Material Safety Data Sheet

Date Printed: 31/MAY/2005
Date Updated: 15/MAR/2004
Version 1.3
According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	FORMAMIDINESULFINIC ACID, 98+%
Product Number	F16001
Company	Sigma-Aldrich Pty, Ltd Unit 2, 14 Anella Avenue Castle Hill NSW 1765 Australia
Technical Phone #	+61 2 9841 0555
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
FORMAMIDINESULFINIC ACID	1758-73-2	217-157-8	None

Formula	CH4N2O2S
Molecular Weight	108.12 AMU
Synonyms	Aminoiminomethanesulfinic acid;Degussa F;Formamidine sulfinate; LorinolR;Manofast;NSC 34540;Tec Light;Thiourea dioxide

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Spontaneously flammable in air. Harmful if swallowed. Irritating to eyes, respiratory system and skin.

4 - First Aid Measures

AFTER INHALATION
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

AFTER EYE CONTACT
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION
If swallowed, wash out mouth with water provided person is

conscious. Call a physician.

5 - Fire Fighting Measures

CONDITIONS OF FLAMMABILITY
Catches fire if exposed to air.

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS
Specific Hazard(s): Pyrophoric material. Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area. Shut off all sources of ignition. Use nonsparking tools.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Avoid raising dust. Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING
Directions for Safe Handling: Avoid contact with eyes, skin, and clothing. Avoid breathing dust. Avoid prolonged or repeated exposure.

STORAGE
Conditions of Storage: Keep container closed. Keep away from heat, sparks, and open flame. Handle and store under nitrogen. Store at 2-8°C

SPECIAL REQUIREMENTS: Moisture sensitive.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS
Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

GENERAL HYGIENE MEASURES
Wash thoroughly after handling.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory Protection: Government approved respirator.
Hand Protection: Compatible chemical-resistant gloves.
Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance	Physical State: Solid Color: Faintly yellow Form: Crystalline

Property	Value	At Temperature or Pressure
pH	4	20 °C Concentration: 10 g/l
BP/BP Range	N/A	
MP/MP Range	124 °C	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	< 0.27 mmHg	30 °C
SG/Density	1.68 g/cm3	20 °C
Partition Coefficient	Log Kow: -3.23	
Viscosity	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	850 kg/l	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water:soluble Other Solvents: INSOLUBLE IN ORGANIC SOLVENTS	

10 - Stability and Reactivity

STABILITY

Stable: Unstable.
Conditions of Instability: May decompose on exposure to moist air or water.
Conditions to Avoid: Strong reducing agent. Violent exothermic decomposition occurs above 100'C with emission of large amounts of sulfur oxides, ammonia, carbon monoxide, carbon dioxide, nitrogen oxides and hydrogen sulfide. Prolonged exposure to moisture and temperatures above 50'C may also cause violent exothermic decomposition.
Materials to Avoid: Strong oxidizing agents, Strong bases.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides, Sulfur oxides, Ammonia.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

ACUTE TOXICITY

LD50

Oral
Rat
1,120 mg/kg
LD50
Skin
Rat
> 2,000 mg/kg

IRRITATION DATA
Skin
Rabbit
Remarks: Moderate irritation effect
Eyes
Rabbit
Remarks: Moderate irritation effect

SIGNS AND SYMPTOMS OF EXPOSURE
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE
Skin Contact: Causes skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes eye irritation.
Inhalation: May be harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: Harmful if swallowed.

12 - Ecological Information

ECOTOXICOLOGICAL EFFECTS

Test Type: LC50 Fish
Time: 96 h
Value: 416 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 24 h
Value: 390 mg/l

Test Type: EC50 Algae
Species: Scenedesmus subspicatus
Time: 72 h
Value: 32 mg/l

13 - Disposal Considerations

SUBSTANCE DISPOSAL
Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR
UN#: 3341
Class: 4.2
PG: II

Proper Shipping Name: Thiourea dioxide

IMDG
UN#: 3341
Class: 4.2
PG: II
Proper Shipping Name: Thiourea dioxide
Marine Pollutant: No
Severe Marine Pollutant: No

IATA
UN#: 3341
Class: 4.2
PG: II
Proper Shipping Name: Thiourea dioxide

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES
INDICATION OF DANGER: F Xn
Highly Flammable. Harmful.
R-PHRASES: 17 22 36/37/38
Spontaneously flammable in air. Harmful if swallowed.
Irritating to eyes, respiratory system and skin.
S-PHRASES: 6 26 36/37
Keep under nitrogen. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing and gloves.

COUNTRY SPECIFIC INFORMATION

Germany
WGK: 1

SWITZERLAND
SWISS POISON CLASS: 3

16 - Other Information

WARRANTY
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 Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

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