1. Identification

Product identifier used on the label

Hydroxylammonium sulphate

Recommended use of the chemical and restriction on use

Recommended use*: industrial chemicals
Recommended use*: Bleaching agents; Chemical; auxiliary / finishing agent for the textile industry; industrial chemicals; process chemical; initial product for chemical syntheses; Intermediate (isolated); Intermediate (non isolated); photographic chemicals; Laboratory chemicals; for research

* The “Recommended use” identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1, CANADA

Telephone: +1 289 360-1300

Emergency telephone number

CANUTEC (reverse charges): (613) 996-6666
BASF HOTLINE: (800) 454-COPE (2673)

Other means of identification

Molecular formula: (NH(3)OH)(2)SO(4)
Chemical family: inorganic salts
Synonyms: Not Available. Usage: industrial chemicals

2. Hazards Identification

According to Hazardous Products Regulations (HPR) (SOR/2015-17)

Classification of the product

Met. Corr. 1 Corrosive to metals
Acute Tox. 4 (oral) Acute toxicity
Acute Tox. 4 (dermal) Acute toxicity
Safety Data Sheet
Hydroxylammonium sulphate

Revision date: 2018/12/07
Version: 5.0

Skin Corr./Irrit. 2 Skin corrosion/irritation
Eye Dam./Irrit. 2B Serious eye damage/eye irritation
Skin Sens. 1 Skin sensitization
Carc. 2 Carcinogenicity
STOT RE 2 Specific target organ toxicity — repeated exposure
Aquatic Acute 1 Hazardous to the aquatic environment - acute
Aquatic Chronic 3 Hazardous to the aquatic environment - chronic

Label elements

Pictogram:

Signal Word:
Warning

Hazard Statement:
H290 May be corrosive to metals.
H320 Causes eye irritation.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H373 May cause damage to organs (Blood) through prolonged or repeated exposure.
H302 + H312 Harmful if swallowed or in contact with skin
H412 Harmful to aquatic life with long lasting effects.
H400 Very toxic to aquatic life.

Precautionary Statements (Prevention):
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P201 Obtain special instructions before use.
P260 Do not breathe dust/gas/mist/vapours.
P273 Avoid release to the environment.
P202 Do not handle until all safety precautions have been read and understood.
P272 Contaminated work clothing should not be allowed out of the workplace.
P270 Do not eat, drink or smoke when using this product.
P264 Wash with plenty of soap and water thoroughly after handling.
P234 Keep only in original packaging.

Precautionary Statements (Response):
P308 + P311 IF exposed or concerned: 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.
P314 Get medical advice/attention if you feel unwell.
P303 + P352 IF ON SKIN (or hair): Wash with plenty of soap and water.
P361 + P364 Take off immediately all contaminated clothing and wash it before reuse.
P330 Rinse mouth.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P391 Collect spillage.
P337 + P313 If eye irritation persists: Call a POISON CENTER or doctor/physician.
P390 Absorb spillage to prevent material damage.
Precautionary Statements (Storage):
P405  Store locked up.
P406  Store in a corrosion-resistant/… container with a resistant inner liner.

Precautionary Statements (Disposal):
P501  Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

3. Composition / Information on Ingredients

According to Hazardous Products Regulations (HPR) (SOR/2015-17)

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Weight %</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>10039-54-0</td>
<td>&gt;= 75.0 - &lt;= 100.0%</td>
<td>Hydroxylammonium sulphate</td>
</tr>
</tbody>
</table>

4. First-Aid Measures

Description of first aid measures

General advice:
Immediately remove contaminated clothing. First aid personnel should pay attention to their own safety.

If inhaled:
Keep patient calm, remove to fresh air. Assist in breathing if necessary. Consult a physician.

If on skin:
Wash affected areas thoroughly with soap and water. Remove contaminated clothing. If irritation develops, seek medical attention.

If in eyes:
In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

If swallowed:
Rinse mouth and then drink 200-300 ml of water. Do not induce vomiting. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Symptoms: Eye irritation, nausea, skin corrosion, irritation of the mucous membranes, Further symptoms are possible

Indication of any immediate medical attention and special treatment needed

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), treat with toluonium chloride to reverse methaemoglobinanaemia.
5. Fire-Fighting Measures

**Extinguishing media**

Suitable extinguishing media:
water spray

Additional information:
Use extinguishing measures to suit surroundings.

**Special hazards arising from the substance or mixture**

**Advice for fire-fighters**

Protective equipment for fire-fighting:
Wear a self-contained breathing apparatus.

**Further information:**
Product itself is non-combustible; fire extinguishing method of surrounding areas must be considered. Keep containers cool by spraying with water if exposed to fire. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid contact with the skin, eyes and clothing. Avoid inhalation. Use personal protective clothing.

**Environmental precautions**

Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water. Suppress gases/vapours/mists with water spray jet. Wet down dust with water spray jet.

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

For small amounts: Sweep/shovel up. Dispose of absorbed material in accordance with regulations.
For large amounts: Sweep/shovel up. Dispose of absorbed material in accordance with regulations.

7. Handling and Storage

**Precautions for safe handling**

Avoid dust formation. Breathing must be protected when large quantities are decanted without local exhaust ventilation.

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

Segregate from oxidants. Segregate from alkalies and alkalinizing substances. Segregate from metals. Segregate from nitrites.
Do not store with: nitrate

Suitable materials for containers: Low density polyethylene (LDPE), glass, Paper/Fibreboard, High density polyethylene (HDPE), Stainless steel 1.4541, Stainless steel 1.4571, Polyester resin, glass reinforced (Palatal A410)
8. Exposure Controls/Personal Protection

No occupational exposure limits known.

**Personal protective equipment**

**Respiratory protection:**
Wear a NIOSH-certified (or equivalent) particulate respirator.

**Hand protection:**
Chemical resistant protective gloves, Suitable materials, rubber, plastic

**Eye protection:**
Tightly fitting safety goggles (chemical goggles).

**Body protection:**
Chemical protection overall (f.e. according to EN 13982) if dust is formed.

**General safety and hygiene measures:**
Avoid inhalation of dust. Wash soiled clothing immediately.

9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>crystalline</td>
</tr>
<tr>
<td>Odour</td>
<td>odourless</td>
</tr>
<tr>
<td>Colour</td>
<td>white</td>
</tr>
<tr>
<td>pH value</td>
<td>3.6</td>
</tr>
<tr>
<td>decomposition point</td>
<td>&gt; 120 °C</td>
</tr>
<tr>
<td>boiling temperature</td>
<td>(1,013 hPa)</td>
</tr>
<tr>
<td>Flammability</td>
<td>not flammable</td>
</tr>
<tr>
<td>Flash point</td>
<td>not applicable</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>For solids not relevant for classification and labelling.</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>For solids not relevant for classification and labelling.</td>
</tr>
<tr>
<td>Autoignition</td>
<td>The substance / product decomposes therefore not determined.</td>
</tr>
<tr>
<td>SADT</td>
<td>&gt; 75 °C</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>negligible</td>
</tr>
<tr>
<td>Density</td>
<td>1.88 g/cm³</td>
</tr>
<tr>
<td>Relative density</td>
<td>approx. 1.88</td>
</tr>
<tr>
<td>Bulk density</td>
<td>1,100 kg/m³</td>
</tr>
</tbody>
</table>
| Partitioning coefficient n-octanol/water (log Pow) | -3.6 (25 °C) | (OECD Guideline 107)
10. Stability and Reactivity

**Reactivity**

- Corrosion to metals: Corrosive effect on metals.
- Oxidizing properties: not fire-propagating (Directive 84/449/EEC, A.17)

**Minimum ignition energy:**
> 1 kJ, 1 bar, 22 °C (VDI 2263, sheet 1, 2.1.2)

**Formation of flammable gases:**
Remarks: Forms no flammable gases in the presence of water.

**Chemical stability**
The product is stable if stored and handled as prescribed/indicated.

**Possibility of hazardous reactions**

**Conditions to avoid**
Temperature: > 80 degrees Celsius

**Incompatible materials**
Alkalines, alkalies, nitrites, oxidizing agents, nitrates, metal salts, heavy metal salts

**Hazardous decomposition products**

Decomposition products:
Hazardous decomposition products: sulphur trioxide, Sulphur dioxide, hydroxylamine, nitrogen oxides

Thermal decomposition:
> 75 °C (SADT, Test H.4, 28.4.4)
Not a substance liable to self-decomposition according to UN transport regulations, class 4.1.
180 °C, 1,610 kJ/kg (DSC (OECD 113))
11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity
Assessment of acute toxicity: Of moderate toxicity after single ingestion. There is a risk of damage to the blood (methemoglobinemia) after a single uptake of large quantities. Of moderate toxicity after short-term skin contact.

Oral
Type of value: LD50
Species: rat
Value: 642 mg/kg (BASF-Test)

Dermal
Type of value: LD50
Species: rabbit
Value: 1,500 - 2,000 mg/kg (similar to OECD guideline 402)

Assessment other acute effects
Assessment of STOT single:
A single exposure may have relevant toxic effects on organs named in section 2 of this safety data sheet.

Irritation / corrosion
Assessment of irritating effects: Skin contact causes irritation. Eye contact causes irritation. EU-classification

Skin
Species: rabbit
Result: Irritant.
Method: BASF-Test

Eye
Species: rabbit
Result: non-irritant
Method: similar to OECD guideline 405

Sensitization
Assessment of sensitization: Caused skin sensitization in animal studies.

Guinea pig maximization test
Species: guinea pig
Result: sensitizing
Method: OECD Guideline 406

Aspiration Hazard
No aspiration hazard expected.

Chronic Toxicity/Effects
Repeate dose toxicity
Assessment of repeated dose toxicity: The substance may cause damage to the hematological system even after repeated ingestion of low doses, as shown in animal studies.

Genetic toxicity
Assessment of mutagenicity: Results from a number of mutagenicity studies with microorganisms, mammalian cell culture and mammals are available. Taking into account all of the information, there is no indication that the substance is mutagenic. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.

Carcinogenicity
Assessment of carcinogenicity: Indication of possible carcinogenic effect in animal tests.

Reproductive toxicity
Assessment of reproduction toxicity: Repeated oral uptake of the substance did not cause damage to the reproductive organs.

Teratogenicity
Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Symptoms of Exposure
Eye irritation, nausea, skin corrosion, irritation of the mucous membranes, Further symptoms are possible

12. Ecological Information

Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:
Very toxic (acute effect) to aquatic organisms. Depending on local conditions and existing concentrations, disturbances in the biodegradation process of activated sludge are possible.

Toxicity to fish
LC50 (96 h) 7.2 mg/l, Pimephales promelas (Fish test acute, static)
Literature data. Nominal concentration.

Aquatic invertebrates
EC50 (48 h) 1.62 mg/l, Daphnia magna (Directive 84/449/EEC, C.2, static)
Nominal concentration.

Aquatic plants
EC50 (72 h) 0.72 mg/l (growth rate), Scenedesmus subspicatus (OECD Guideline 201, static)
Nominal concentration.

Chronic toxicity to fish
Study scientifically not justified.

Chronic toxicity to aquatic invertebrates
No observed effect concentration (21 d) > 0.616 mg/l, Daphnia magna (OECD Guideline 211, semistatic)
The statement of the toxic effect relates to the analytically determined concentration.

Assessment of terrestrial toxicity
Study scientifically not justified.

**Microorganisms/Effect on activated sludge**

Toxicity to microorganisms
OECD Guideline 209 aquatic activated sludge, domestic/EC10 (3 h): 0.7 mg/l
Nominal concentration.

**Persistence and degradability**

Assessment biodegradation and elimination (H2O)
Not applicable for inorganic substances.

Assessment of stability in water
According to structural properties, hydrolysis is not expected/probable.

**Bioaccumulative potential**

Assessment bioaccumulation potential
Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

**Mobility in soil**

Assessment transport between environmental compartments
The substance will not evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected.

**Additional information**

Other ecotoxicological advice:
Very toxic (acute effect) to aquatic organisms. Do not release untreated into natural waters. Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants.

13. Disposal considerations

**Waste disposal of substance:**
Contact manufacturer. Must be disposed of or incinerated in accordance with local regulations.

**Container disposal:**
Uncleaned empties should be disposed of in the same manner as the contents. Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

**Land transport**

TDG
Hazard class: 8
Packing group: III
Sea transport
IMDG
Hazard class: 8
Packing group: III
ID number: UN 2865
Hazard label: 8, EHSM
Marine pollutant: YES
Proper shipping name: HYDROXYLAMINE SULPHATE

Air transport
IATA/ICAO
Hazard class: 8
Packing group: III
ID number: UN 2865
Hazard label: 8
Proper shipping name: HYDROXYLAMINE SULPHATE

15. Regulatory Information

Federal Regulations

Registration status:
Chemical DSL, CA released / listed

NFPA Hazard codes:
Health: 2 Fire: 0 Reactivity: 1 Special:

Assessment of the hazard classes according to UN GHS criteria (most recent version):

- Met. Corr. 1 Corrosive to metals
- Carc. 2 Carcinogenicity
- Acute Tox. 4 (dermal) Acute toxicity
- Acute Tox. 4 (oral) Acute toxicity
- STOT RE 2 Specific target organ toxicity — repeated exposure
- Eye Dam./Irrit. 2B Serious eye damage/eye irritation
- Skin Corr./Irrit. 2 Skin corrosion/irritation
- Skin Sens. 1 Skin sensitization
- Aquatic Acute 1 Hazardous to the aquatic environment - acute
- Aquatic Chronic 3 Hazardous to the aquatic environment - chronic

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2018/12/07
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END OF DATA SHEET