# SAFETY DATA SHEET

**according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878**

**Issue Date** 28-Jun-2005 **Revision Date** 18-Mar-2026 **Print Date** 18-Mar-2026 **Version** 3.2

## Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

**Product Code(s)** LCA505

**Product Name** LCA 505 Ammonium, Standard 2,5 mg/l NH4-N

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

**Recommended Use** Standard solution.

**Uses advised against** Consumer use

### 1.3. Details of the supplier of the safety data sheet

**Supplier**
HACH LANGE GmbH
Willstätterstr. 11
D-40549 Düsseldorf
Tel: +49 (0)211 5288-383
sds@hach.com

Responsible country contact:

HACH UK
Laser House
Ground Floor, Suite B
Waterfront Quay, Salford Quays
GB - Manchester, M50 3XW
Tel. +44 (0) 161 872 1487
info-uk@hach.com

HACH Ireland
Unit 34 GB Business Park
Little Island
IRL-Co. Cork
T45 H681
Tel. +353 (0)146 02 522
info-ie@hach.com

### 1.4. Emergency telephone number

UK: Chemtrec: +44 20 3807 3798
IE: National Poisons Information Centre (NPIC) 01 809 2566 (24/7)

## Section 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

***Classification according to Regulation (EC) No. 1272/2008 [CLP]***

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

### 2.2. Label elements

***Classification according to Regulation (EC) No. 1272/2008 [CLP]***

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

**Hazard statements**
This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

### 2.3. Other hazards
No information available.

PBT & vPvB
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.

## Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Not applicable

### 3.2 Mixtures

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

***Acute Toxicity Estimate***

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapour - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|---|---|---|---|---|---|
| Ammonium chloride 12125-02-9 | 1650 mg/kg | None reported | None reported | None reported | None reported |

## Section 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

**General advice** Show this safety data sheet to the doctor in attendance.

**Inhalation** Remove to fresh air.

**Eye contact** Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.

| | |
|---|---|
| **Skin contact** | Wash skin with soap and water. In the case of skin irritation or allergic reactions see a doctor. |
| **Ingestion** | Rinse mouth. |
| **Self-protection of the first aider** | Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. |

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

| | |
|---|---|
| **Symptoms** | No information available. |

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

| | |
|---|---|
| **Note to doctors** | Treat symptomatically. |

## Section 5: FIREFIGHTING MEASURES

**5.1. Extinguishing media**

| | |
|---|---|
| **Suitable Extinguishing Media** | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| **Unsuitable extinguishing media** | No information available. |

**5.2. Special hazards arising from the substance or mixture**

| | |
|---|---|
| **Specific hazards arising from the chemical** | Thermal decomposition can lead to release of irritating and toxic gases and vapours. |
| **Hazardous combustion products** | No information available. |

**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 protective equipment. |
| **Additional information** | Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. |

## Section 6: ACCIDENTAL RELEASE MEASURES

**6.1. Personal precautions, protective equipment and emergency procedures**

| | |
|---|---|
| **Personal precautions** | Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Evacuate personnel to safe areas. |
| **For emergency responders** | Use personal protection recommended in Section 8. |

**6.2. Environmental precautions**

| | |
|---|---|
| **Environmental precautions** | Should not be released into the environment. See Section 12 for additional Ecological Information. |

**6.3. Methods and material for containment and cleaning up**

| | |
|---|---|
| **Methods for containment** | Prevent further leakage or spillage if safe to do so. |

**Methods for cleaning up** Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Take up mechanically, placing in appropriate containers for disposal.

**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.

## Section 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

**Advice on safe handling** Ensure adequate ventilation.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Keep container tightly closed in a dry and well-ventilated place.

### 7.3. Specific end use(s)

**Specific use(s)** Analytical reagent.

**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 | United Kingdom | Ireland |
|---|---|---|---|
| Phosphoric acid<br>7664-38-2 | TWA: 1 mg/m³;<br>STEL: 2 mg/m³; | TWA: 1 mg/m³<br>STEL: 2 mg/m³ | TWA: 1 mg/m³<br>STEL: 2 mg/m³ |
| Ammonium chloride<br>12125-02-9 | - | TWA: 10 mg/m³<br>STEL: 20 mg/m³ | TWA: 10 mg/m³<br>STEL: 20 mg/m³ |

**Derived No Effect Level (DNEL) - Workers**

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| Phosphoric acid<br>7664-38-2 | - | 3.8 mg/kg bw/day [4] [6]<br>134.5 mg/kg bw/day [4] [7] | 13.2 mg/m³ [4] [6]<br>948.6 mg/m³ [4] [7]<br>1 mg/m³ [5] [6]<br>1 mg/m³ [5] [7] |

**Notes**
**[4]** Systemic health effects
**[5]** Local health effects
**[6]** Long term
**[7]** Short term

**Predicted No Effect Concentration (PNEC)**

| Chemical name | Freshwater | Freshwater (intermittent release) | Marine water | Marine water (intermittent release) | Air |
|---|---|---|---|---|---|
| Phosphoric acid 7664-38-2 | 4 mg/kg food 100 µg/L | 1000 µg/L | 4 mg/kg food 10 µg/L | - | - |

| Chemical name | Freshwater sediment | Marine sediment | Sewage treatment | Soil | Food chain |
|---|---|---|---|---|---|
| Phosphoric acid 7664-38-2 | 392 µg/kg sediment dw | 39.2 µg/kg sediment dw | 100 mg/L | 19.7 µg/kg soil dw | - |

**8.2. Exposure controls**

**Engineering controls** Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Personal protective equipment**

**Eye/face protection** Wear safety glasses with side shields (or goggles).

**Hand protection** Barrier creams may help to protect the exposed areas of skin. Gloves must be inspected prior to use. The selected protective gloves have to satisfy the specifications of EU Directive 2016/425 and the standard EN 374-1:2016 derived from it. Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374-1:2016.

| Gloves | | | |
|---|---|---|---|
| Duration of contact | PPE - Glove material | Glove thickness | Break through time |
| Long term (repeated) | Wear protective Viton™ gloves | 0,70 mm | >480 minutes |
| Short term | Wear protective nitrile rubber gloves | 0,20 mm | >30 minutes |

**Skin and body protection** Wash contaminated clothing before reuse.

**Respiratory protection** Ensure adequate ventilation. Wear breathing apparatus if exposed to vapours/dusts/aerosols.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice.

**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
**Colour** colourless
**Odour** Odourless.

| Property | Values | Remarks • Method |
|---|---|---|
| **Melting point / freezing point** | No data available | |
| **Initial boiling point and boiling range** | 100 °C | |
| **Flammability** | No data available | |
| **Upper flammability or explosive limits** | No data available | |

| | | |
|---|---|---|
| **Lower flammability or explosive limits** | No data available | |
| **Flash point** | No data available | |
| **Autoignition temperature** | No data available | |
| **Decomposition temperature** | No data available | |
| **pH** | 2.1 | @ 20 °C |
| **Kinematic viscosity** | No data available | |
| **Dynamic viscosity** | No data available | |
| **Partition coefficient** | No data available | |
| **Vapour pressure** | | |
| **Relative density** | 1.0 g/mL | @ 20 °C |
| **Relative vapor density** | No data available | |
| **Particle characteristics** | | |
| **Particle Size** | No information available | |
| **Particle Size Distribution** | No information available | |

**Solubility(ies)**

**Water solubility**

| Water solubility classification | Water solubility | Water Solubility Temperature |
|---|---|---|
| Soluble | > 1000 mg/L | 25 °C / 77 °F |

**Solubility in other solvents**

| Chemical Name | Solubility classification | Solubility | Solubility Temperature |
|---|---|---|---|
| None reported | No information available | No data available | No information available |

**9.2. Other information**

***9.2.1. Information with regards to physical hazard classes***

**Corrosive to metals**

| | |
|---|---|
| **Steel Corrosion Rate** | No data available |
| **Aluminum Corrosion Rate** | No data available |

***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.

**10.3. Possibility of hazardous reactions**

**Possibility of hazardous reactions** None under normal processing.

**Hazardous polymerisation** None under normal processing.

**10.4. Conditions to avoid**

**Conditions to avoid** None known based on information supplied.

**10.5. Incompatible materials**

**Incompatible materials** None known based on information supplied.

**10.6. Hazardous decomposition products**

**Hazardous Decomposition Products** No information available.

## Section 11: TOXICOLOGICAL INFORMATION

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

**Acute toxicity**
Based on available data, the classification criteria are not met

***Mixture*** No data available.

***Substance*** Test data reported below.

**Oral Exposure Route:**

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---|---|---|---|---|---|
| Ammonium chloride | Rat $LD_{50}$ | 1650 mg/kg | None reported | None reported | IUCLID |

**Acute Toxicity Estimate (ATE)** Not applicable
mg/kg

**Unknown acute toxicity**
1E-05 % of the mixture consists of ingredient(s) of unknown toxicity.

**Skin corrosion/irritation**
Based on available data, the classification criteria are not met.

***Mixture*** No data available.

***Substance*** Test data reported below.

| Chemical name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|---|---|---|---|---|---|---|
| Phosphoric acid | Draize Test | Rabbit | 800 mg | None reported | Corrosive to skin | ECHA |
| Ammonium chloride | Existing human experience | Human | None reported | None reported | Mild skin irritant | RTECS |

**Serious eye damage/eye irritation**
Based on available data, the classification criteria are not met.

***Mixture*** No data available.

***Substance*** Test data reported below.

| Chemical name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|---|---|---|---|---|---|---|
| Phosphoric acid | Draize Test | Rabbit | 199 mg | None reported | Corrosive to eyes | RTECS |

**Respiratory or skin sensitisation**
Based on available data, the classification criteria are not met.

***Mixture*** No data available.

***Substance*** Test data reported below.

**Skin Sensitization Exposure Route:**

| Chemical name | Test method | Species | Results | Key literature references and sources for data |
|---|---|---|---|---|
| Ammonium chloride | OECD Test No. 406: Skin Sensitisation | Guinea pig | No sensitisation responses were observed. | OECD 429: Skin Sensitization: Local Lymph Node Assay |

**STOT - single exposure**
Based on available data, the classification criteria are not met.

***Mixture*** No data available.

***Substance*** Test data reported below.

**Oral Exposure Route:**

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---|---|---|---|---|---|
| Ammonium chloride | Domestic mammal - Not specified $LD_{Lo}$ | 1500 mg/kg | None reported | None reported | RTECS |

**STOT - repeated exposure**
Based on available data, the classification criteria are not met.

***Mixture*** No data available.

***Substance*** Test data reported below.

**Oral Exposure Route:**

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---|---|---|---|---|---|
| Ammonium chloride | Rat $TD_{Lo}$ | 3500 mg/kg | 7 days | No toxicological effects observed | RTECS |

**Germ cell mutagenicity**
Based on available data, the classification criteria are not met.

***Mixture invitro* Data** No data available.

***Substance invitro* Data** Test data reported below.

| Chemical name | Test | Cell Strain | Reported dose | Exposure time | Results | Key literature references and sources for data |
|---|---|---|---|---|---|---|
| Phosphoric acid | Mutation in microorganisms | *Salmonella typhimurium* | 5 mg/plate | 3 days | Negative | ECHA |
| Ammonium chloride | OECD 471 | *Salmonella typhimurium* | 5 mg/plate | 72 hours | Negative | RTECS |

***Mixture invivo* Data** No data available.

***Substance invivo* Data** No data available.

**Carcinogenicity**
Based on available data, the classification criteria are not met.

***Mixture*** No data available.

***Substance*** No data available.

**Reproductive toxicity**
Based on available data, the classification criteria are not met.

***Mixture*** No data available.

***Substance*** Test data reported below.

**Oral Exposure Route:**

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---|---|---|---|---|---|
| Phosphoric acid | Rat NOAEL | >= 500 mg/kg | 6 weeks | No reproductive or developmental toxic effects observed | ECHA |
| Ammonium chloride | Rat NOAEL | 1500 mg/kg | 16 days | None reported | ECHA |

**Aspiration hazard**
Based on available data, the classification criteria are not met.

### 11.2. Information on other hazards

Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.

#### 11.2.1. Endocrine disrupting properties
This product does not contain any known or suspected endocrine disruptors.

#### 11.2.2. Other information
**Other adverse effects** No information available.

## Section 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

**Ecotoxicity** Based on available data, the classification criteria are not met.

**Unknown aquatic toxicity** Contains 1E-05 % of components with unknown hazards to the aquatic environment.

**Mixture**

**Acute aquatic toxicity:** No data available.

**Aquatic Chronic Toxicity:** No data available.

**Substance**

**Acute aquatic toxicity:** Test data reported below.

***Fish:***

| Chemical name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|---|---|---|---|---|---|
| Ammonium chloride | 96 hours | *Oncorhynchus mykiss* | $LC_{50}$ | 42.91 mg/L | ECHA |

***Crustacea:***

| Chemical name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|---|---|---|---|---|---|
| Ammonium chloride | 48 Hours | *Daphnia magna* | $LC_{50}$ | 161 mg/L | IUCLID |

**Aquatic Chronic Toxicity:** No data available.

**12.2. Persistence and degradability**

**Mixture** No data available.

**12.3. Bioaccumulative potential**

**Mixture:** No data available.

**Partition coefficient** No data available

**12.4. Mobility in soil**

**Soil Organic Carbon-Water Partition Coefficient** No data available

**12.5. Results of PBT and vPvB assessment**

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

| Chemical name | PBT and vPvB assessment |
|---|---|
| Phosphoric acid | Not PBT/vPvB |
| Ammonium chloride | Not PBT/vPvB |

**12.6. Endocrine disrupting properties**

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

**12.7. Other adverse effects**

No information available.

***Ozone:*** Not applicable

**Ozone depletion potential (ODP):** No information available

## Section 13: DISPOSAL CONSIDERATIONS

**13.1. Waste treatment methods**

**Advice on Disposal**

**Waste from residues/unused products** Our local agencies will accept used cuvettes to ensure their proper disposal.

**Waste disposal number (residues/unused products)**

160506* WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and

discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste.

**Waste disposal number (used product)**

| | |
|---|---|
| 160506* | WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste. |
| **Contaminated packaging** | Dispose of contents/containers in accordance with local regulations. |
| **Other Information** | Do not reuse empty containers. |

## Section 14: TRANSPORT INFORMATION

**ADR**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing Group** | Not regulated |
| **14.5 Environmental hazards** | Not applicable |
| **14.6 Special precautions for user Special Provisions** | None |

**IATA**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazards** | Not applicable |
| **14.6 Special precautions for user Special Provisions** | None |

**IMDG**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing Group** | Not regulated |
| **14.5 Environmental hazards** | Not applicable |
| **14.6 Special precautions for user Special Provisions** | None |
| **14.7 Maritime transport in bulk according to IMO instruments** | No information available |

**Additional information**
If the item is part of a reagent set or kit the classification would change to the following:
UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
If the item is not regulated, the Chemical Kit classification does not apply.

## Section 15: REGULATORY INFORMATION

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

**National regulations**

**European Union**

**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)

| Chemical name | Restricted substance per REACH Annex XVII | Substance subject to authorisation per REACH Annex XIV |
|---|---|---|
| Phosphoric acid - 7664-38-2 | 75 | |
| Ammonium chloride - 12125-02-9 | 75<br>65 | |

**Persistent Organic Pollutants** Not applicable

**Dangerous substance category per Seveso Directive (2012/18/EU)**
• Non-controlled

**Ozone-depleting substances (ODS) regulation (EC) 1005/2009**
Not applicable

**Germany**

**Water hazard class (WGK)** non-hazardous to water (nwg)

10. Rozporządzenie Komisji (UE) 2020/878 z dnia 18 czerwca 2020 r. zmieniające załącznik II dorozporządzenia (WE) nr1907/2006 Parlamentu Europejskiego i Rady w sprawie rejestracji, oceny, udzielaniazezwoleń i stosowanych ograniczeń wzakresie chemikaliów (REACH).

**International Inventories**

| | |
|---|---|
| **EINECS/ELINCS** | Complies |
| **TSCA** | Complies |
| **DSL/NDSL** | Complies |
| **ENCS** | Complies |
| **IECSC** | Complies |
| **KECI** | Complies |
| **PICCS** | Complies |
| **AICS** | Complies |

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
**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** Chemical safety assessments for substances in this mixture were not carried out.

## Section 16: OTHER INFORMATION

**Issue Date** 28-Jun-2005

| | |
|---|---|
| **Revision Date** | 18-Mar-2026 |
| **Revision Note** | updated SDS sections:<br>8<br>9 |

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

**Legend**

| | |
|---|---|
| ** | Hazard Designation |
| ADN | Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieure |
| ADR | European Agreement concerning the International Carriage of Dangerous Goods by Road |
| ATE | Acute Toxicity Estimate |
| CAS | Chemical Abstracts Service Number |
| Ceiling | Maximum limit value |
| CLP | Classification, Labelling and Packaging of substances and mixtures [Regulation (EC) No. 1272/2008] |
| DNEL | Derived No Effect Level (DNEL) |
| EC | European Community |
| ECHA | ECHA (The European Chemicals Agency) |
| EC50 | Effective Concentration to 50% of a test population |
| EEC | European Economic Community |
| EN | European Standard |
| IMDG | International Maritime Dangerous Goods (IMDG) |
| IATA | International Air Transport Association (IATA) |
| IATA-DGR | International Air Transport Association - Dangerous Goods Regulations |
| ICAO | International Civil Aviation Organisation |
| ICAO-TI | International Civil Aviation Organization - Technical Instructions |
| IUCLID | IUCLID (The International Uniform Chemical Information Database) |
| GHS | Globally Harmonized System of Classification and Labelling of Chemicals |
| LOAEL | Lowest observed adverse effect level |
| LOAEC | Lowest observed adverse effect concentration |
| LC50 | Lethal Concentration to 50% of a test population |
| LD50 | Lethal Dose to 50% of a test population (Median Lethal Dose) |
| LOLI | LOLI (List of Lists - An International Chemical Regulatory Database) |
| MAK | Maximale Arbeitsplatz-Konzentration, a German expression corresponding to threshold limit value, which relates to safe daily exposure levels to chemical substances |
| NOAEL | No Observed Adverse Effect Level |
| NOAEC | No observed adverse effect concentration |
| OSHA | Occupational Safety and Health Administration of the US Department of Labour |
| PEC | Predicted Effect Concentration |
| PNEC | Predicted No Effect Concentration (PNEC) |
| PBT | Persistent, Bioaccumulative, and Toxic (PBT) Chemicals |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals [Regulation (EC) No. 1907/2006]) |
| RTECS | RTECS (Registry of Toxic Effects of Chemical Substances) |
| TWA | TWA (time-weighted average) |
| SKN* | Skin designation |
| SKN+ | Skin sensitisation |
| STEL | STEL (Short Term Exposure Limit) |
| STOT | Specific Target Organ Toxicity |
| STOT RE | Specific target organ toxicity (repeated exposure) |
| STOT SE | Specific target organ toxicity (single exposure) |
| SVHC | Substances of Very High Concern |
| TLV | Threshold Limit Value |
| TRGS | Technical rules for hazardous substances, Germany |
| TSCA | Toxic Substances Control Act |
| UN | United Nations |
| vPvB | very persistent and very bioaccumulative |

| | |
|---|---|
| VOC | Volatile organic compounds |
| AwSV | Administrative regulation of water polluting substances, Germany |

**Key literature references and sources for data**
See Section 11: TOXICOLOGICAL INFORMATION
See Section 12: ECOLOGICAL INFORMATION

**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 | On basis of test data |
| 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 toxicity | Calculation method |
| Ozone | Calculation method |

**Training Advice** 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

**Restrictions on use** For Laboratory Use Only.

**This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006 Regulation (EC) No. 1907/2006 as amended by Regulation (EU) No. 2020/878, and Regulation (EC) No. 1272/2008**

**End of Safety Data Sheet**