# SAFETY DATA SHEET

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

**Issue Date** 14-Jun-2005 **Revision Date** 14-Feb-2023 **Version** 4.02

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

### 1.1. Product identifier

**Product Code(s)** 2380123

**Product Name** ECR Masking Reagent Solution

**Unique Formula Identifier (UFI)** 7GV6-9ACQ-500W-ANJ8

**Molecular weight** Not applicable

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

**Recommended Use** Water Analysis. Determination of aluminum.

**Uses advised against** Consumer use

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

**Supplier**
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: Poison Control Center Mainz: Tel: +49 (0) 6131 19240 - 24 hour emergency service
IE: National Poisons Information Centre (NPIC) 01 809 2566 (24/7)

## Section 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

*Regulation (EC) No 1272/2008*

| | |
|---|---|
| **Acute toxicity - Oral** | Category 4 - (H302) |
| **Acute toxicity - Dermal** | Category 4 - (H312) |
| **Serious eye damage/eye irritation** | Category 1 - (H318) |

| | |
|---|---|
| **Specific target organ toxicity — repeated exposure** | Category 2 - (H373) |

**2.2. Label elements**

Contains Ammonium fluoride

**Signal word**
Danger

**Hazard statements**
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
H373 - May cause damage to organs through prolonged or repeated exposure

**Precautionary Statements - EU (§28, 1272/2008)**
P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician

**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)

## Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

**3.1 Substances**

Not applicable

**3.2 Mixtures**

| Chemical name | CAS No.<br>EC No.<br>Index No. | Weight-% | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) |
|---|---|---|---|---|---|---|
| Ammonium fluoride | 12125-01-8<br>235-185-9 | 10 - 20% | Acute Tox. 3 - H301<br>Acute Tox. 3 - H311 | - | - | - |

| Chemical name | CAS No.<br>EC No.<br>Index No. | Weight-% | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) |
|---|---|---|---|---|---|---|
| | 009-006-00-8 | | Eye Dam. 1 - H318<br>Acute Tox. 3 - H331<br>STOT SE 3 - H335<br>STOT RE 2 - H373<br>Aquatic Chronic 3 - H412 | | | |

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

*Acute Toxicity Estimate* *No information available*

| 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 fluoride<br>12125-01-8 | > 200 mg/kg | None reported | 1 mg/L | None reported | None reported |

## Section 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

**General advice** Take off contaminated clothing and shoes immediately. Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Inhalation** Remove to fresh air. Get medical attention immediately if symptoms occur.

**Eye contact** Get immediate medical attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.

**Skin contact** Wash off immediately with soap and plenty of water for at least 15 minutes. If symptoms persist, call a doctor.

**Ingestion** Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a doctor.

**Self-protection of the first aider** Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8). Avoid contact with skin, eyes or clothing.

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

**Symptoms** Burning sensation.

### 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** This material will not burn.

**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.

**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. Use personal protective equipment as required. Evacuate personnel to safe areas.

**For emergency responders** Use personal protection recommended in Section 8.

**6.2. Environmental precautions**

**Environmental precautions** Prevent further leakage or spillage if safe to do so.

**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** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not eat, drink or smoke when using this product.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Take off all contaminated clothing and wash it before reuse. Barrier creams may help to

protect the exposed areas of skin.

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

**Storage Conditions** Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from light. Keep out of the reach of children.

**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 |
|---|---|---|---|
| Ammonium fluoride<br>12125-01-8 | TWA: 2.5 mg/m³ | TWA: 2.5 mg/m³<br>STEL: 7.5 mg/m³ | TWA: 2.5 mg/m³<br>STEL: 7.5 mg/m³ |

| Chemical name | European Union | United Kingdom | Ireland |
|---|---|---|---|
| Ammonium fluoride<br>12125-01-8 | - | - | 2 mg/L (urine - Fluoride prior to shift)<br>3 mg/L (urine - Fluoride end of shift) |

**Derived No Effect Level (DNEL)** No information available.

**Predicted No Effect Concentration (PNEC)** No information available.

**Additional information** No information available.

**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** Wear suitable gloves. 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 acco.

| 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** | Wear suitable protective clothing. Long sleeved clothing. |
| **Respiratory protection** | Wear breathing apparatus if exposed to vapours/dusts/aerosols. |
| **Recommended filter type:** | ABEK-P3. |
| **General hygiene considerations** | Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Take off all contaminated clothing and wash it before reuse. Barrier creams may help to protect the exposed areas of skin. |
| **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

**Odour threshold** Not applicable

| Property | Values | Remarks • Method |
|---|---|---|
| **Molecular weight** | Not applicable | |
| **pH** | 5.85 - 6.15 | @ 20 °C |
| **Melting point / freezing point** | -24 °C / -11.2 °F | |
| **Initial boiling point and boiling range** | 99 °C / 210.2 °F | |
| **Evaporation rate** | 0.68 (water = 1) | |
| **Vapour pressure** | 20.927 mm Hg / 2.79 kPa at 25 °C / 77 °F | |
| **Relative vapor density** | 0.62 | |
| **Specific Gravity** | 1.147 | |
| **Partition coefficient** | No data available | |
| **Soil Organic Carbon-Water Partition Coefficient** | No data available | |
| **Autoignition temperature** | No data available | |
| **Decomposition temperature** | No data available | |
| **Dynamic viscosity** | No data available | |
| **Kinematic viscosity** | No data available | |
| **Relative density** | 1.147 g/mL | @ 20 °C |

**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 |

**Metal Corrosivity**

**Steel Corrosion Rate** 0.3 mm/yr / 0.01 in/yr
**Aluminum Corrosion Rate** 0.15 mm/yr / 0.01 in/yr

**Explosive properties**

**Upper explosion limit** Not applicable
**Lower explosion limit** Not applicable

**Flammable properties**

**Flash point** No data available

**Flammability**

**Upper flammability limit:** No data available
**Lower flammability limit** No data available

**Oxidising properties** No data available.

**Bulk density** Not applicable

**9.2. Other information**

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** Hazardous polymerisation does not occur.

**10.4. Conditions to avoid**

**Conditions to avoid** Extremes of temperature and direct sunlight.

**10.5. Incompatible materials**

**Incompatible materials** Strong acids. Strong oxidising agents.

**10.6. Hazardous decomposition products**

**Hazardous Decomposition Products** Ammonia. nitrogen oxides. Hydrogen fluoride.

## Section 11: TOXICOLOGICAL INFORMATION

**11.1. Information on toxicological effects**

**Acute toxicity**
Harmful if swallowed
Harmful in contact with skin

*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 fluoride | Rat $LD_{50}$ | > 200 mg/kg | None reported | None reported | USDA |

**Dermal Exposure Route:**

**Inhalation (Dust/Mist) Exposure Route:**

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---|---|---|---|---|---|
| Ammonium fluoride | Rat $LC_{50}$ | 1 mg/L | 4 hours | None reported | USDA |

**Acute Toxicity Estimate (ATE)**

**The following values are calculated based on chapter 3.1 of the GHS document**

| | |
|---|---|
| **ATEmix (oral)** | 1,274.40 mg/kg |
| **ATEmix (dermal)** | 1,911.70 mg/kg |
| **ATEmix (inhalation-dust/mist)** | 6.37 mg/l |

**Unknown acute toxicity**
0 % of the mixture consists of ingredient(s) of unknown toxicity.

0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapour)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

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

*Mixture* No data available.

*Substance* No data available.

**Serious eye damage/eye irritation**
Classification based on data available for ingredients. Causes burns. Risk of serious damage to eyes.

*Mixture* No data available.

*Substance* No data available.

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

*Mixture* No data available.

*Substance* No data available.

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

*Mixture* No data available.

*Substance* No data available.

**STOT - repeated exposure**
May cause damage to organs.

*Mixture* No data available.

*Substance* No data available.

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

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

*Substance invitro* **Data** No data available.

*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* No data available.

**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**
**Endocrine disrupting properties** No information available.

**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 0 % 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.

*Crustacea:*

| Chemical name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|---|---|---|---|---|---|
| Ammonium fluoride | 48 Hours | None reported | $EC_{50}$ | 66 mg/L | ECHA |

**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 |
|---|---|
| Ammonium fluoride | The substance is 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** | Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation. |

**Waste disposal number of waste from 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 of 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** | Waste codes should be assigned by the user based on the application for which the product was used. |

## Section 14: TRANSPORT INFORMATION

**IMDG**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 Proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing Group** | Not regulated |
| **14.5 Marine pollutant** | Not applicable |
| **14.6 Special precautions for user** | See section 6-8 for more information |
| **14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code** | Not applicable |

**ADR**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 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** | See section 6-8 for more information |

**IATA** Not regulated

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 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** | See section 6-8 for more information |

**Additional information**

## Section 15: REGULATORY INFORMATION

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

**National regulations**

**European Union**

**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**

**Take note of Directive 94/33/EC on the protection of young people at work**

**Authorisations and/or restrictions on use:**
This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances 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 |
|---|---|---|
| Ammonium fluoride - 12125-01-8 | 75. | |

**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)** slightly hazardous to water (WGK 1)

**France**

**Occupational Illnesses (R-463-3, France)**

| Chemical name | French RG number | Title |
|---|---|---|
| Ammonium fluoride<br>12125-01-8 | RG 32 | - |

**International Inventories**

| | |
|---|---|
| **EINECS/ELINCS** | Complies |
| **TSCA** | Complies |
| **DSL/NDSL** | Complies |
| **ENCS** | Complies |
| **IECSC** | Complies |
| **KECL - Existing substances** | 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** 14-Jun-2005

**Revision Date** 14-Feb-2023

**Revision Note** New SDS, SDS sections updated, 3, 9, 11, 12.

**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 Organization |
| 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 | NOAEL (No observed adverse effect level) |
| NOAEC | No observed adverse effect concentration |
| OSHA | 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]) |
| RID | Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) |
| 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 | 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 |
| Acute aquatic toxicity | Calculation method |
| Chronic aquatic toxicity | Calculation method |
| Aspiration toxicity | Calculation method |
| Ozone | Calculation method |

**Full text of H-Statements referred to under section 3**
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H318 - Causes serious eye damage
H331 - Toxic if inhaled
H335 - May cause respiratory irritation
H373 - May cause damage to organs through prolonged or repeated exposure
H412 - Harmful to aquatic life with long lasting effects

**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**

**End of Safety Data Sheet**