

CREW LIME AND SCALE REMOVER

Revision: 2025-04-11

Version: 01.1

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

1.1 Product identifier

Trade name: CREW LIME AND SCALE REMOVER

1.2 Recommended use and restrictions on use

See product label.
For professional use only.

1.3 Details of the supplier of the safety data sheet

SOLENIS VIETNAM COMPANY LIMITED

Contact details

Level 4&5, M-Building, Lot C7B-02A, Block A, No.9 Street 8, Zone Saigon South New Urban Area, Tan Phu Ward, District 7, Ho Chi Minh City, VIETNAM
Tel. 0314996293

1.4 Emergency telephone number

In case of medical emergency, please seek professional medical advice.

SECTION 2: Composition/information on ingredients

2.1 Substances / Mixtures

| Ingredient(s) | CAS number | EC number | Classification | Weight percent |
|--|-------------|-----------|--|----------------|
| Hydrochloric acid | 7647-01-0 | 231-595-7 | Skin corrosion, Category 1A (H314) Specific target organ toxicity - Single exposure, Category 3 (H335) Acute aquatic toxicity, Category 3 (H402) Corrosive to metals, Category 1 (H290) | 10-20 |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | 166736-08-9 | [4] | Acute toxicity - Oral, Category 4 (H302) Serious eye damage, Category 1 (H318) Acute aquatic toxicity, Category 3 (H402) | 1-3 |

Workplace exposure limit(s), if available, are listed in subsection 8.1.
ATE, if available, are listed in section 11.

SECTION 3: Hazards identification

3.1 Classification of the substance or mixture

Skin corrosion, Category 1B
Serious eye damage, Category 1
Specific target organ toxicity (single exposure), Category 3
Corrosive to metals, Category 1

3.2 Label elements



Signal word: Danger.

Hazard statements:

H290 - May be corrosive to metals.
H314 - Causes severe skin burns and eye damage.
H335 - May cause respiratory irritation.

Precautionary statements:

P260 - Do not breathe vapours.
P280 - Wear protective gloves, protective clothing and eye or face protection.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

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Continue rinsing.

P310 - Immediately call a POISON CENTRE, doctor or physician.

3.3 Other hazards

No other hazards known. Exposure and appropriate engineering controls are specified in subsection 8.2 exposure controls.

3.4 Classification diluted product

Recommended maximum concentration (% w/w): 50

Skin irritation, Category 2

Serious eye damage, Category 1

Corrosive to metals, Category 1

3.5 Label elements diluted product

Signal word: Danger.

Hazard statements:

H315 - Causes skin irritation.

H318 - Causes serious eye damage.

H290 - May be corrosive to metals.

Precautionary statements:

P280 - Wear eye or face protection.

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 CENTRE, doctor or physician.

SECTION 4: First aid measures**4.1 Description of first aid measures****General Information:**

Symptoms of intoxication may even occur after several hours. It is recommended to continue medical observation for at least 48 hours after the incident. If unconscious place in recovery position and seek medical advice. Provide fresh air. If breathing is irregular or stopped, administer artificial respiration. No mouth-to-mouth or mouth-to-nose resuscitation. Use Ambu bag or ventilator. Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTRE, doctor or physician if you feel unwell.

Inhalation:**Skin contact:**

Wash skin with plenty of lukewarm, gently flowing water for at least 30 minutes. Take off immediately all contaminated clothing and wash it before reuse. Immediately call a POISON CENTRE, doctor or physician.

Eye contact:

Hold eyelids apart and flush eyes with plenty of lukewarm water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE, doctor or physician.

Ingestion:

Rinse mouth. Immediately drink 1 glass of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Keep at rest. Immediately call a POISON CENTRE, doctor or physician.

Self-protection of first aider:

Consider personal protective equipment as indicated in subsection 8.2.

4.2 Most important symptoms and effects, both acute and delayed**Inhalation:**

May cause respiratory irritation.

Skin contact:

Causes severe burns.

Eye contact:

Causes severe or permanent damage.

Ingestion:

Ingestion will lead to a strong caustic effect on mouth and throat and to the danger of perforation of oesophagus and stomach.

4.3 Indication of any immediate medical attention and special treatment needed

No information available on clinical testing and medical monitoring. Specific toxicological information on substances, if available, can be found in section 11.

SECTION 5: Firefighting measures**5.1 Extinguishing media**

Carbon dioxide. Dry powder. Water spray jet. Fight larger fires with water spray jet or alcohol-resistant foam.

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5.2 Special hazards arising from the substance or mixture

No special hazards known.

5.3 Advice for firefighters

As in any fire, wear self contained breathing apparatus and suitable protective clothing including gloves and eye/face protection.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation. Do not breathe dust or vapour. Wear suitable protective clothing. Wear eye/face protection. Wear suitable gloves.

6.2 Environmental precautions

Dilute with plenty of water. Do not allow to enter drainage system, surface or ground water.

6.3 Methods and material for containment and cleaning up

Ensure adequate ventilation. Dyke to collect large liquid spills. Use neutralising agent. Absorb with liquid-binding material (sand, diatomite, universal binders). Do not place spilled materials back into the original container. Collect in closed and suitable containers for disposal.

6.4 Reference to other sections

For personal protective equipment see subsection 8.2. For disposal considerations see section 13.

SECTION 7: Handling and storage**7.1 Precautions for safe handling****Measures to prevent fire and explosions:**

No special precautions required.

Measures required to protect the environment:

For environmental exposure controls see subsection 8.2.

Advice on general occupational hygiene:

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not mix with other products unless advised by Diversey. Wash face, hands and any exposed skin thoroughly after handling. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. Avoid contact with skin and eyes. Do not breathe vapours. Use only outdoors or in a well-ventilated area. See chapter 8.2, Exposure controls / Personal protection.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local and national regulations. Store in a closed container. Keep only in original packaging. For conditions to avoid see subsection 10.4. For incompatible materials see subsection 10.5.

7.3 Specific end use(s)

No specific advice for end use available.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****Workplace exposure limits**

Air limit values, if available:

| Ingredient(s) | Long term value(s) | Short term value(s) |
|-------------------|-----------------------|-----------------------|
| Hydrochloric acid | 5.0 mg/m ³ | 7.5 mg/m ³ |

Biological limit values, if available:

8.2 Exposure controls

The following information applies for the uses indicated in subsection 1.2 of the Safety Data Sheet. If available, please refer to the product information sheet for application and handling instructions. Normal use conditions are assumed for this section.

Recommended safety measures for handling the undiluted product:

Covering activities such as filling and transfer of product to application equipment, flasks or buckets

Appropriate engineering controls: If the product is diluted by using specific dosing systems with no risk of splashes or direct skin contact, the personal protection equipment as described in this section is not required.

Appropriate organisational controls: Avoid direct contact and/or splashes where possible. Train personnel.

Personal protective equipment**Eye / face protection:**

Safety glasses or goggles (EN 16321). The use of a full-face shield or other full-face protection is strongly recommended when handling open containers or if splashes may occur.

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| | |
|--------------------------------|--|
| Hand protection: | Chemical-resistant protective gloves (EN 374). Verify instructions regarding permeability and breakthrough time, as provided by the gloves supplier. Consider specific local use conditions, such as risk of splashes, cuts, contact time and temperature. Suggested gloves for prolonged contact: Material: butyl rubber Penetration time: ≥ 480 min Material thickness: ≥ 0.7 mm Suggested gloves for protection against splashes: Material: nitrile rubber Penetration time: ≥ 30 min Material thickness: ≥ 0.4 mm In consultation with the supplier of protective gloves a different type providing similar protection may be chosen. |
| Body protection: | Wear chemical-resistant clothing and boots in case direct dermal exposure and/or splashes may occur (EN 14605). |
| Respiratory protection: | If exposure to liquid particles or splashes cannot be avoided use: half mask (EN 140) or full-face mask (EN 136) with particle filter P2 (EN 143) Consider specific local use conditions. In consultation with the supplier of respiratory protection equipment a different type providing similar protection may be chosen. Specific applications tools may be available to limit exposure. Please refer to the product information sheet for the possibilities. Apply technical measures to comply with the occupational exposure limits, if available. |

Environmental exposure controls: Should not reach sewage water or drainage ditch undiluted or unneutralised.

Recommended safety measures for handling the diluted product:

Recommended maximum concentration (% w/w): 50

Appropriate engineering controls: No special requirements under normal use conditions.
Appropriate organisational controls: Avoid direct contact and/or splashes where possible. Train personnel.

Personal protective equipment

| | |
|---|---|
| Eye / face protection: | Safety glasses or goggles (EN 16321). |
| Hand protection: | Rinse and dry hands after use. For prolonged contact protection for the skin may be necessary. Repeated or prolonged contact: Chemical-resistant protective gloves (EN 374). Verify instructions regarding permeability and breakthrough time, as provided by the gloves supplier. Consider specific local use conditions, such as risk of splashes, cuts, contact time and temperature. Suggested gloves for prolonged contact: Material: butyl rubber Penetration time: ≥ 480 min Material thickness: ≥ 0.7 mm Suggested gloves for protection against splashes: Material: nitrile rubber Penetration time: ≥ 30 min Material thickness: ≥ 0.4 mm In consultation with the supplier of protective gloves a different type providing similar protection may be chosen. |
| Body protection: | No special requirements under normal use conditions |
| Respiratory protection: | No special requirements under normal use conditions. |
| Environmental exposure controls: | No special requirements under normal use conditions. |

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | Method / remark |
|--|--|
| Physical state: Liquid | |
| Colour: Clear , Blue | |
| Odour: Product specific | |
| Odour threshold: Not applicable | |
| pH: ≤ 2 (neat) | ISO 4316 |
| Dilution pH: < 2 (50 %) | ISO 4316 |
| Melting point/freezing point (°C): Not determined | Not relevant to classification of this product |
| Initial boiling point and boiling range (°C): Not determined | |
| Flammability (liquid): Not flammable. | |
| Flash point (°C): Not determined | |
| Sustained combustion: Not applicable. (UN Manual of Tests and Criteria, section 32, L.2) | |
| Evaporation rate: Not determined | Not relevant to classification of this product |
| Flammability (solid, gas): Not applicable to liquids | |
| Lower and upper explosion limit/flammability limit (%): Not determined | |
| Vapour pressure: Not determined | |
| Relative density: ≈ 1.10 (20 °C) | OECD 109 (EU A.3) |
| Relative vapour density: No data available. | Not relevant to classification of this product |
| Particle characteristics: No data available. | Not applicable to liquids. |
| Solubility in / Miscibility with water: Fully miscible | |
| Partition coefficient: n-octanol/water No information available. | |

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Substance data, partition coefficient n-octanol/water (log Kow): see subsection 12.3

Autoignition temperature: Not determined
Decomposition temperature: Not applicable.
Kinematic viscosity: Not determined
Explosive properties: Not explosive.
Oxidising properties: Not oxidising.

9.2 Other information

Surface tension (N/m): Not determined
Corrosion to metals: Corrosive

SECTION 10: Stability and reactivity

10.1 Reactivity

No reactivity hazards known under normal storage and use conditions.

10.2 Chemical stability

Stable under normal storage and use conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions known under normal storage and use conditions.

10.4 Conditions to avoid

None known under normal storage and use conditions.

10.5 Incompatible materials

May be corrosive to metals. Reacts with alkali. Keep away from products containing chlorine-based bleaching agents or sulphites.

10.6 Hazardous decomposition products

None known under normal storage and use conditions.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Mixture data: .

Relevant calculated ATE(s):

ATE - Oral (mg/kg): >5000

Substance data, where relevant and available, are listed below:.

Acute toxicity

Acute oral toxicity

| Ingredient(s) | Endpoint | Value (mg/kg) | Species | Method | Exposure time (h) |
|--|------------------|---------------|---------|------------------------|-------------------|
| Hydrochloric acid | LD ₅₀ | 900 | Rabbit | Method not given | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | LD ₅₀ | > 300-2000 | Rat | OECD 423 (EU B.1 tris) | |

Acute dermal toxicity

| Ingredient(s) | Endpoint | Value (mg/kg) | Species | Method | Exposure time (h) |
|--|------------------|-------------------|---------|------------------|-------------------|
| Hydrochloric acid | LD ₅₀ | > 5010 | Rabbit | Method not given | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | | No data available | | | |

Acute inhalative toxicity

| Ingredient(s) | Endpoint | Value (mg/l) | Species | Method | Exposure time (h) |
|--|------------------|-------------------|---------|------------------|-------------------|
| Hydrochloric acid | LC ₅₀ | 8 (mist) | Rat | Method not given | 0.5 |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | | No data available | | | |

Irritation and corrosivity

Skin irritation and corrosivity

| Ingredient(s) | Result | Species | Method | Exposure time |
|--|--------------|---------|-------------------|---------------|
| Hydrochloric acid | Corrosive | Rabbit | Method not given | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | Not irritant | Rabbit | OECD 404 (EU B.4) | |

Eye irritation and corrosivity

| Ingredient(s) | Result | Species | Method | Exposure time |
|--|-------------------------|---------|-------------------|---------------|
| Hydrochloric acid | Corrosive Severe damage | Rabbit | OECD 405 (EU B.5) | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | Severe damage | Rabbit | OECD 405 (EU B.5) | |

Respiratory tract irritation and corrosivity

| Ingredient(s) | Result | Species | Method | Exposure time |
|--|---------------------------------|---------|--------|---------------|
| Hydrochloric acid | Irritating to respiratory tract | | | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | No data available | | | |

Sensitisation

Sensitisation by skin contact

| Ingredient(s) | Result | Species | Method | Exposure time (h) |
|--|-----------------|------------|--------------------------|-------------------|
| Hydrochloric acid | Not sensitising | Guinea pig | OECD 406 (EU B.6) / GPMT | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | Not sensitising | Guinea pig | OECD 406 (EU B.6) | |

Sensitisation by inhalation

| Ingredient(s) | Result | Species | Method | Exposure time |
|--|-------------------|---------|--------|---------------|
| Hydrochloric acid | No data available | | | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | No data available | | | |

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Mutagenicity

| Ingredient(s) | Result (in-vitro) | Method (in-vitro) | Result (in-vivo) | Method (in-vivo) |
|--|------------------------------|-----------------------|-------------------|------------------|
| Hydrochloric acid | No evidence for mutagenicity | OECD 471 (EU B.12/13) | No data available | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | No data available | | No data available | |

Carcinogenicity

| Ingredient(s) | Effect |
|--|--|
| Hydrochloric acid | No evidence for carcinogenicity, negative test results |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | No data available |

Toxicity for reproduction

| Ingredient(s) | Endpoint | Specific effect | Value (mg/kg bw/d) | Species | Method | Exposure time | Remarks and other effects reported |
|--|----------|-----------------|--------------------|---------|--------|---------------|---------------------------------------|
| Hydrochloric acid | | | No data available | | | | No evidence for reproductive toxicity |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | | | No data available | | | | |

Repeated dose toxicity

Sub-acute or sub-chronic oral toxicity

| Ingredient(s) | Endpoint | Value (mg/kg bw/d) | Species | Method | Exposure time (days) | Specific effects and organs affected |
|--|----------|--------------------|---------|--------|----------------------|--------------------------------------|
| Hydrochloric acid | | No data available | | | | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | | No data available | | | | |

Sub-chronic dermal toxicity

| Ingredient(s) | Endpoint | Value (mg/kg bw/d) | Species | Method | Exposure time (days) | Specific effects and organs affected |
|--|----------|--------------------|---------|--------|----------------------|--------------------------------------|
| Hydrochloric acid | | No data available | | | | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | | No data available | | | | |

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Sub-chronic inhalation toxicity

| Ingredient(s) | Endpoint | Value (mg/kg bw/d) | Species | Method | Exposure time (days) | Specific effects and organs affected |
|--|----------|--------------------|---------|--------|----------------------|--------------------------------------|
| Hydrochloric acid | | No data available | | | | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | | No data available | | | | |

Chronic toxicity

| Ingredient(s) | Exposure route | Endpoint | Value (mg/kg bw/d) | Species | Method | Exposure time | Specific effects and organs affected | Remark |
|--|----------------|----------|--------------------|---------|--------|---------------|--------------------------------------|--------|
| Hydrochloric acid | | | No data available | | | | | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | | | No data available | | | | | |

STOT-single exposure

| Ingredient(s) | Affected organ(s) |
|--|-------------------|
| Hydrochloric acid | No data available |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | No data available |

STOT-repeated exposure

| Ingredient(s) | Affected organ(s) |
|--|-------------------|
| Hydrochloric acid | No data available |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | No data available |

Aspiration hazard

Substances with an aspiration hazard (H304), if any, are listed in section 3.

Potential adverse health effects and symptoms

Effects and symptoms related to the product, if any, are listed in subsection 4.2.

SECTION 12: Ecological information

12.1 Toxicity

No data is available on the mixture .

Substance data, where relevant and available, are listed below:

Aquatic short-term toxicity

Aquatic short-term toxicity - fish

| Ingredient(s) | Endpoint | Value (mg/l) | Species | Method | Exposure time (h) |
|--|------------------|--------------|--------------------------|-------------------|-------------------|
| Hydrochloric acid | LC ₅₀ | 7.45 | <i>Various species</i> | Method not given | 96 |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | LC ₅₀ | > 10-100 | <i>Brachydanio rerio</i> | OECD 203 (EU C.1) | 96 |

Aquatic short-term toxicity - crustacea

| Ingredient(s) | Endpoint | Value (mg/l) | Species | Method | Exposure time (h) |
|--|------------------|--------------|-----------------------------|-------------------|-------------------|
| Hydrochloric acid | EC ₅₀ | 0.492 | <i>Daphnia magna Straus</i> | Method not given | 48 |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | EC ₅₀ | > 10-100 | <i>Daphnia magna Straus</i> | OECD 202 (EU C.2) | 48 |

Aquatic short-term toxicity - algae

| Ingredient(s) | Endpoint | Value (mg/l) | Species | Method | Exposure time (h) |
|--|------------------|--------------|--|-------------------|-------------------|
| Hydrochloric acid | EC ₅₀ | 0.73 | <i>Pseudokirchneriella subcapitata</i> | Method not given | 72 |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | EC ₅₀ | > 10-100 | <i>Desmodesmus subspicatus</i> | OECD 201 (EU C.3) | 72 |

Aquatic short-term toxicity - marine species

| Ingredient(s) | Endpoint | Value (mg/l) | Species | Method | Exposure time (days) |
|-------------------|----------|-------------------|---------|--------|----------------------|
| Hydrochloric acid | | No data available | | | |

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| | | | | |
|--|--|-------------------|--|--|
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | | No data available | | |
|--|--|-------------------|--|--|

Impact on sewage plants - toxicity to bacteria

| Ingredient(s) | Endpoint | Value (mg/l) | Inoculum | Method | Exposure time |
|--|----------|-------------------|----------|--------|---------------|
| Hydrochloric acid | | No data available | | | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | | No data available | | | |

Aquatic long-term toxicity

Aquatic long-term toxicity - fish

| Ingredient(s) | Endpoint | Value (mg/l) | Species | Method | Exposure time | Effects observed |
|--|----------|-------------------|---------|--------|---------------|------------------|
| Hydrochloric acid | | No data available | | | | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | | No data available | | | | |

Aquatic long-term toxicity - crustacea

| Ingredient(s) | Endpoint | Value (mg/l) | Species | Method | Exposure time | Effects observed |
|--|----------|-------------------|---------|--------|---------------|------------------|
| Hydrochloric acid | | No data available | | | | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | | No data available | | | | |

Aquatic toxicity to other aquatic benthic organisms, including sediment-dwelling organisms, if available:

| Ingredient(s) | Endpoint | Value (mg/kg dw sediment) | Species | Method | Exposure time (days) | Effects observed |
|-------------------|----------|---------------------------|---------|--------|----------------------|------------------|
| Hydrochloric acid | | No data available | | | | |

Terrestrial toxicity

Terrestrial toxicity - soil invertebrates, including earthworms, if available:

| Ingredient(s) | Endpoint | Value (mg/kg dw soil) | Species | Method | Exposure time (days) | Effects observed |
|-------------------|----------|-----------------------|---------|--------|----------------------|------------------|
| Hydrochloric acid | | No data available | | | | |

Terrestrial toxicity - plants, if available:

| Ingredient(s) | Endpoint | Value (mg/kg dw soil) | Species | Method | Exposure time (days) | Effects observed |
|-------------------|----------|-----------------------|---------|--------|----------------------|------------------|
| Hydrochloric acid | | No data available | | | | |

Terrestrial toxicity - birds, if available:

| Ingredient(s) | Endpoint | Value | Species | Method | Exposure time (days) | Effects observed |
|-------------------|----------|-------------------|---------|--------|----------------------|------------------|
| Hydrochloric acid | | No data available | | | | |

Terrestrial toxicity - beneficial insects, if available:

| Ingredient(s) | Endpoint | Value (mg/kg dw soil) | Species | Method | Exposure time (days) | Effects observed |
|-------------------|----------|-----------------------|---------|--------|----------------------|------------------|
| Hydrochloric acid | | No data available | | | | |

Terrestrial toxicity - soil bacteria, if available:

| Ingredient(s) | Endpoint | Value (mg/kg dw soil) | Species | Method | Exposure time (days) | Effects observed |
|-------------------|----------|-----------------------|---------|--------|----------------------|------------------|
| Hydrochloric acid | | No data available | | | | |

12.2 Persistence and degradability**Abiotic degradation**

Abiotic degradation - photodegradation in air, if available:

| Ingredient(s) | Half-life time | Method | Evaluation | Remark |
|-------------------|-------------------|--------|------------|--------|
| Hydrochloric acid | No data available | | | |

| | | | | |
|--|--|--|--|--|
| | | | | |
|--|--|--|--|--|

Abiotic degradation - hydrolysis, if available:

| Ingredient(s) | Half-life time in fresh water | Method | Evaluation | Remark |
|-------------------|-------------------------------|--------|------------|--------|
| Hydrochloric acid | No data available | | | |

Abiotic degradation - other processes, if available:

| Ingredient(s) | Type | Half-life time | Method | Evaluation | Remark |
|-------------------|------|-------------------|--------|------------|--------|
| Hydrochloric acid | | No data available | | | |

Biodegradation

Ready biodegradability - aerobic conditions

| Ingredient(s) | Inoculum | Analytical method | DT ₅₀ | Method | Evaluation |
|--|---------------------------|----------------------------|--------------------|-----------|--------------------------------------|
| Hydrochloric acid | | | | | Not applicable (inorganic substance) |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | Activated sludge, aerobic | CO ₂ production | > 60% in 28 day(s) | OECD 301B | Readily biodegradable |

Ready biodegradability - anaerobic and marine conditions, if available:

| Ingredient(s) | Medium & Type | Analytical method | DT ₅₀ | Method | Evaluation |
|-------------------|---------------|-------------------|------------------|--------|-------------------|
| Hydrochloric acid | | | | | No data available |

Degradation in relevant environmental compartments, if available:

| Ingredient(s) | Medium & Type | Analytical method | DT ₅₀ | Method | Evaluation |
|-------------------|---------------|-------------------|------------------|--------|-------------------|
| Hydrochloric acid | | | | | No data available |

12.3 Bioaccumulative potential

Partition coefficient n-octanol/water (log Kow)

| Ingredient(s) | Value | Method | Evaluation | Remark |
|--|-------------------|------------------|-----------------------------|--------|
| Hydrochloric acid | -0.25 | Method not given | No bioaccumulation expected | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | No data available | | | |

Bioconcentration factor (BCF)

| Ingredient(s) | Value | Species | Method | Evaluation | Remark |
|--|-------------------|---------|--------|------------|--------|
| Hydrochloric acid | No data available | | | | |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | No data available | | | | |

12.4 Mobility in soil

Adsorption/Desorption to soil or sediment

| Ingredient(s) | Adsorption coefficient Log K _{oc} | Desorption coefficient Log K _{oc} (des) | Method | Soil/sediment type | Evaluation |
|--|--|--|--------|--------------------|-------------------------------------|
| Hydrochloric acid | No data available | | | | High potential for mobility in soil |
| Oxirane, methyl-, polymer with oxirane, mono(2-propylheptyl) ether | No data available | | | | |

12.5 Other adverse effects

No other adverse effects known.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products:

The concentrated contents or contaminated packaging should be disposed of by a certified handler or according to the site permit. Release of waste to sewers is discouraged. The cleaned packaging material is suitable for energy recovery or recycling in line with local legislation.

Empty packaging

Recommendation:

Dispose of observing national or local regulations.

Suitable cleaning agents:

Water, if necessary with cleaning agent.

SECTION 14: Transport information

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**Land transport, Sea transport (IMDG), Air transport (ICAO-TI / IATA-DGR)**

14.1 UN number: 1789

14.2 UN proper shipping name:

Hydrochloric acid, solution

14.3 Transport hazard class(es):

Transport hazard class (and subsidiary risks): 8

14.4 Packing group: III

14.5 Environmental hazards:

Environmentally hazardous: No

Marine pollutant: No

14.6 Special precautions for user: None known.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code: The product is not transported in bulk tankers.

Other relevant information:

IMO/IMDG

EmS: F-A, S-B

Transport regulations include special provisions for certain classes of dangerous goods packed in limited quantities.

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations**

- Decree 108/2008/NP-CP Circular No.: 04/2012/TT-BCT Regulations on the Classification and Labeling of Chemicals

SECTION 16: Other information

The information in this document is based on our best present knowledge. However, it does not constitute a guarantee for any specific product features and does not establish a legally binding contract

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Reason for revision:

1, Not applicable

Abbreviations and acronyms:

- ATE - Acute Toxicity Estimate
- DNEL - Derived No Effect Limit
- EC50 - effective concentration, 50%
- LC50 - Lethal Concentration, 50% / Median Lethal Concentration
- LD50 - Lethal Dose, 50% / Median Lethal dose
- NOAEL - No observed adverse effect level
- NOEL - No observed effect level
- OECD - Organisation for Economic Cooperation and Development
- PNEC - Predicted No Effect Concentration
- STOT-RE - Specific target organ toxicity (repeated exposure)
- STOT-SE - Specific target organ toxicity (single exposure)
- H290 - May be corrosive to metals.
- H302 - Harmful if swallowed.
- H314 - Causes severe skin burns and eye damage.
- H318 - Causes serious eye damage.
- H335 - May cause respiratory irritation.
- H402 - Harmful to aquatic life.

End of Safety Data Sheet