# Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.



**Total Bilirubin R1**

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

### 1.1 Product identifier

**Product Name:** Total Bilirubin R1
**Product code:** HB979-R1

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

**Relevant identified uses:** For determination of Total Bilirubin in serum.
**Uses advised against:** Not determined or not applicable.
**Reasons why uses advised against:** Not determined or not applicable.

### 1.3 Details of the manufacturer/supplier of the safety data sheet

**Manufacturer:**
**United States**
HORIBA Instruments Incorporated
5449 Research Drive
Canton, MI 48188
734-487-8300
horiba.com

### 1.4 Emergency telephone number:

**United States**
HORIBA Instruments Incorporated
1-800-445-9853 (24 hours per day)

**France**
Organisme de conseil/centre antipoison national
+33 1 45 42 59 59 (24 hours per day)

**Portugal**
Órgão consultor nacional/Centro Antivenenos
+351 800 250 250 (24 hours per day)

**Spain**
Centro de información toxicológica/organismo asesor nacional
+34 91 562 04 20 (24 hours per day)

**Czech Republic**
Národní poradní orgán/toxikologické středisko
+420 224 919 293 (24 hours per day)

**Greece**
Εθνικό συμβουλευτικό όργανο/Κέντρο Δηλητηριάσεων
+30 210 779 3777 (24 hours per day)

**Italy**
Organismo ufficiale di consultazione nazionale/Centro antiveleni
+39 06 305 4343 (24 hours per day)

**Romania**
Organism consultativ național/Centru pentru otrăviri
+40 21 3183606 (24 hours per day)

**Poland**
Krajowa instytucja doradcza/Ośrodek zatruć
+48 22 619 66 54 (24 hours per day)

## SECTION 2: Hazard(s) identification

**2.1 Classification of the substance or mixture:**

**Classification according to Regulation (EC) No. 1272/2008 (CLP):**
Skin corrosion, category 1A
Serious eye damage, category 1

**Hazard-determining components of labeling:**
Hydrogen chloride

**Additional Information:** None

**2.2 Label elements**

**Labelling according to Regulation (EC) No 1272/2008 (CLP)**
**Hazard pictograms:**

**Signal Word:** Danger
**Hazard statements:**
H314 Causes severe skin burns and eye damage
H318 Causes serious eye damage
**Precautionary statements:**
P260 Do not breathe dust/fume/gas/mist/vapours/spray
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves, protective clothing, eye protection and face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P363 Wash contaminated clothing before reuse
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
P310 Immediately call a POISON CENTER or doctor/physician.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P405 Store locked up
P501 Dispose of contents into sewer system after diluting with large volumes of water, if in accordance with local regulations.

**2.3 Other hazards:** None known

## SECTION 3: Composition/information on ingredients

**3.1 Substance:** Not applicable.

**3.2 Mixture:**

**Total Bilirubin R1**

| Identification | EU REACH Registration No. | Name | Classification according to Regulation (EC) No. 1272/2008 (CLP) | Weight % |
|---|---|---|---|---|
| CAS number: 7647-01-0<br>EC number: 231-595-7 | - | Hydrogen chloride | Skin Corr. 1A; H314<br>Acute Tox. 3 (Inh); H331<br>Press. Gas, Compressed; H280<br>STOT SE 3 (RI); H335<br>Eye Dam. 1; H318<br><br>Specific concentration limit(s):<br>Skin Corr. 1B; H314: C ≥25%<br>Skin Irrit. 2; H315: 10%≤ C <25%<br>Eye Irrit. 2; H319: 10%≤ C <25%<br>STOT SE 3 (RI); H335: C ≥10% | 1.4 |

**Additional information:** None
**Full Text of H and EUH statements:** See section 16

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

**General notes:**

Show this Safety Data Sheet to the doctor in attendance.

**Following inhalation:**

If inhaled, remove person to fresh air and place in a position comfortable for breathing. Keep person at rest. If breathing is difficult, administer oxygen. If breathing has stopped, provide artificial respiration. If experiencing respiratory symptoms, seek medical advice/attention.

**Following skin contact:**

Treatment is urgent. Seek emergency medical treatment. Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse.

Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse. If symptoms develop or persist, seek medical advice/attention.

**Following eye contact:**

Immediately rinse eyes with plenty of gently flowing lukewarm water for 15 minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. Seek immediate medical attention, preferably from an ophthalmologist.

**Following ingestion:**

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. Seek immediate medical attention.

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. If symptoms develop or persist, seek medical advice/attention.

**Self-Protection of the first aider:**

Not determined or not available.

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

**Acute symptoms and effects:**

Exposure to skin may result in redness, pain, burning, inflammation and tissue damage. Exposure to eyes may result in irritation, redness, pain, inflammation, itching, burning, tearing, corneal damage and loss of vision. Exposure via inhalation may result in cough, sore throat, burning sensation and shortness of breath. Exposure via ingestion may result in burns of the mouth and throat, abdominal pain, burning sensation in the throat and chest, nausea, vomiting, shock or collapse.

Eye contact may result in irritation, redness, pain, inflammation, itching, burning, tearing, corneal damage and loss of vision.

**Delayed symptoms and effects:**

Effects are dependent on exposure (dose, concentration, contact time).

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

**Specific treatment:**

In case of eye contact, seek prompt medical attention while rinsing is continued.
In case of skin contact, seek prompt medical attention while rinsing is continued.
In case of ingestion, seek prompt medical attention.

**Notes for the doctor:**

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media:**

Water mist/fog, carbon dioxide, dry chemical or alcohol resistant foam.

**Unsuitable extinguishing media:**

Do not use water jet.

### 5.2 Special hazards arising from the substance or mixture:

Thermal decomposition may produce irritating/toxic fumes/gases.

### 5.3 Advice for firefighters

**Personal protection equipment:**

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full-face piece operated in positive pressure mode.

**Special precautions:**

Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts. Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers. Avoid unnecessary run-off of extinguishing media which may cause pollution.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures:

Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling.

### 6.2 Environmental precautions:

Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

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

Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

### 6.4 Reference to other sections:

For personal protective equipment see Section 8. For disposal see Section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling:

Use appropriate personal protective equipment (see Section 8). Prevent skin contact. Do not get in eyes. Use only with adequate ventilation. Do not add water to the corrosive product. If it is necessary to mix a corrosive product with water, do so slowly adding the corrosive to cold water, in small amounts, and stir frequently. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use. Keep only in original packaging.

Normal precautions for handling chemicals and potentially infectious materials must be observed.

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

Store in cool, dry, well-ventilated location out of direct sunlight and away from exit paths. Store in a corrosion-resistant container with a resistant inner liner. Inspect containers and storage area regularly for signs of leak and damage. Store containers at a convenient height for handling, below eye level if possible. High shelving increases the risk of dropping containers, personal injury and exposure. Ensure that appropriate fire fighting and spill-clean up equipment is readily available. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Store separately. Keep container tightly sealed. Store away from incompatible materials (See Section 10).

Store between 2-8 °C

### 7.3 Specific end use(s):

Refer to Section 1 (Recommended Use).

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Only those substances with limit values have been included below.

**Occupational Exposure limit values:**

| Country (Legal Basis) | Substance | Identifier | Permissible concentration |
|---|---|---|---|
| Bulgaria | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Croatia | Hydrogen chloride | 7647-01-0 | Daily Exposure Limit: 5 ppm |

| Country (Legal Basis) | Substance | Identifier | Permissible concentration |
|---|---|---|---|
| | Hydrogen chloride | 7647-01-0 | Daily Exposure Limit: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ (5 ppm) |
| Czech Republic | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| Estonia | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Hungary | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 60-Minute STEL: 16 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 60-Minute STEL: 16 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| Latvia | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Lithuania | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Malta | Hydrogen chloride | 7647-01-0 | TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Poland | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 10 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | TWA: 5 mg/m³ |
| Romania | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |

| Country (Legal Basis) | Substance | Identifier | Permissible concentration |
|---|---|---|---|
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Slovakia | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Slovenia | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 110 ppm |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Austria | Hydrogen chloride | 7647-01-0 | TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | MAK TWA: 8 mg/m³ (5 ppm) |
| Belgium | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Denmark | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 8 mg/m³ |
| Finland | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 7.6 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 7.6 mg/m³ (5 ppm) |
| France | Hydrogen chloride | 7647-01-0 | STEL: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | STEL: 7.6 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Short Term Limit Value: 7.6 mg/m³ (5 ppm) |
| Germany (TRGS 900) | Hydrogen chloride | 7647-01-0 | Level Limit Value: 2 ppm |
| | Hydrogen chloride | 7647-01-0 | Level Limit Value: 3 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Limit Value: 3 mg/m³ (2 ppm) |
| Germany (MAK) | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 2 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 3 mg/m³ |

| Country (Legal Basis) | Substance | Identifier | Permissible concentration |
|---|---|---|---|
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 3 mg/m³ (2 ppm) |
| Greece | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 7 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 7 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 7 mg/m³ (5 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 7 mg/m³ (5 ppm) |
| Ireland | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Italy | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Luxembourg | Hydrogen chloride | 7647-01-0 | TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| The Netherlands | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| Portugal | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 2 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Spain | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 7.6 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 7.6 mg/m³ (5 ppm) |

| Country (Legal Basis) | Substance | Identifier | Permissible concentration |
|---|---|---|---|
| Sweden | Hydrogen chloride | 7647-01-0 | Level Limit Value: 2 ppm |
| | Hydrogen chloride | 7647-01-0 | Level Limit Value: 3 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 4 ppm |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 6 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | TWA: 3 mg/m³ (2 ppm) |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 6 mg/m³ (4 ppm) |
| United Kingdom | Hydrogen chloride | 7647-01-0 | TWA: 1 ppm |
| | Hydrogen chloride | 7647-01-0 | TWA: 2 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | STEL: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 8 mg/m³ (5 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 2 mg/m³ (1 ppm) |
| European Union | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm; [SCOEL]) |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ (5 ppm; [SCOEL]) |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm; [IOEL]) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm; [IOEL]) |

**Biological limit values:**

No biological exposure limits noted for the ingredient(s).

**Derived No Effect Level (DNEL):**

**Ingredient Name:** Hydrogen chloride

**CAS #:** 7647-01-0

| | | |
|---|---|---|
| Workers - Systemic Effects | Acute - Oral | Not determined or not applicable. |
| | Acute - Inhalation | No hazard identified |
| | Acute - Dermal | No hazard identified |
| | Chronic - Oral | Not determined or not applicable. |
| | Chronic - Inhalation | No hazard identified |
| | Chronic - Dermal | No hazard identified |
| Workers - Local Effects | Acute - Oral | Not determined or not applicable. |
| | Acute - Inhalation | 15 mg/m³ |
| | Acute - Dermal | Hazard identified but no DNEL available |
| | Chronic - Oral | Not determined or not applicable. |
| | Chronic - Inhalation | 8 mg/m³ |
| | Chronic - Dermal | Hazard identified but no DNEL available |
| General Population - Systemic Effects | Acute - Oral | No hazard identified |
| | Acute - Inhalation | No hazard identified |
| | Acute - Dermal | No hazard identified |
| | Chronic - Oral | No hazard identified |
| | Chronic - Inhalation | No hazard identified |
| | Chronic - Dermal | No hazard identified |

| | | |
|---|---|---|
| General Population - Local Effect | Acute - Oral | Not determined or not applicable. |
| | Acute - Inhalation | 15 mg/m³ |
| | Acute - Dermal | Hazard identified but no DNEL available |
| | Chronic - Oral | Not determined or not applicable. |
| | Chronic - Inhalation | 8 mg/m³ |
| | Chronic - Dermal | Hazard identified but no DNEL available |

**Predicted No Effect Concentration (PNEC):**
**Ingredient Name:** Hydrogen chloride
**CAS #:** 7647-01-0

| Environmental Protection Target | PNEC |
|---|---|
| Fresh water | No hazard identified |
| Freshwater sediments | No hazard identified |
| Marine water | No hazard identified |
| Marine sediments | No hazard identified |
| Microorganisms in sewage treatment | Not determined or not available. |
| Soil (agricultural) | No exposure expected |
| Air | No hazard identified |
| Oral (Secondary Poisoning) | No exposure expected |

**Information on monitoring procedures:**
Not determined or not applicable.

**8.2 Exposure controls**

**Appropriate engineering controls:**
Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

**Personal protection equipment**

**Eye and face protection:**
Use safety glasses with side shields or goggles. Consider the use of a face shield for splash protection. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

**Skin and body protection:**
Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Avoid skin contact with used gloves. Appropriate techniques should be used to r emove used gloves and contaminated clothing. Full body protection should be worn. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

**Respiratory protection:**
If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

**General hygienic measures:**
When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks,

and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

**Environmental exposure controls:**

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

| | |
|---|---|
| Product (substance / mixture) related measures to prevent exposure: | Not determined or not applicable. |
| Instruction measures to prevent exposure: | Not determined or not applicable. |
| Organisational measures to prevent exposure: | Not determined or not applicable. |
| Technical measures to prevent exposure: | Not determined or not applicable. |

**Risk management measures to control exposure:**

Not determined or not applicable.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

| | |
|---|---|
| **Physical State** | Reagents provided as two stable liquids. |
| **Color** | Not Available |
| **Odor/Odor threshold** | Not Available |
| **pH** | <2 |
| **Melting point/freezing point** | Not determined or not available. |
| **Initial boiling point/range** | Not determined or not available. |
| **Flash point (closed cup)** | Not determined or not available. |
| **Flammability** | Not Available |
| **Upper flammability/explosive limit** | Not determined or not available. |
| **Lower flammability/explosive limit** | Not determined or not available. |
| **Vapor pressure** | Not Available |
| **Relative vapor density** | Not Available |
| **Density** | Not determined or not available. |
| **Relative density** | Not Available |
| **Solubilities** | Not Applicable |
| **Partition coefficient (n-octanol/water)** | Not determined or not available. |
| **Auto/Self-ignition temperature** | Not determined or not available. |
| **Decomposition temperature** | Not Available |
| **Kinematic viscosity** | Not determined or not available. |
| **Particle characteristics** | Not Available |

### 9.2 Other information

#### 9.2.1 Information with regard to physical hazard classes

| | |
|---|---|
| **Explosives** | No data available/Not applicable |
| **Flammable gases** | No data available/Not applicable |
| **Aerosols** | No data available/Not applicable |
| **Oxidizing gases** | No data available/Not applicable |
| **Gases under pressure** | No data available/Not applicable |
| **Flammable liquids** | No data available/Not applicable |

| | |
|---|---|
| **Flammable solids** | No data available/Not applicable |
| **Self-reactive substances and mixtures** | No data available/Not applicable |
| **Pyrophoric liquids** | No data available/Not applicable |
| **Pyrophoric solids** | No data available/Not applicable |
| **Self-heating substances and mixtures** | No data available/Not applicable |
| **Substances and mixtures, which emit flammable gases in contact with water** | No data available/Not applicable |
| **Oxidizing liquids** | No data available/Not applicable |
| **Oxidizing solids** | No data available/Not applicable |
| **Organic peroxides** | No data available/Not applicable |
| **Corrosive to metals** | No data available/Not applicable |
| **Desensitized explosives** | No data available/Not applicable |

**9.2.2 Other safety characteristics**

None.

## SECTION 10: Stability and reactivity

**10.1 Reactivity:**

Not reactive under recommended handling and storage conditions.

**10.2 Chemical stability:**

Stable under recommended handling and storage conditions.

**10.3 Possibility of hazardous reactions:**

Hazardous reactions are not anticipated under recommended conditions of handling and storage.

**10.4 Conditions to avoid:**

Avoid generation of aerosols and mists, extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

**10.5 Incompatible materials:**

None known.

**10.6 Hazardous decomposition products:**

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

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

**Acute toxicity**

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

**Product data:** No data available.

**Substance data:**

| Name | Route | Result |
|---|---|---|
| Hydrogen chloride | oral | LD50 Rat: 238 mg/kg |
| | dermal | LD50 Rabbit: >5010 mg/kg |
| | inhalation | LC50 Rat: 1562 ppmV (4h [Gas]) |

**Skin corrosion/irritation**

**Assessment:**

Causes severe skin burns and eye damage.

**Product data:**

No data available.

**Substance data:**

| Name | Result |
|---|---|
| Hydrogen chloride | Causes severe skin burns. |

**Serious eye damage/irritation**

**Assessment:**

Causes serious eye damage.

**Product data:**

No data available.

**Substance data:**

| Name | Result |
|---|---|
| Hydrogen chloride | Causes serious eye damage. |

**Respiratory or skin sensitization**

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

**Product data:**

No data available.

**Substance data:** No data available.

**Carcinogenicity**

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

**Product data:** No data available.

**Substance data:** No data available.

**International Agency for Research on Cancer (IARC):**

| Name | Classification |
|---|---|
| Hydrogen chloride | Group 3 |
| | Group 3 |

**Germ cell mutagenicity**

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

**Product data:** No data available.

**Substance data:** No data available.

**Reproductive Toxicity**

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

**Product data:**

No data available.

**Substance data:** No data available.

**Specific target organ toxicity (single exposure)**

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

**Product data:**

No data available.

**Substance data:**

| Name | Result |
|---|---|
| Hydrogen chloride | May cause respiratory irritation. |

**Specific target organ toxicity (repeated exposure)**

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

**Product data:**

No data available.

**Substance data:** No data available.

**Aspiration toxicity**

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

**Product data:**

No data available.

**Substance data:** No data available.

**Information on likely routes of exposure:**

No data available.

**Symptoms related to the physical, chemical and toxicological characteristics:**

No data available.

**11.2 Information on other hazards**

**Endocrine disrupting properties:**

**Substance data:** No data available.

**Other information:**

No data available.

## SECTION 12: Ecological information

**12.1 Toxicity**

**Acute (short-term) toxicity**

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

**Product data:** No data available.

**Substance data:**

| Name | Result |
|---|---|
| Hydrogen chloride | Fish LC50 Lepomis macrochirus: 24.6 mg/L (96 hr) |

**Chronic (long-term) toxicity**

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

**Product data:** No data available.

**Substance data:** No data available.

**12.2 Persistence and degradability**

**Product data:** No data available.

**Substance data:**

| Name | Result |
|---|---|
| Hydrogen chloride | Substance is non degradable and persistent in the aquatic and terrestrial environment. |

**12.3 Bioaccumulative potential**

**Product data:** No data available.

**Substance data:**

| Name | Result |
|---|---|
| Hydrogen chloride | Not expected to bioaccumulate (log Kow = -2.65). |

**12.4 Mobility in soil**

**Product data:** No data available.

**Substance data:** No data available.

### 12.5 Results of PBT and vPvB assessment

**Product data:**

**PBT assessment:** This product does not contain any substances that are assessed to be a PBT.
**vPvB assessment:** This product does not contain any substances that are assessed to be a vPvB.

**Substance data:**

**PBT assessment:**

| | |
|---|---|
| Hydrogen chloride | This substance is not PBT. |

**vPvB assessment:**

| | |
|---|---|
| Hydrogen chloride | This substance is not vPvB. |

### 12.6 Endocrine disrupting properties

**Substance data:** No data available.

**12.7 Other adverse effects:** No data available.

### 12.8 Hazard to the ozone layer

**Assessment:** Based on available data, the classification criteria are not met.
**Product data:** No data available.
**Substance data:** No data available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

**13.1.1 Product / Packaging disposal:**
Dispose of waste product, unused product and contaminated packaging in compliance with federal, state and local regulations. If unsure of the applicable requirements, contact the authorities for information.

**Waste codes / waste designations according to LoW:** Not determined or not available.

**13.1.2 Waste treatment-relevant information:** Not determined or not available.

**13.1.3 Sewage disposal-relevant information:** Not determined or not available.

**13.1.4 Other disposal recommendations:** It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities

## SECTION 14: Transport information

**International Carriage of Dangerous Goods by Road/Rail (ADR/RID)**

| | |
|---|---|
| **UN number or ID number** | Not regulated |
| **UN proper shipping name** | Not regulated |
| **UN transport hazard class(es)** | None |
| **Packing group** | None |
| **Environmental hazards** | None |
| **Special precautions for user** | None |

**International Carriage of Dangerous Goods by Inland Waterways (ADN)**

| | |
|---|---|
| **UN number or ID number** | Not regulated |
| **UN proper shipping name** | Not regulated |
| **UN transport hazard class(es)** | None |
| **Packing group** | None |
| **Environmental hazards** | None |
| **Special precautions for user** | None |

**International Maritime Dangerous Goods (IMDG)**

| | |
|---|---|
| **UN number or ID number** | Not regulated |
| **UN proper shipping name** | Not regulated |
| **UN transport hazard class(es)** | None |
| **Packing group** | None |
| **Environmental hazards** | None |
| **Special precautions for user** | None |

**International Air Transport Association Dangerous Goods Regulations (IATA-DGR)**

| | |
|---|---|
| **UN number or ID number** | Not regulated |
| **UN proper shipping name** | Not regulated |
| **UN transport hazard class(es)** | None |
| **Packing group** | None |
| **Environmental hazards** | None |
| **Special precautions for user** | None |

**Maritime Transport in Bulk according to IMO Instruments**

| | |
|---|---|
| **Bulk Name** | None |
| **Ship type** | None |
| **Pollution category** | None |
| **IMO hazard class** | None |
| **Environmental hazards** | None |
| **Material hazardous only in bulk** | None |
| **Cargo Group** | None |

## SECTION 15: Regulatory information

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

**European regulations**

**Inventory listing (EINECS):** All ingredients are listed or exempt.

**REACH SVHC candidate list:** None of the ingredients are listed.

**REACH SVHC Authorizations:** None of the ingredients are listed.

**REACH Restriction:** None of the ingredients are listed.

**Water hazard class (WGK) (Product):** Not determined.

**Water hazard class (WGK) (Substance):**

| Ingredient Name | CAS | Class |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | Water hazard class 1: slightly hazardous to water |

**Other regulations**

**Germany TA Luft:**

| Ingredient Name | CAS | Class | Base Emission Rate | Max Concentration |
|---|---|---|---|---|
| Hydrogen chloride | 7647-01-0 | Class III | 0.15 kg/h | 30 mg/m$^3$ |

**Additional information:** Not determined.

**15.2 Chemical Safety Assessment**

**Total Bilirubin R1**

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

## SECTION 16: Other information

**Abbreviations and Acronyms:** None

**Classification procedure:**

| Classification according to Regulation (EC) No. 1272/2008 (CLP) | Method Used |
|---|---|
| Skin corrosion, category 1A | Expert judgement |
| Serious eye damage, category 1 | Expert judgement |

**Summary of classification(s) in section 3:**

| | |
|---|---|
| Skin Corr. 1A | Skin corrosion, category 1A |
| Acute Tox. 3 (Inh) | Acute toxicity (inhalation), category 3 |
| Press. Gas, Compressed | Compressed gases |
| STOT SE 3 (RI) | Specific target organ toxicity - single exposure, category 3, respiratory tract irritation |
| Eye Dam. 1 | Serious eye damage, category 1 |

**Summary of hazard statements in section 3:**

| | |
|---|---|
| H314 | Causes severe skin burns and eye damage |
| H331 | Toxic if inhaled |
| H280 | Contains gas under pressure; may explode if heated |
| H335 | May cause respiratory irritation |
| H318 | Causes serious eye damage |

**Disclaimer:**

This product has been classified in accordance with EC No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and EC No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878. The information provided in this SDS is correct, to the best of our knowledge, based on information available. The information given is designed only as a guidance for safe handling, use, storage, transportation, and disposal and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials, unless specified in the text. The responsibility to provide a safe workplace remains with the user.

**Initial preparation date:** 2023-11-13

**End of Safety Data Sheet**

# Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.



**Total Bilirubin R2**

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

### 1.1 Product identifier

**Product Name:** Total Bilirubin R2

**Product code:** HB979-R2

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

**Relevant identified uses:** For determination of Total Bilirubin in serum.

**Uses advised against:** Not determined or not applicable.

**Reasons why uses advised against:** Not determined or not applicable.

### 1.3 Details of the manufacturer/supplier of the safety data sheet

**Manufacturer:**

**United States**

HORIBA Instruments Incorporated
5449 Research Drive
Canton, MI 48188
734-487-8300
horiba.com

### 1.4 Emergency telephone number:

**United States**

HORIBA Instruments Incorporated
1-800-445-9853 (24 hours per day)

**France**

Organisme de conseil/centre antipoison national
+33 1 45 42 59 59 (24 hours per day)

**Portugal**

Órgão consultor nacional/Centro Antivenenos
+351 800 250 250 (24 hours per day)

**Spain**

Centro de información toxicológica/organismo asesor nacional
+34 91 562 04 20 (24 hours per day)

**Czech Republic**

Národní poradní orgán/toxikologické středisko
+420 224 919 293 (24 hours per day)

**Greece**

Εθνικό συμβουλευτικό όργανο/Κέντρο Δηλητηριάσεων
+30 210 779 3777 (24 hours per day)

**Italy**

Organismo ufficiale di consultazione nazionale/Centro antiveleni
+39 06 305 4343 (24 hours per day)

**Romania**
Organism consultativ național/Centru pentru otrăviri
+40 21 3183606 (24 hours per day)

**Poland**
Krajowa instytucja doradcza/Ośrodek zatruć
+48 22 619 66 54 (24 hours per day)

## SECTION 2: Hazard(s) identification

**2.1 Classification of the substance or mixture:**

**Classification according to Regulation (EC) No. 1272/2008 (CLP):**
Skin corrosion, category 1A
Serious eye damage, category 1

**Hazard-determining components of labeling:**
Hydrogen chloride

**Additional Information:** None

**2.2 Label elements**

**Labelling according to Regulation (EC) No 1272/2008 (CLP)**
**Hazard pictograms:**

**Signal Word:** Danger
**Hazard statements:**
H314 Causes severe skin burns and eye damage
H318 Causes serious eye damage
**Precautionary statements:**
P260 Do not breathe dust/fume/gas/mist/vapours/spray
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves, protective clothing, eye protection and face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P363 Wash contaminated clothing before reuse
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
P310 Immediately call a POISON CENTER or doctor/physician.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P405 Store locked up
P501 Dispose of contents into sewer system after diluting with large volumes of water, if in accordance with local regulations.

**2.3 Other hazards:** None known

## SECTION 3: Composition/information on ingredients

**3.1 Substance:** Not applicable.

**3.2 Mixture:**

| Identification | EU REACH Registration No. | Name | Classification according to Regulation (EC) No. 1272/2008 (CLP) | Weight % |
|---|---|---|---|---|
| CAS number: 7647-01-0<br>EC number: 231-595-7 | - | Hydrogen chloride | Skin Corr. 1A; H314<br>Acute Tox. 3 (Inh); H331<br>Press. Gas, Compressed; H280<br>STOT SE 3 (RI); H335<br>Eye Dam. 1; H318<br><br>Specific concentration limit(s):<br>Skin Corr. 1B; H314: C ≥25%<br>Skin Irrit. 2; H315: 10%≤ C <25%<br>Eye Irrit. 2; H319: 10%≤ C <25%<br>STOT SE 3 (RI); H335: C ≥10% | 1.4 |

**Additional information:** None
**Full Text of H and EUH statements:** See section 16

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

**General notes:**

Show this Safety Data Sheet to the doctor in attendance.

**Following inhalation:**

If inhaled, remove person to fresh air and place in a position comfortable for breathing. Keep person at rest. If breathing is difficult, administer oxygen. If breathing has stopped, provide artificial respiration. If experiencing respiratory symptoms, seek medical advice/attention.

**Following skin contact:**

Treatment is urgent. Seek emergency medical treatment. Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse.

Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse. If symptoms develop or persist, seek medical advice/attention.

**Following eye contact:**

Immediately rinse eyes with plenty of gently flowing lukewarm water for 15 minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. Seek immediate medical attention, preferably from an ophthalmologist.

**Following ingestion:**

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. Seek immediate medical attention.

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. If symptoms develop or persist, seek medical advice/attention.

**Self-Protection of the first aider:**

Not determined or not available.

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

**Acute symptoms and effects:**

Exposure to skin may result in redness, pain, burning, inflammation and tissue damage. Exposure to eyes may result in irritation, redness, pain, inflammation, itching, burning, tearing, corneal damage and loss of vision. Exposure via inhalation may result in cough, sore throat, burning sensation and shortness of breath. Exposure via ingestion may result in burns of the mouth and throat, abdominal pain, burning sensation in the throat and chest, nausea, vomiting, shock or collapse.

Eye contact may result in irritation, redness, pain, inflammation, itching, burning, tearing, corneal damage and loss of vision.

**Delayed symptoms and effects:**

Effects are dependent on exposure (dose, concentration, contact time).

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

**Specific treatment:**

In case of eye contact, seek prompt medical attention while rinsing is continued.
In case of skin contact, seek prompt medical attention while rinsing is continued.
In case of ingestion, seek prompt medical attention.

**Notes for the doctor:**

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media:**

Water mist/fog, carbon dioxide, dry chemical or alcohol resistant foam.

**Unsuitable extinguishing media:**

Do not use water jet.

### 5.2 Special hazards arising from the substance or mixture:

Thermal decomposition may produce irritating/toxic fumes/gases.

### 5.3 Advice for firefighters

**Personal protection equipment:**

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full-face piece operated in positive pressure mode.

**Special precautions:**

Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts. Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers. Avoid unnecessary run-off of extinguishing media which may cause pollution.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures:

Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling.

**6.2 Environmental precautions:**

Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

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

Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

**6.4 Reference to other sections:**

For personal protective equipment see Section 8. For disposal see Section 13.

## SECTION 7: Handling and storage

**7.1 Precautions for safe handling:**

Use appropriate personal protective equipment (see Section 8). Prevent skin contact. Do not get in eyes. Use only with adequate ventilation. Do not add water to the corrosive product. If it is necessary to mix a corrosive product with water, do so slowly adding the corrosive to cold water, in small amounts, and stir frequently. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use. Keep only in original packaging.

Normal precautions for handling chemicals and potentially infectious materials must be observed.

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

Store in cool, dry, well-ventilated location out of direct sunlight and away from exit paths. Store in a corrosion-resistant container with a resistant inner liner. Inspect containers and storage area regularly for signs of leak and damage. Store containers at a convenient height for handling, below eye level if possible. High shelving increases the risk of dropping containers, personal injury and exposure. Ensure that appropriate fire fighting and spill-clean up equipment is readily available. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Store separately. Keep container tightly sealed. Store away from incompatible materials (See Section 10).

Store between 2-8 °C

**7.3 Specific end use(s):**

Refer to Section 1 (Recommended Use).

## SECTION 8: Exposure controls/personal protection

**8.1 Control parameters**

Only those substances with limit values have been included below.

**Occupational Exposure limit values:**

| Country (Legal Basis) | Substance | Identifier | Permissible concentration |
|---|---|---|---|
| Bulgaria | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Croatia | Hydrogen chloride | 7647-01-0 | Daily Exposure Limit: 5 ppm |

| Country (Legal Basis) | Substance | Identifier | Permissible concentration |
|---|---|---|---|
| | Hydrogen chloride | 7647-01-0 | Daily Exposure Limit: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ (5 ppm) |
| Czech Republic | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| Estonia | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Hungary | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 60-Minute STEL: 16 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 60-Minute STEL: 16 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| Latvia | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Lithuania | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Malta | Hydrogen chloride | 7647-01-0 | TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Poland | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 10 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | TWA: 5 mg/m³ |
| Romania | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |

| Country (Legal Basis) | Substance | Identifier | Permissible concentration |
|---|---|---|---|
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Slovakia | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Slovenia | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 110 ppm |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Austria | Hydrogen chloride | 7647-01-0 | TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | MAK TWA: 8 mg/m³ (5 ppm) |
| Belgium | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Denmark | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 8 mg/m³ |
| Finland | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 7.6 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 7.6 mg/m³ (5 ppm) |
| France | Hydrogen chloride | 7647-01-0 | STEL: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | STEL: 7.6 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Short Term Limit Value: 7.6 mg/m³ (5 ppm) |
| Germany (TRGS 900) | Hydrogen chloride | 7647-01-0 | Level Limit Value: 2 ppm |
| | Hydrogen chloride | 7647-01-0 | Level Limit Value: 3 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Limit Value: 3 mg/m³ (2 ppm) |
| Germany (MAK) | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 2 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 3 mg/m³ |

| Country (Legal Basis) | Substance | Identifier | Permissible concentration |
|---|---|---|---|
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 3 mg/m³ (2 ppm) |
| Greece | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 7 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 7 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 7 mg/m³ (5 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 7 mg/m³ (5 ppm) |
| Ireland | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Italy | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Luxembourg | Hydrogen chloride | 7647-01-0 | TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| The Netherlands | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ |
| Portugal | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 2 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm) |
| Spain | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 7.6 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 10 ppm |
| | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 7.6 mg/m³ (5 ppm) |

| Country (Legal Basis) | Substance | Identifier | Permissible concentration |
|---|---|---|---|
| Sweden | Hydrogen chloride | 7647-01-0 | Level Limit Value: 2 ppm |
| | Hydrogen chloride | 7647-01-0 | Level Limit Value: 3 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 4 ppm |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 6 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | TWA: 3 mg/m³ (2 ppm) |
| | Hydrogen chloride | 7647-01-0 | Ceiling Limit: 6 mg/m³ (4 ppm) |
| United Kingdom | Hydrogen chloride | 7647-01-0 | TWA: 1 ppm |
| | Hydrogen chloride | 7647-01-0 | TWA: 2 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 5 ppm |
| | Hydrogen chloride | 7647-01-0 | STEL: 8 mg/m³ |
| | Hydrogen chloride | 7647-01-0 | STEL: 8 mg/m³ (5 ppm) |
| | Hydrogen chloride | 7647-01-0 | TWA: 2 mg/m³ (1 ppm) |
| European Union | Hydrogen chloride | 7647-01-0 | 15-Minute STEL: 15 mg/m³ (10 ppm; [SCOEL]) |
| | Hydrogen chloride | 7647-01-0 | 8-Hour TWA: 8 mg/m³ (5 ppm; [SCOEL]) |
| | Hydrogen chloride | 7647-01-0 | STEL: 15 mg/m³ (10 ppm; [IOEL]) |
| | Hydrogen chloride | 7647-01-0 | TWA: 8 mg/m³ (5 ppm; [IOEL]) |

**Biological limit values:**

No biological exposure limits noted for the ingredient(s).

**Derived No Effect Level (DNEL):**

**Ingredient Name:** Hydrogen chloride

**CAS #:** 7647-01-0

| | | |
|---|---|---|
| Workers - Systemic Effects | Acute - Oral | Not determined or not applicable. |
| | Acute - Inhalation | No hazard identified |
| | Acute - Dermal | No hazard identified |
| | Chronic - Oral | Not determined or not applicable. |
| | Chronic - Inhalation | No hazard identified |
| | Chronic - Dermal | No hazard identified |
| Workers - Local Effects | Acute - Oral | Not determined or not applicable. |
| | Acute - Inhalation | 15 mg/m³ |
| | Acute - Dermal | Hazard identified but no DNEL available |
| | Chronic - Oral | Not determined or not applicable. |
| | Chronic - Inhalation | 8 mg/m³ |
| | Chronic - Dermal | Hazard identified but no DNEL available |
| General Population - Systemic Effects | Acute - Oral | No hazard identified |
| | Acute - Inhalation | No hazard identified |
| | Acute - Dermal | No hazard identified |
| | Chronic - Oral | No hazard identified |
| | Chronic - Inhalation | No hazard identified |
| | Chronic - Dermal | No hazard identified |

| | | |
|---|---|---|
| General Population - Local Effect | Acute - Oral | Not determined or not applicable. |
| | Acute - Inhalation | 15 mg/m³ |
| | Acute - Dermal | Hazard identified but no DNEL available |
| | Chronic - Oral | Not determined or not applicable. |
| | Chronic - Inhalation | 8 mg/m³ |
| | Chronic - Dermal | Hazard identified but no DNEL available |

**Predicted No Effect Concentration (PNEC):**
**Ingredient Name:** Hydrogen chloride
**CAS #:** 7647-01-0

| Environmental Protection Target | PNEC |
|---|---|
| Fresh water | No hazard identified |
| Freshwater sediments | No hazard identified |
| Marine water | No hazard identified |
| Marine sediments | No hazard identified |
| Microorganisms in sewage treatment | Not determined or not available. |
| Soil (agricultural) | No exposure expected |
| Air | No hazard identified |
| Oral (Secondary Poisoning) | No exposure expected |

**Information on monitoring procedures:**
Not determined or not applicable.

**8.2 Exposure controls**

**Appropriate engineering controls:**
Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

**Personal protection equipment**

**Eye and face protection:**
Use safety glasses with side shields or goggles. Consider the use of a face shield for splash protection. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

**Skin and body protection:**
Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Avoid skin contact with used gloves. Appropriate techniques should be used to r emove used gloves and contaminated clothing. Full body protection should be worn. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

**Respiratory protection:**
If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

**General hygienic measures:**
When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks,

and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

**Environmental exposure controls:**

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

| | |
|---|---|
| Product (substance / mixture) related measures to prevent exposure: | Not determined or not applicable. |
| Instruction measures to prevent exposure: | Not determined or not applicable. |
| Organisational measures to prevent exposure: | Not determined or not applicable. |
| Technical measures to prevent exposure: | Not determined or not applicable. |

**Risk management measures to control exposure:**

Not determined or not applicable.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

| | |
|---|---|
| **Physical State** | Reagents provided as two stable liquids. |
| **Color** | Not Available |
| **Odor/Odor threshold** | Not Available |
| **pH** | <2 |
| **Melting point/freezing point** | Not Available |
| **Initial boiling point/range** | Not determined or not available. |
| **Flash point (closed cup)** | Not Available |
| **Flammability** | Not determined or not available. |
| **Upper flammability/explosive limit** | Not Available |
| **Lower flammability/explosive limit** | Not determined or not available. |
| **Vapor pressure** | Not determined or not available. |
| **Relative vapor density** | Not determined or not available. |
| **Density** | Not Available |
| **Relative density** | Not determined or not available. |
| **Solubilities** | Not Applicable |
| **Partition coefficient (n-octanol/water)** | Not determined or not available. |
| **Auto/Self-ignition temperature** | Not determined or not available. |
| **Decomposition temperature** | Not Available |
| **Kinematic viscosity** | Not determined or not available. |
| **Particle characteristics** | Not Available |

### 9.2 Other information

#### 9.2.1 Information with regard to physical hazard classes

| | |
|---|---|
| **Explosives** | No data available/Not applicable |
| **Flammable gases** | No data available/Not applicable |
| **Aerosols** | No data available/Not applicable |
| **Oxidizing gases** | No data available/Not applicable |
| **Gases under pressure** | No data available/Not applicable |
| **Flammable liquids** | No data available/Not applicable |

| | |
|---|---|
| **Flammable solids** | No data available/Not applicable |
| **Self-reactive substances and mixtures** | No data available/Not applicable |
| **Pyrophoric liquids** | No data available/Not applicable |
| **Pyrophoric solids** | No data available/Not applicable |
| **Self-heating substances and mixtures** | No data available/Not applicable |
| **Substances and mixtures, which emit flammable gases in contact with water** | No data available/Not applicable |
| **Oxidizing liquids** | No data available/Not applicable |
| **Oxidizing solids** | No data available/Not applicable |
| **Organic peroxides** | No data available/Not applicable |
| **Corrosive to metals** | No data available/Not applicable |
| **Desensitized explosives** | No data available/Not applicable |

**9.2.2 Other safety characteristics**

None.

## SECTION 10: Stability and reactivity

**10.1 Reactivity:**

Not reactive under recommended handling and storage conditions.

**10.2 Chemical stability:**

Stable under recommended handling and storage conditions.

**10.3 Possibility of hazardous reactions:**

Hazardous reactions are not anticipated under recommended conditions of handling and storage.

**10.4 Conditions to avoid:**

Avoid generation of aerosols and mists, extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

**10.5 Incompatible materials:**

None known.

**10.6 Hazardous decomposition products:**

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

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

**Acute toxicity**

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

**Product data:** No data available.

**Substance data:**

| Name | Route | Result |
|---|---|---|
| Hydrogen chloride | oral | LD50 Rat: 238 mg/kg |
| | dermal | LD50 Rabbit: >5010 mg/kg |
| | inhalation | LC50 Rat: 1562 ppmV (4h [Gas]) |

**Skin corrosion/irritation**

**Assessment:**

Causes severe skin burns and eye damage.

**Product data:**

No data available.

**Substance data:**

| Name | Result |
|---|---|
| Hydrogen chloride | Causes severe skin burns. |

**Serious eye damage/irritation**

**Assessment:**

Causes serious eye damage.

**Product data:**

No data available.

**Substance data:**

| Name | Result |
|---|---|
| Hydrogen chloride | Causes serious eye damage. |

**Respiratory or skin sensitization**

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

**Product data:**

No data available.

**Substance data:** No data available.

**Carcinogenicity**

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

**Product data:** No data available.

**Substance data:** No data available.

**International Agency for Research on Cancer (IARC):**

| Name | Classification |
|---|---|
| Hydrogen chloride | Group 3 |
| | Group 3 |

**Germ cell mutagenicity**

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

**Product data:** No data available.

**Substance data:** No data available.

**Reproductive Toxicity**

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

**Product data:**

No data available.

**Substance data:** No data available.

**Specific target organ toxicity (single exposure)**

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

**Product data:**

No data available.

**Substance data:**

| Name | Result |
|---|---|
| Hydrogen chloride | May cause respiratory irritation. |

**Specific target organ toxicity (repeated exposure)**

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

**Product data:**

No data available.

**Substance data:** No data available.

**Aspiration toxicity**

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

**Product data:**

No data available.

**Substance data:** No data available.

**Information on likely routes of exposure:**

No data available.

**Symptoms related to the physical, chemical and toxicological characteristics:**

No data available.

**11.2 Information on other hazards**

**Endocrine disrupting properties:**

**Substance data:** No data available.

**Other information:**

No data available.

## SECTION 12: Ecological information

**12.1 Toxicity**

**Acute (short-term) toxicity**

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

**Product data:** No data available.

**Substance data:**

| Name | Result |
|---|---|
| Hydrogen chloride | Fish LC50 Lepomis macrochirus: 24.6 mg/L (96 hr) |

**Chronic (long-term) toxicity**

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

**Product data:** No data available.

**Substance data:** No data available.

**12.2 Persistence and degradability**

**Product data:** No data available.

**Substance data:**

| Name | Result |
|---|---|
| Hydrogen chloride | Substance is non degradable and persistent in the aquatic and terrestrial environment. |

**12.3 Bioaccumulative potential**

**Product data:** No data available.

**Substance data:**

| Name | Result |
|---|---|
| Hydrogen chloride | Not expected to bioaccumulate (log Kow = -2.65). |

**12.4 Mobility in soil**

**Product data:** No data available.

**Substance data:** No data available.

### 12.5 Results of PBT and vPvB assessment

**Product data:**

**PBT assessment:** This product does not contain any substances that are assessed to be a PBT.
**vPvB assessment:** This product does not contain any substances that are assessed to be a vPvB.

**Substance data:**

**PBT assessment:**

| | |
|---|---|
| Hydrogen chloride | This substance is not PBT. |

**vPvB assessment:**

| | |
|---|---|
| Hydrogen chloride | This substance is not vPvB. |

### 12.6 Endocrine disrupting properties

**Substance data:** No data available.

**12.7 Other adverse effects:** No data available.

### 12.8 Hazard to the ozone layer

**Assessment:** Based on available data, the classification criteria are not met.
**Product data:** No data available.
**Substance data:** No data available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

**13.1.1 Product / Packaging disposal:**
Dispose of waste product, unused product and contaminated packaging in compliance with federal, state and local regulations. If unsure of the applicable requirements, contact the authorities for information.

**Waste codes / waste designations according to LoW:** Not determined or not available.

**13.1.2 Waste treatment-relevant information:** Not determined or not available.

**13.1.3 Sewage disposal-relevant information:** Not determined or not available.

**13.1.4 Other disposal recommendations:** It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities

## SECTION 14: Transport information

**International Carriage of Dangerous Goods by Road/Rail (ADR/RID)**

| | |
|---|---|
| **UN number or ID number** | Not regulated |
| **UN proper shipping name** | Not regulated |
| **UN transport hazard class(es)** | None |
| **Packing group** | None |
| **Environmental hazards** | None |
| **Special precautions for user** | None |

**International Carriage of Dangerous Goods by Inland Waterways (ADN)**

| | |
|---|---|
| **UN number or ID number** | Not regulated |
| **UN proper shipping name** | Not regulated |
| **UN transport hazard class(es)** | None |
| **Packing group** | None |
| **Environmental hazards** | None |
| **Special precautions for user** | None |

**International Maritime Dangerous Goods (IMDG)**

| | |
|---|---|
| **UN number or ID number** | Not regulated |
| **UN proper shipping name** | Not regulated |
| **UN transport hazard class(es)** | None |
| **Packing group** | None |
| **Environmental hazards** | None |
| **Special precautions for user** | None |

**International Air Transport Association Dangerous Goods Regulations (IATA-DGR)**

| | |
|---|---|
| **UN number or ID number** | Not regulated |
| **UN proper shipping name** | Not regulated |
| **UN transport hazard class(es)** | None |
| **Packing group** | None |
| **Environmental hazards** | None |
| **Special precautions for user** | None |

**Maritime Transport in Bulk according to IMO Instruments**

| | |
|---|---|
| **Bulk Name** | None |
| **Ship type** | None |
| **Pollution category** | None |
| **IMO hazard class** | None |
| **Environmental hazards** | None |
| **Material hazardous only in bulk** | None |
| **Cargo Group** | None |

## SECTION 15: Regulatory information

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

**European regulations**

**Inventory listing (EINECS):** All ingredients are listed or exempt.

**REACH SVHC candidate list:** None of the ingredients are listed.

**REACH SVHC Authorizations:** None of the ingredients are listed.

**REACH Restriction:** None of the ingredients are listed.

**Water hazard class (WGK) (Product):** Not determined.

**Water hazard class (WGK) (Substance):**

| Ingredient Name | CAS | Class |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | Water hazard class 1: slightly hazardous to water |

**Other regulations**

**Germany TA Luft:**

| Ingredient Name | CAS | Class | Base Emission Rate | Max Concentration |
|---|---|---|---|---|
| Hydrogen chloride | 7647-01-0 | Class III | 0.15 kg/h | 30 mg/m$^3$ |

**Additional information:** Not determined.

**15.2 Chemical Safety Assessment**

**Total Bilirubin R2**

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

## SECTION 16: Other information

**Abbreviations and Acronyms:** None

**Classification procedure:**

| Classification according to Regulation (EC) No. 1272/2008 (CLP) | Method Used |
|---|---|
| Skin corrosion, category 1A | Expert judgement |
| Serious eye damage, category 1 | Expert judgement |

**Summary of classification(s) in section 3:**

| | |
|---|---|
| Skin Corr. 1A | Skin corrosion, category 1A |
| Acute Tox. 3 (Inh) | Acute toxicity (inhalation), category 3 |
| Press. Gas, Compressed | Compressed gases |
| STOT SE 3 (RI) | Specific target organ toxicity - single exposure, category 3, respiratory tract irritation |
| Eye Dam. 1 | Serious eye damage, category 1 |

**Summary of hazard statements in section 3:**

| | |
|---|---|
| H314 | Causes severe skin burns and eye damage |
| H331 | Toxic if inhaled |
| H280 | Contains gas under pressure; may explode if heated |
| H335 | May cause respiratory irritation |
| H318 | Causes serious eye damage |

**Disclaimer:**

This product has been classified in accordance with EC No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and EC No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878. The information provided in this SDS is correct, to the best of our knowledge, based on information available. The information given is designed only as a guidance for safe handling, use, storage, transportation, and disposal and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials, unless specified in the text. The responsibility to provide a safe workplace remains with the user.

**Initial preparation date:** 2023-11-13

**End of Safety Data Sheet**