

HYDROXYLAMINE SULFATE

PRODUCT IDENTIFICATION

CAS NO.	10039-54-0
EINECS NO.	233-118-8
FORMULA	$(\text{NH}_2\text{OH})_2 \cdot \text{H}_2\text{SO}_4$
MOL WT.	164.14
H.S. CODE	

TOXICITY Oral rat LD50; 842mg/kg

SYNONYMS Hydroxylammonium sulfate; Hydroxylamine, sulfate (2:1) (salt); bis(hydroxylamine) sulfate; hydroxylamine neutral sulfate; bis(hydroxylammonium) sulfate; Hydroxylamine sulfate;

DERIVATION

CLASSIFICATION

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE White crystals

MELTING POINT 170 C

BOILING POINT

SPECIFIC GRAVITY 1.86

SOLUBILITY IN WATER soluble

AUTOIGNITION

pH

VAPOR DENSITY

NFPA RATINGS Health: 2 ; Flammability: 0 ; Reactivity: 0

REFRACTIVE INDEX

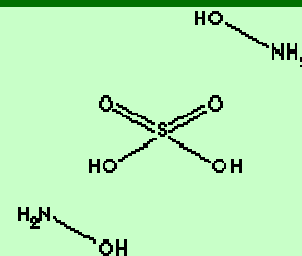
FLASH POINT

STABILITY Stable under ordinary conditions

GENERAL DESCRIPTION & APPLICATIONS

Hydroxylamine is a white crystalline compound containing nitrogen with the formula of NH_2OH and is therefore an ammonia (NH_3) like compound. In the nature, hydroxylamine is a biological intermediate in the nitrification (biological oxidation of ammonia with oxygen into nitrite) and in the anammox (biological oxidation of nitrite and ammonium into dinitrogen gas) which are important in the nitrogen cycle in soil and in wastewater treatment. Hydroxylamine is obtained commercially by acid hydrolysis of nitroparaffins or by the modified reduction of nitric acid. It is used as a powerful reducing agent in photography and in organic synthesis. It converts aldehydes (and ketones) to oximes (caprolactam), and acid chlorides to hydroxamic acids. It is used as a catalyst or inhibitor in polymerization processes. It is used in enzyme reactivation. It is used as an antioxidant in fatty acids and soaps. The nitrate form of hydroxylammonium is used as a rocket fuel which is burned with an oxidizer to produce thrust. Hydroxylamine tends to be explosive when heated. Its derivatives in the form of salts are more stable to be used and handled. Hydroxylamine Hydrochloride is used as an auxiliary in photographic industry to prevent discoloration. It is a polymerization inhibitor or free radical scavenger against solid bond monomers such as olefin, styrene, butadiene, isoprene and divinylbenzene. It is also used in rubber synthesis processes as a non-discoloring short stoppers. Hydroxylammonium sulfate has similar applications to hydrochloride salt in the field of :

- Organic synthesis: preparation of oximes, hydroxamic acids from carboxylic acids, N- and O- substituted hydroxylamines, and addition reactions of carbon-carbon solid bond.
- Surface treatments: preparation of anti-skinning agents, corrosion inhibitors, meta; cleaner



additive

- Starting material for pharmaceuticals and agrochemicals manufacturing
- Rubber and plastic industry: antioxidant, vulcanization accelerator, radical scavenger.
- Textile industry: fixative for textile dyes, auxiliary in some dyeing processes. bleaching
- Metallurgy: Metal extraction and flotation aid
- Antioxidant in fatty acids and soaps
- Photographic auxiliary as a stabilizer of colour and emulsion additive for colour films.

SALES SPECIFICATION

APPEARANCE	white crystals
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ASSAY	99.0% min
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LOSS ON IGNITION	0.05 % max
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AMMONIUM SULPHATE	1.0% max
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INSOLUBLES IN WATER	0.005 % max
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WATER	0.5% max
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TRANSPORTATION

PACKING	25kgs in bag
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HAZARD CLASS	8 (Packing group:III)
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UN NO.	2865
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OTHER INFORMATION

Hazard Symbols: XN N, Risk Phrases: 22-36/38-43-50-48/22, Safety Phrases: 22-24-37-61