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 Iron Buffer

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

1.1 Product identifier

Product Name: Total Iron Buffer
Product code: HI904-R1

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

Relevant identified uses: For quantitative determination of Iron 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
Skin sensitization, category 1
Carcinogenicity, category 2
Specific target organ toxicity - repeated exposure, category 1

Hazard-determining components of labeling:
Acetic Acid
Hydroxylammonium chloride

Additional Information: None

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Hazard pictograms:

Signal Word: Danger

Hazard statements:
H315 Causes skin irritation
H319 Causes serious eye irritation
H317 May cause an allergic skin reaction
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure.

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.
P272 Contaminated work clothing should not be allowed out of the workplace
P202 Do not handle until all safety precautions have been read and understood
P270 Do not eat, drink or smoke when using this product
P332+P313 If skin irritation occurs: Get medical advice/attention
P362 Take off contaminated clothing AND WASH BEFORE USE
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P302+P352 IF ON SKIN: Wash with plenty of water and soap.
P337+P313 If eye irritation persists: Get medical advice/attention.
P308+P313 If exposed or concerned: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P405 Store locked up

P501 Dispose of contents to an approved waste disposal plant.

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: 64-19-7 EC number: 200-580-7	-	Acetic Acid	Skin Corr. 1A; H314 Flam. Liq. 3; H226 Eye Dam. 1; H318 Specific concentration limit(s): Eye Irrit. 2; H319: 10%≤ C <25% Skin Irrit. 2; H315: 10%≤ C <25% Skin Corr. 1B; H314: 25%≤ C <90% Skin Corr. 1A; H314: C ≥90%	5
CAS number: 5470-11-1 EC number: 226-798-2	-	Hydroxylammonium chloride	Met. Corr. 1; H290 Acute Tox. 4 (Oral); H302 Acute Tox. 4 (Dermal); H312 Skin Irrit. 2; H315 Skin Sens. 1; H317 Carc. 2; H351 STOT RE 2; H373 Aquatic Acute 1; H400 Eye Irrit. 2; H319 Acute Toxicity Estimate: Dermal ATE: 1100 mg/kg	1.53

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.
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 symptoms develop or persist, 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.
Rinse eyes with plenty of water for several minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. If symptoms develop or persist, seek medical advice/attention.

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.
Dermal exposure may cause an allergic skin reaction. Symptoms may include irritation, redness, pain, rash, inflammation, itching, burning and dermatitis.

Delayed symptoms and effects:

Effects are dependent on exposure (dose, concentration, contact time).
Suspected of causing cancer. Effects are dependent on exposure (dose, concentration, contact time).
Causes damage to organs through prolonged or repeated exposure. 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.

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

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).

Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Avoid breathing dust, mist, fumes, vapors or spray. 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 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
Czech Republic	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³
	Acetic Acid	64-19-7	Ceiling Limit: 50 mg/m³
Estonia	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 25 mg/m³ (10 ppm)
Hungary	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
Latvia	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
Lithuania	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
Malta	Acetic Acid	64-19-7	TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
Poland	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³
Romania	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)

Country (Legal Basis)	Substance	Identifier	Permissible concentration
Slovakia	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
Slovenia	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
Austria	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	Ceiling Limit: 50 mg/m³ (20 ppm [8 x 5 min])
Belgium	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 38 mg/m³ (15 ppm)
Denmark	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	STEL: 50 mg/m³ (20 ppm)
Greece	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 37 mg/m³ (15 ppm)
Ireland	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
Italy	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
Luxembourg	Acetic Acid	64-19-7	TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
The Netherlands	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
Portugal	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
Sweden	Acetic Acid	64-19-7	Level Limit Value: 13 mg/m³ (5 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 25 mg/m³ (10 ppm)
France	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
Bulgaria	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)

Country (Legal Basis)	Substance	Identifier	Permissible concentration
	Acetic Acid	64-19-7	TWA: 25 mg/m³ (10 ppm)
Croatia	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
European Union	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm;)
Finland	Acetic Acid	64-19-7	15-Minute STEL: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	8-Hour TWA: 13 mg/m³ (5 ppm)
Germany (TRGS 900)	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
Spain	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
United Kingdom	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
Cyprus	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m³ (20 ppm)
Germany (MAK)	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m³ (10 ppm)

Biological limit values:

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

Derived No Effect Level (DNEL):

Ingredient Name: Acetic Acid

CAS #: 64-19-7

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	25 mg/m³
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	25 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	25 mg/m³
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	25 mg/m³
	Chronic - Dermal	Hazard identified but no DNEL available

Ingredient Name: Hydroxylammonium chloride
CAS #: 5470-11-1

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No exposure expected
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	0.02 mg/m³
	Chronic - Dermal	Hazard identified but no DNEL available
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No exposure expected
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No exposure expected
	Chronic - Dermal	Hazard identified but no DNEL available
General Population - Systemic Effects	Acute - Oral	Hazard identified but no DNEL available
	Acute - Inhalation	No exposure expected
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	0.001 mg/kg bw/day
	Chronic - Inhalation	0.004 mg/m³
	Chronic - Dermal	Hazard identified but no DNEL available
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No exposure expected
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No exposure expected
	Chronic - Dermal	Hazard identified but no DNEL available

Predicted No Effect Concentration (PNEC):
Ingredient Name: Acetic Acid
CAS #: 64-19-7

Environmental Protection Target	PNEC
Fresh water	3.058 mg/L
Freshwater sediments	11.36 mg/kg sediment dw

Marine water	0.306 mg/L
Marine sediments	1.136 mg/kg sediment dw
Microorganisms in sewage treatment	85 mg/L
Soil (agricultural)	0.47 mg/kg soil dw
Air	No hazard identified
Oral (Secondary Poisoning)	No exposure expected

Ingredient Name: Hydroxylammonium chloride
CAS #: 5470-11-1

Environmental Protection Target	PNEC
Fresh water	0.21 µg/L
Freshwater sediments	No exposure expected
Marine water	0.021 µg/L
Marine sediments	No exposure expected
Microorganisms in sewage treatment	0.17 mg/L
Soil (agricultural)	0.0001 mg/kg soil dw
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).

Safety glasses or goggles. 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 remove 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).

Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. 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.

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. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

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	Liquids.
Color	Buffer is a clear, slight yellow color.
Odor/Odor threshold	Buffer has a vinegar-like odor.
pH	Buffer=4.60
Melting point/freezing point	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 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 Available

Decomposition temperature	Not determined or not available.
Kinematic viscosity	Not Available
Particle characteristics	Not determined or 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
Acetic Acid	oral	LD50 Rat: 3310 mg/kg
	inhalation	LC50 Rat: 11.4 mg/L (4 hr [Vapour])
Hydroxylammonium chloride	oral	LD50 Rat: 642 mg/kg
	Dermal ATE	LD50 Rabbit: 1100 mg/kg

Skin corrosion/irritation

Assessment:

Causes severe skin burns and eye damage.

Product data:

No data available.

Substance data:

Name	Result
Acetic Acid	Causes severe skin burns.
Hydroxylammonium chloride	Causes skin irritation.

Serious eye damage/irritation

Assessment:

Causes serious eye damage.

Product data:

No data available.

Substance data:

Name	Result
Acetic Acid	Causes serious eye damage.
Hydroxylammonium chloride	Causes serious eye irritation.

Respiratory or skin sensitization

Assessment:

May cause an allergic skin reaction.

Product data:

No data available.

Substance data:

Name	Result
Hydroxylammonium chloride	May causes an allergic skin reaction.

Carcinogenicity

Assessment:

Suspected of causing cancer.

Product data: No data available.

Substance data:

Name	Species	Result
Hydroxylammonium chloride		Suspected of causing cancer.

International Agency for Research on Cancer (IARC):

Name	Classification
Acetic Acid	Not Applicable
Hydroxylammonium chloride	Not Applicable

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: No data available.

Specific target organ toxicity (repeated exposure)

Assessment:

Causes damage to organs through prolonged or repeated exposure.

Product data:

No data available.

Substance data:

Name	Result
Hydroxylammonium chloride	May cause damage to spleen and blood through prolonged or repeated exposure.

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
Hydroxylammonium chloride	Fish LC50 Oncorhynchus mykiss: 1.78 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: 1.1 mg/L (48 hr [mobility])
	Aquatic Plants EC50 Raphidocelis subcapitata: 0.21 mg/L (72 hr [growth rate])
Acetic Acid	Fish LC50 Oncorhynchus mykiss: >1000 mg/L (96 hr [Read-across substance data])
	Aquatic Invertebrates EC50 Daphnia magna: >1000 mg/L (48 hr [mobility, Read-across substance data])
	Aquatic Plants EC50 Skeletonema costatum: >1000 mg/L (72 hr [growth rate, Read-across substance data])

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
Acetic Acid	The substance is readily biodegradable.96% degradation in water, measured by bio-oxidation, after 20 days.
Hydroxylammonium chloride	Ready biodegradability studies are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Product data: No data available.

Substance data:

Name	Result
Acetic Acid	The substance is not expected to bioaccumulate (log Pow= -0.17 at 25 °C).
Hydroxylammonium chloride	Substance does not bioaccumulate.

12.4 Mobility in soil

Product data: No data available.

Substance data:

Name	Result
Hydroxylammonium chloride	The substance is highly mobile in soil with low potential for adsorption to soil and sediment. Koc at 20 °C: 6.5
Acetic Acid	The substance is highly mobile, therefore, adsorption to soil is not expected (Koc= 1.153 L/kg, QSAR).

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:

Acetic Acid	The subsance is not PBT.
Hydroxylammonium chloride	PBT assessment does not apply to inorganic substances.

vPvB assessment:

Acetic Acid	The substance is not vPvB.
Hydroxylammonium chloride	vPvB assessment does not apply to inorganic substances.

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 reagent to a waste disposal plant.

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
Acetic Acid	64-19-7	Water hazard class 1: slightly hazardous to water
Hydroxylammonium chloride	5470-11-1	Water hazard class 3: highly hazardous to water

Other regulations

Germany TA Luft:

Ingredient Name	CAS	Class	Base Emission Rate	Max Concentration
Acetic Acid	64-19-7	Class II	0.5 kg/h	0.1 g/m³
Hydroxylammonium chloride	5470-11-1			

Additional information: Not determined.

15.2 Chemical Safety Assessment

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
Skin sensitization, category 1	Expert judgement
Carcinogenicity, category 2	Expert judgement
Specific target organ toxicity - repeated exposure, category 1	Expert judgement

Summary of classification(s) in section 3:

Skin Corr. 1A	Skin corrosion, category 1A
Flam. Liq. 3	Flammable liquids, category 3
Eye Dam. 1	Serious eye damage, category 1
Met. Corr. 1	Corrosive to metals, category 1
Acute Tox. 4 (Oral)	Acute toxicity (oral), category 4
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), category 4
Skin Irrit. 2	Skin irritation, category 2
Skin Sens. 1	Skin sensitization, category 1
Carc. 2	Carcinogenicity, category 2
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
Aquatic Acute 1	Acute aquatic hazard, category 1
Eye Irrit. 2	Eye Irritation, category 2

Summary of hazard statements in section 3:

H314	Causes severe skin burns and eye damage
H226	Flammable liquid and vapour
H318	Causes serious eye damage
H290	May be corrosive to metals
H302	Harmful if swallowed
H312	Harmful in contact with skin
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H351	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H373	May cause damage to organs (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H400	Very toxic to aquatic life
H319	Causes serious eye irritation

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 Iron Color

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

1.1 Product identifier

Product Name: Total Iron Color
Product code: HI904-R2

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

Relevant identified uses: For quantitative determination of Iron 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 sensitization, category 1
Carcinogenicity, category 2
Specific target organ toxicity - repeated exposure, category 1

Hazard-determining components of labeling:

Hydroxylammonium chloride
Sodium 3-(pyridin-2-yl)-1,2,4-triazine-5,6-diyl]bis(benzene-4,4'-sulphonate)

Additional Information: None

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Hazard pictograms:

Signal Word: Danger

Hazard statements:

H372 Causes damage to organs through prolonged or repeated exposure.
H317 May cause an allergic skin reaction
H351 Suspected of causing cancer.

Precautionary statements:

P260 Do not breathe dust/fume/gas/mist/vapours/spray
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product
P272 Contaminated work clothing should not be allowed out of the workplace
P280 Wear protective gloves, protective clothing, eye protection and hearing protection.
P202 Do not handle until all safety precautions have been read and understood
P314 Get medical advice/attention if you feel unwell.
P302+P352 IF ON SKIN: Wash with plenty of water and soap.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention
P363 Wash contaminated clothing before reuse
P308+P313 If exposed or concerned: Get medical advice/attention.
P405 Store locked up
P501 Dispose of contents to an approved waste disposal plant.

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: 5470-11-1 EC number: 226-798-2	-	Hydroxylammonium chloride	Met. Corr. 1; H290 Acute Tox. 4 (Oral); H302 Acute Tox. 4 (Dermal); H312 Skin Irrit. 2; H315 Skin Sens. 1; H317 Carc. 2; H351 STOT RE 2; H373 Aquatic Acute 1; H400 Eye Irrit. 2; H319 Acute Toxicity Estimate: Dermal ATE: 1100 mg/kg	1.53
CAS number: 69898-45-9 EC number: 274-196-3	-	Sodium 3-(pyridin-2-yl)-1,2,4-triazine-5,6-diyl]bis(benzene-4,4'-sulphonate)	Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3 (RI); H335	0.18

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.
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 symptoms develop or persist, seek medical advice/attention.

Following skin contact:

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:

Rinse eyes with plenty of water for several minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. If symptoms develop or persist, seek medical advice/attention.

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. 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:

Dermal exposure may cause an allergic skin reaction. Symptoms may include irritation, redness, pain, rash, inflammation, itching, burning and dermatitis.

Delayed symptoms and effects:

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

Causes damage to organs through prolonged or repeated exposure. Effects are dependent on exposure (dose, concentration, contact time).

Suspected of causing cancer. Effects are dependent on exposure (dose, concentration, contact time).

4.3 Indication of any immediate medical attention and special treatment needed

Specific treatment:

Not determined or not available.

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.

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

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). Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Avoid breathing dust, mist, fumes, vapors or spray. 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). Use only with adequate ventilation. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with skin, eyes and clothing. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use.
Normal precautions for handling chemicals must be observed.

7.2 Conditions for safe storage, including any incompatibilities:

Store in cool, dry, well-ventilated location out of direct sunlight. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Keep container tightly sealed. Store away from incompatible materials (See Section 10).
Store between 2-8 ºC

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:

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

Biological limit values:

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

Derived No Effect Level (DNEL):

Ingredient Name: Hydroxylammonium chloride
CAS #: 5470-11-1

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No exposure expected
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	0.02 mg/m^3
	Chronic - Dermal	Hazard identified but no DNEL available

Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No exposure expected
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No exposure expected
	Chronic - Dermal	Hazard identified but no DNEL available
General Population - Systemic Effects	Acute - Oral	Hazard identified but no DNEL available
	Acute - Inhalation	No exposure expected
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	0.001 mg/kg bw/day
	Chronic - Inhalation	0.004 mg/m³
	Chronic - Dermal	Hazard identified but no DNEL available
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No exposure expected
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No exposure expected
	Chronic - Dermal	Hazard identified but no DNEL available

Predicted No Effect Concentration (PNEC):
Ingredient Name: Hydroxylammonium chloride
CAS #: 5470-11-1

Environmental Protection Target	PNEC
Fresh water	0.21 µg/L
Freshwater sediments	No exposure expected
Marine water	0.021 µg/L
Marine sediments	No exposure expected
Microorganisms in sewage treatment	0.17 mg/L
Soil (agricultural)	0.0001 mg/kg soil dw
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:
Safety glasses or goggles. 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. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. 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.

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. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

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	Liquids.
Color	Color is a clear, slight yellow to slight brown.
Odor/Odor threshold	Not determined or not available.
pH	Not determined or not available.
Melting point/freezing point	Not Available
Initial boiling point/range	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 determined or 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 Available
Auto/Self-ignition temperature	Not determined or not available.
Decomposition temperature	Not Available
Kinematic viscosity	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:

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
Hydroxylammonium chloride	oral	LD50 Rat: 642 mg/kg
	Dermal ATE	LD50 Rabbit: 1100 mg/kg

Skin corrosion/irritation

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

Product data:

No data available.

Substance data:

Name	Result
Hydroxylammonium chloride	Causes skin irritation.
Sodium 3-(pyridin-2-yl)-1,2,4-triazine-5,6-diyl]bis(benzene-4,4'-sulphonate)	Causes skin irritation.

Serious eye damage/irritation

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

Product data:

No data available.

Substance data:

Name	Result
Hydroxylammonium chloride	Causes serious eye irritation.
Sodium 3-(pyridin-2-yl)-1,2,4-triazine-5,6-diyl]bis(benzene-4,4'-sulphonate)	Causes serious eye irritation.

Respiratory or skin sensitization

Assessment:

May cause an allergic skin reaction.

Product data:

No data available.

Substance data:

Name	Result
Hydroxylammonium chloride	May causes an allergic skin reaction.

Carcinogenicity

Assessment:

Suspected of causing cancer.

Product data: No data available.

Substance data:

Name	Species	Result
Hydroxylammonium chloride		Suspected of causing cancer.

International Agency for Research on Cancer (IARC):

Name	Classification
Hydroxylammonium chloride	Not Applicable
Sodium 3-(pyridin-2-yl)-1,2,4-triazine-5,6-diyl]bis(benzene-4,4'-sulphonate)	Not Applicable

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
Sodium 3-(pyridin-2-yl)-1,2,4-triazine-5,6-diyl]bis(benzene-4,4'-sulphonate)	May cause respiratory irritation.

Specific target organ toxicity (repeated exposure)

Assessment:

Causes damage to organs through prolonged or repeated exposure.

Product data:

No data available.

Substance data:

Name	Result
Hydroxylammonium chloride	May cause damage to spleen and blood through prolonged or repeated exposure.

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
Hydroxylammonium chloride	Fish LC50 Oncorhynchus mykiss: 1.78 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: 1.1 mg/L (48 hr [mobility])
	Aquatic Plants EC50 Raphidocelis subcapitata: 0.21 mg/L (72 hr [growth rate])

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
Hydroxylammonium chloride	Ready biodegradability studies are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Product data: No data available.

Substance data:

Name	Result
Hydroxylammonium chloride	Substance does not bioaccumulate.

12.4 Mobility in soil

Product data: No data available.

Substance data:

Name	Result
Hydroxylammonium chloride	The substance is highly mobile in soil with low potential for adsorption to soil and sediment. Koc at 20 °C: 6.5

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:

Hydroxylammonium chloride	PBT assessment does not apply to inorganic substances.

vPvB assessment:

Hydroxylammonium chloride	vPvB assessment does not apply to inorganic substances.

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 reagent to a waste disposal plant.

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
Hydroxylammonium chloride	5470-11-1	Water hazard class 3: highly hazardous to water

Other regulations

Germany TA Luft:

Ingredient Name	CAS	Class	Base Emission Rate	Max Concentration
Hydroxylammonium chloride	5470-11-1			

Additional information: Not determined.

15.2 Chemical Safety Assessment

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 sensitization, category 1	Expert judgement

Total Iron Color

Classification according to Regulation (EC) No. 1272/2008 (CLP)	Method Used
Carcinogenicity, category 2	Expert judgement
Specific target organ toxicity - repeated exposure, category 1	Expert judgement

Summary of classification(s) in section 3:

Met. Corr. 1	Corrosive to metals, category 1
Acute Tox. 4 (Oral)	Acute toxicity (oral), category 4
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), category 4
Skin Irrit. 2	Skin irritation, category 2
Skin Sens. 1	Skin sensitization, category 1
Carc. 2	Carcinogenicity, category 2
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
Aquatic Acute 1	Acute aquatic hazard, category 1
Eye Irrit. 2	Eye Irritation, category 2
STOT SE 3 (RI)	Specific target organ toxicity - single exposure, category 3, respiratory tract irritation

Summary of hazard statements in section 3:

H290	May be corrosive to metals
H302	Harmful if swallowed
H312	Harmful in contact with skin
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H351	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H373	May cause damage to organs (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H400	Very toxic to aquatic life
H319	Causes serious eye irritation
H335	May cause respiratory irritation

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.

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End of Safety Data Sheet