incompatible materials

Incompatible materials Strong acids. Strong bases. Strong oxidising agents.

Hazardous decomposition products None known based on information supplied.



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SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure

Product Information

| | |
|--------------|---|
| Inhalation | Specific test data for the substance or mixture is not available. Aspiration into lungs can produce severe lung damage. May cause pulmonary edema. Pulmonary edema can be fatal. May cause drowsiness or dizziness. |
| Eye contact | Specific test data for the substance or mixture is not available. May cause irritation. |
| Skin contact | Repeated exposure may cause skin dryness or cracking. Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components). |
| Ingestion | Specific test data for the substance or mixture is not available. Potential for aspiration if swallowed. May cause lung damage if swallowed. Aspiration may cause pulmonary edema and pneumonitis. May be fatal if swallowed and enters airways. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. |

Symptoms related to the physical, chemical and toxicological characteristics

| | |
|----------|--|
| Symptoms | Difficulty in breathing. Coughing and/ or wheezing. Dizziness. Redness. May cause redness and tearing of the eyes. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. |
|----------|--|

Numerical measures of toxicity

Acute toxicity

Component Information

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---------------|-----------------------|-------------------------|--------------------------------------|
| Cyclohexane | = 12705 mg/kg (Rat) | > 2000 mg/kg (Rabbit) | > 32.88 mg/L (Rat) 4 h |
| Lindane | = 76 mg/kg (Rat) | = 414 mg/kg (Rat) | = 1560 mg/m ³ (Rat) 4 h |

Delayed and immediate effects as well as chronic effects from short and long-term exposure



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Skin corrosion/irritation Classification based on data available for ingredients. Causes skin irritation.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitisation No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical name | European Union |
|---------------|----------------|
| Lindane | Carc. 2 |

Reproductive toxicity No information available.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as reproductive toxins.

| Chemical name | European Union |
|---------------|----------------|
| Lindane | Lact. |

STOT - single exposure May cause drowsiness or dizziness.

STOT - repeated exposure No information available.

Aspiration hazard May be fatal if swallowed and enters airways.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information



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12.1. Toxicity

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Unknown aquatic toxicity Contains 0 % of components with unknown hazards to the aquatic environment.

| Chemical name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|---------------|---|--|----------------------------|--|
| Cyclohexane | EC50: >500mg/L (72h, <i>Desmodesmus subspicatus</i>) | LC50: 23.03 - 42.07mg/L (96h, <i>Pimephales promelas</i>) LC50: 24.99 - 44.69mg/L (96h, <i>Lepomis macrochirus</i>) LC50: 3.96 - 5.18mg/L (96h, <i>Pimephales promelas</i>) LC50: 48.87 - 68.76mg/L (96h, <i>Poecilia reticulata</i>) | - | EC50: 3.78mg/L (48h, <i>Daphnia magna</i>) |
| Lindane | - | LC50: 0.13 - 48mg/L (96h, <i>Lebistes reticulata</i>) LC50: 104 - 117µg/L (96h, <i>Pimephales promelas</i>) LC50: 118 - 143µg/L (96h, <i>Pimephales promelas</i>) LC50: 16 - 19µg/L (96h, <i>Oncorhynchus mykiss</i>) LC50: 23 - 28µg/L (96h, <i>Lepomis macrochirus</i>) LC50: 280 - 450µg/L (96h, <i>Poecilia reticulata</i>) LC50: 75 - 120µg/L (96h, <i>Cyprinus carpio</i>) LC50: =22µg/L (96h, <i>Oncorhynchus mykiss</i>) LC50: >100µg/L (96h, <i>Lepomis macrochirus</i>) | - | EC50: 0.48 - 0.551mg/L (48h, <i>Daphnia magna</i>) EC50: =0.656mg/L (48h, <i>Daphnia magna</i>) EC50: =1600mg/L (48h, <i>Daphnia magna</i>) |

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation No information available.



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Component Information

| Chemical name | Partition coefficient |
|---------------|-----------------------|
| Cyclohexane | 3.44 |
| Lindane | 3.5 |

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment

| Chemical name | PBT and vPvB assessment |
|---------------|---------------------------------|
| Cyclohexane | The substance is not PBT / vPvB |

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

SECTION 14: Transport information

IATA

14.1 UN number or ID number UN1145
14.2 UN proper shipping name Cyclohexane mixture
14.3 Transport hazard class(es) 3
14.4 Packing group II
Description UN1145, Cyclohexane mixture, 3, II
14.5 Environmental hazards Yes
14.6 Special precautions for user



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| | |
|--------------------|------|
| Special Provisions | None |
| ERG Code | 3H |

IMDG

| | |
|--|--|
| 14.1 UN number or ID number | UN1145 |
| 14.2 UN proper shipping name | Cyclohexane mixture |
| 14.3 Transport hazard class(es) | 3 |
| 14.4 Packing group | II |
| Description | UN1145, Cyclohexane mixture, 3, II, (-20°C c.c.), Marine pollutant |
| 14.5 Marine pollutant | P |
| Environmental hazards | Yes |
| 14.6 Special precautions for user | |
| Special Provisions | None |
| EmS-No | F-E, S-D No information available |
| 14.7 Maritime transport in bulk according to IMO instruments | No information available |

RID

| | |
|-----------------------------------|---|
| 14.1 UN number or ID number | UN1145 |
| 14.2 UN proper shipping name | Cyclohexane mixture |
| 14.3 Transport hazard class(es) | 3 |
| 14.4 Packing group | II |
| Description | UN1145, Cyclohexane mixture, 3, II, Environmentally Hazardous |
| 14.5 Environmental hazards | Yes |
| 14.6 Special precautions for user | |
| Special Provisions | None |
| Classification code | F1 |

ADR

| | |
|-----------------------------------|--|
| 14.1 UN number or ID number | UN1145 |
| 14.2 UN proper shipping name | Cyclohexane mixture |
| 14.3 Transport hazard class(es) | 3 |
| 14.4 Packing group | II |
| Description | UN1145, Cyclohexane mixture, 3, II, (D/E), Environmentally Hazardous |
| 14.5 Environmental hazards | Yes |
| 14.6 Special precautions for user | |
| Special Provisions | None |
| Classification code | F1 |
| Tunnel restriction code | (D/E) |

SECTION 15: Regulatory information

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

National regulations

France



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Occupational Illnesses (R-463-3, France)

| Chemical name | French RG number | Title |
|-------------------------|------------------|-------|
| Cyclohexane 110-82-7 | RG 84 | - |
| Lindane 58-89-9 | RG 65 | - |

Water hazard class (WGK) strongly hazardous to water (WGK 3)

Netherlands

| Chemical name | Netherlands - List of Carcinogens | Netherlands - List of Carcinogens | Netherlands - List of Reproductive Toxins |
|---------------|-----------------------------------|-----------------------------------|---|
| Lindane | - | - | Can be harmful via breastfeeding |

Poland

SDS created according to the following Polish regulation: Act of February 25, 2011 on chemical substances and their mixtures (Journal of Laws of 2018, item 143, as amended). Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing the European Chemicals Agency (EC) as amended. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labeling and packaging of substances and mixtures, as amended. Regulation of the Minister of Health of 10 August 2012 on the criteria and method of classifying chemical substances and their mixtures (Journal of Laws of 2012, item 1018). Regulation of the Minister of Health of 20 April 2012 on labeling packaging of hazardous substances and mixtures and some mixtures (Journal of Laws of 2012, item 445). Regulation of the Minister of Family, Labor and Social Policy of 12 June 2018 on the maximum allowable concentrations and intensities of factors harmful to health in the work environment (Journal of Laws of 2018, item 1286). Announcement of the Minister of Economy, Labor and Social Policy of August 28, 2003 on the publication of the unified text of the Ordinance of the Minister of Labor and Social Policy on general health and safety at work regulations (Journal of Laws of 2003, No. 169, item 1650). Regulation of the Minister of Health of 30 December 2004 on occupational safety and health related to the presence of chemical agents in the workplace (Journal of Laws of 2005, No. 11, item 86). Act of December 14, 2012 on waste (Journal of Laws of 2013, item 21) Regulation of the Minister of Health of December 30, 2004 on occupational health and safety related to the presence of chemical agents in the workplace (Journal U. of 2005, No. 11, item 86). Waste Act of December 14, 2012 (Journal of Laws of 2013, item 21). Act of 13 June 2013 on the management of packaging and packaging waste, Journal of Laws 2013, item 888). Government statement of September 24, 2002 - European Agreement on the International Carriage of Dangerous Goods by Road (ADR) (Journal of Laws No. 194, item 1629 and Journal of Laws of 2003, No. 207, item 2013 and 2014).

European Union



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Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorisations and/or restrictions on use:

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

DIRECTIVE (EU) 2021/1187 on the marketing and use of explosives precursors

Not applicable

| Chemical name | Restricted substance per REACH Annex XVII | Substance subject to authorisation per REACH Annex XIV |
|------------------------|---|--|
| Cyclohexane - 110-82-7 | 57. | |

Persistent Organic Pollutants

This product contains substances which are regulated pursuant to Regulation (EC) 2019/1021 of the European Parliament and of the Council on persistent organic pollutants

| Chemical name | Persistent Organic Pollutants per (EC) 2019/1021 - Annex Number |
|-------------------|---|
| Lindane - 58-89-9 | ANNEX I |

Export Notification requirements

This product contains substances which are regulated pursuant to Regulation (EC) No. 649/2012 of the European parliament and of the council concerning the export and import of dangerous chemicals

| Chemical name | European Export/Import Restrictions per (EC) 689/2008 - Annex Number |
|-------------------|--|
| Lindane - 58-89-9 | I.3 V |

Dangerous substance category per Seveso Directive (2012/18/EU)

P5a - FLAMMABLE LIQUIDS

P5b - FLAMMABLE LIQUIDS

P5c - FLAMMABLE LIQUIDS

E1 - Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

EU - Water Framework Directive (2000/60/EC)

| Chemical name | EU - Water Framework Directive (2000/60/EC) |
|-------------------|---|
| Lindane - 58-89-9 | Priority hazardous substance |

EU - Environmental Quality Standards (2008/105/EC)

| Chemical name | EU - Environmental Quality Standards (2008/105/EC) |
|-------------------|--|
| Lindane - 58-89-9 | Priority hazardous substance |



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International Inventories

| | |
|---------------|--|
| TSCA | Contact supplier for inventory compliance status |
| DSL/NDL | Contact supplier for inventory compliance status |
| EINECS/ELINCS | Contact supplier for inventory compliance status |
| ENCS | Contact supplier for inventory compliance status |
| IECSC | Contact supplier for inventory compliance status |
| KECL | Contact supplier for inventory compliance status |
| PICCS | Contact supplier for inventory compliance status |
| AIC | Contact supplier for inventory compliance status |

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

Chemical Safety Report A Chemical Safety Assessment is not required for this substance

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3

H225 - Highly flammable liquid and vapour
H301 - Toxic if swallowed
H304 - May be fatal if swallowed and enters airways
H311 - Toxic in contact with skin
H315 - Causes skin irritation
H332 - Harmful if inhaled
H336 - May cause drowsiness or dizziness
H350 - May cause cancer
H362 - May cause harm to breast-fed children
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

Legend

SVHC: Substances of Very High Concern for Authorisation:



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Legend Section 8: Exposure controls/personal protection

TWA TWA (time-weighted average) STEL STEL (Short Term Exposure Limit)
Ceiling Maximum limit value * Skin designation

| Classification procedure | |
|---|-----------------------|
| Classification according to Regulation (EC) No. 1272/2008 [CLP] | Method Used |
| Acute oral toxicity | Calculation method |
| Acute dermal toxicity | Calculation method |
| Acute inhalation toxicity - gas | Calculation method |
| Acute inhalation toxicity - Vapour | Calculation method |
| Acute inhalation toxicity - dust/mist | Calculation method |
| Skin corrosion/irritation | Calculation method |
| Serious eye damage/eye irritation | Calculation method |
| Respiratory sensitisation | Calculation method |
| Skin sensitisation | Calculation method |
| Mutagenicity | Calculation method |
| Carcinogenicity | Calculation method |
| Reproductive toxicity | Calculation method |
| STOT - single exposure | Calculation method |
| STOT - repeated exposure | Calculation method |
| Acute aquatic toxicity | Calculation method |
| Chronic aquatic toxicity | Calculation method |
| Aspiration hazard | Calculation method |
| Ozone | Calculation method |
| Flammable liquids | On basis of test data |

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGl(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set



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World Health Organization

Revision date 10-Feb-2023

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

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End of Safety Data Sheet