

SAFETY DATA SHEET

Version 6.8
Revision Date 05/25/2023
Print Date 06/10/2023

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

1.1 Product identifiers

Product name : Hydroxylamine hydrochloride
Product Number : 255580
Brand : SIGALD
Index-No. : 612-123-00-2
CAS-No. : 5470-11-1

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

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES
Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Corrosive to Metals (Category 1), H290
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Skin sensitization (Category 1), H317
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure, Oral (Category 2), spleen, H373
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 2), H411

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For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Warning

Hazard statement(s)

H290	May be corrosive to metals.
H302 + H312	Harmful if swallowed or in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H351	Suspected of causing cancer.
H373	May cause damage to organs (spleen) through prolonged or repeated exposure if swallowed.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P234	Keep only in original container.
P260	Do not breathe dust.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P390	Absorb spillage to prevent material damage.
P391	Collect spillage.
P405	Store locked up.
P406	Store in corrosive resistant container with a resistant inner liner.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	Hydroxylammonium chloride
Formula	:	H2NOH.HCl
Molecular weight	:	69.49 g/mol
CAS-No.	:	5470-11-1
EC-No.	:	226-798-2
Index-No.	:	612-123-00-2

Component	Classification	Concentration
Hydroxylammonium chloride		
	Met. Corr. 1; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1; Carc. 2; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 2; H290, H302, H312, H315, H319, H317, H351, H373, H400, H411 M-Factor - Aquatic Acute: 1	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Call in physician.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Nitrogen oxides (NO_x)

Hydrogen chloride gas

Ambient fire may liberate hazardous vapours.

Container explosion may occur under fire conditions.

Not combustible.

Risk of dust explosion.

In the event of decomposition: danger of explosion!

Avoid shock and friction.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

May explode when heated. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

No metal containers.

Tightly closed and away from sources of ignition and heat. Observe national regulations.

Air and moisture sensitive.

Storage class

Storage class (TRGS 510): 4.1A: Other explosive hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

Body Protection

protective clothing

Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	Form: Crystalline powder, Chunks Color: white
b) Odor	slight chlorine
c) Odor Threshold	No data available
d) pH	2.5 - 3.5 at 50 g/l at 20 °C (68 °F)
e) Melting point/freezing point	Melting point/range: 155 - 157 °C (311 - 315 °F) - dec.
f) Initial boiling point and boiling range	No data available
g) Flash point	()Not applicable
h) Evaporation rate	No data available
i) Flammability (solid, gas)	The product is not flammable. - Flammability (solids)
j) Upper/lower flammability or explosive limits	No data available
k) Vapor pressure	0.001 hPa at 50 °C (122 °F) - OECD Test Guideline 104
l) Vapor density	No data available
m) Density	1.67 g/cm ³ at 25 °C (77 °F) - lit.
Relative density	No data available

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|----|---|---|
| n) | Water solubility | ca.470 g/l at 20 °C (68 °F) - OECD Test Guideline 105 |
| o) | Partition coefficient:
n-octanol/water | - Not applicable for inorganic substances |
| p) | Autoignition
temperature | No data available |
| q) | Decomposition
temperature | > 150 °C (> 302 °F) - Heating may cause an explosion. |
| r) | Viscosity | No data available |
| s) | Explosive properties | No data available |
| t) | Oxidizing properties | none |

9.2 Other safety information

Surface tension	ca.71.8 mN/m at 1.025g/l at 20 °C (68 °F) - OECD Test Guideline 115
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SECTION 10: Stability and reactivity

10.1 Reactivity

sensitive to shock
Risk of dust explosion.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Violent reactions possible with:
alkaline substances
Possible formation of:
hydroxylamine
Risk of explosion with:
fire-promoting substances
Oxidizing agents

10.4 Conditions to avoid

Air Exposure to moisture. May be unstable at temperatures above: 75° C
Heating (decomposition).
no information available

10.5 Incompatible materials

Aluminum, Copper, Zinc, Tin, Metals

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - 642 mg/kg
(OECD Test Guideline 401)

Inhalation: No data available

Acute toxicity estimate Dermal - 1,100.1 mg/kg
(Expert judgment)

Remarks: (Regulation (EC) No 1272/2008, Annex VI)
No data available

Skin corrosion/irritation

Skin - In vitro study

Result: Irritating to skin. - 42 min
(OECD Test Guideline 439)

Serious eye damage/eye irritation

Eyes - In vitro study

Result: Eye irritation - 6 h

Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: positive

(OECD Test Guideline 406)

Germ cell mutagenicity

Test Type: Ames test

Test system: *S. typhimurium*

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Result: negative

Remarks: (ECHA)

Test Type: Rat

Test system: Embryo

Remarks: Morphological transformation.

Test Type: Hamster

Test system: Lungs

Remarks: Sister chromatid exchange

Test Type: Mutagenicity (mammal cell test): micronucleus.

Species: Mouse

Cell type: Red blood cells (erythrocytes)

Application Route: Oral

Method: OECD Test Guideline 474

Result: negative

Carcinogenicity

Suspected of causing cancer.

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is

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identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Ingestion - May cause damage to organs through prolonged or repeated exposure.
- spleen

Aspiration hazard

No data available

11.2 Additional Information

RTECS: NC3675000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - 1.78 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - Daphnia magna (Water flea) - 1.1 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test EC50 - Pseudokirchneriella subcapitata - 0.21 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC10 - activated sludge - 1.7 mg/l - 3 h (OECD Test Guideline 209)

12.2 Persistence and degradability

Not applicable for inorganic substances

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN number: 3260 Class: 8 Packing group: III
Proper shipping name: Corrosive solid, acidic, inorganic, n.o.s. (Hydroxylammonium chloride)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG

UN number: 3260 Class: 8 Packing group: III EMS-No: F-A, S-B
Proper shipping name: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.
(Hydroxylammonium chloride)
Marine pollutant : yes

IATA

UN number: 3260 Class: 8 Packing group: III
Proper shipping name: Corrosive solid, acidic, inorganic, n.o.s. (Hydroxylammonium chloride)

SECTION 15: Regulatory information

SARA 302 Components

This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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