



Material Safety Data Sheet

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RESIDUAL SOLVENT CLASS 2 - N,N-DIMETHYLFORMAMIDE

Catalog Number: 1601500

Package Size: See label

Revision Date:

October 7, 2003

This reference standard contains N,N-dimethylformamide in dimethyl sulfoxide (DMSO). The mixture has not been tested to determine specific physical hazards, but it is considered potentially combustible. DMSO is an irritant and is rapidly absorbed through the skin. It may carry dissolved chemicals into the body through this route. N,N-Dimethylformamide is an irritant.

SECTION 1 - IDENTIFICATION

Common Name: N,N-Dimethylformamide

Formula: C₃H₇NO (N,N-Dimethylformamide);
C₂H₆OS (DMSO)

Synonym: DMF

Chemical Name: Formamide, N,N-dimethyl in dimethyl sulfoxide

CAS Number: 68-12-2 (N,N-Dimethylformamide); 67-68-5 (DMSO)

RTECS Number: LQ2100000 (N,N-Dimethylformamide);
PV6210000 (DMSO)

Chemical Family: Amides (N,N-Dimethylformamide)

Therapeutic Category: Residual solvent

SECTION 2 - INGREDIENT INFORMATION

<u>Principle Components</u>	<u>Percent</u>	<u>Exposure Limits</u>
N,N-Dimethylformamide	0.4400%	OSHA: TWA 10 ppm (skin) NIOSH: TWA 10 ppm (skin); IDLH 500 ppm ACGIH: TWA 10 ppm (skin)
Dimethyl sulfoxide	99.56%	n/f

SECTION 3 - HEALTH HAZARD INFORMATION

Usual Adult Dose: n/f

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Adverse Effects: Adverse effects of DMSO may include redness, itching, or rash on skin; garlic-like taste or odor on breath and skin; swelling of face; troubled breathing; shortness of breath; and nasal congestion. Effects of exposure to N,N-dimethylformamide may include nausea, vomiting, loss of appetite, abdominal pain, headache, dizziness, weakness, liver damage, vertigo, sleep disorders, blurred vision, flushing, and increased blood pressure. Ingestion of alcohol following exposure to N,N-dimethylformamide may cause flushing, sweating, dizziness, palpitations, breathlessness, and loss of consciousness. Possible allergic reaction to material if inhaled, ingested or in contact with skin.

Overdose Effects: n/f

Acute: Eye, skin, gastrointestinal and/or respiratory tract irritation.

Chronic: Possible hypersensitization, headache, fatigue, and liver dysfunction.

Inhalation: Causes irritation and toxicity. Avoid inhalation. Remove to fresh air.

Eye: Causes irritation. Avoid exposure. Flush with copious quantities of water for at least 15 minutes.

Skin: Causes irritation. Avoid contact. Flush with copious quantities of soap and water. DMSO readily penetrates the skin and can enhance absorption of other chemicals.

Ingestion: Causes irritation and toxicity. Avoid ingestion. Flush out mouth with water.

Medical Conditions Aggravated by Exposure: Hypersensitivity to material, alcohol use, and liver, gastrointestinal, or blood conditions.

Cross Sensitivity: n/f

Pregnancy Comments: N,N-dimethylformamide has been associated with an increased risk of miscarriage in women. Studies in animals have shown evidence of toxic effects and birth defects in the fetus.

Pregnancy Category: n/f

SECTION 4 - FIRST AID MEASURES

General: Remove from exposure. Remove contaminated clothing. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention. If person is not breathing give artificial respiration. If breathing is difficult give oxygen. Obtain medical attention.

Overdose Treatment: Treatment of N,N-dimethylformamide overdose should be symptomatic and supportive. Monitor kidney and liver function; CBC and coagulation time may be indicated for chronically exposed patients. [Poisindex 2003]

SECTION 5 - TOXICOLOGICAL INFORMATION

Oral Rat: LD50: 2800 mg/kg (N,N-Dimethylformamide); 1450

Oral Mouse: LD50: 2900 mg/kg (N,N-Dimethylformamide); 7920

Irritancy Data: RTECS: Human/skin: mild; Rabbit/eye: severe (N,N-Dimethylformamide); Rabbit/skin,eye: mild (DMSO)

Target Organ(s): Central nervous system, respiratory system, liver, kidneys (N,N-Dimethylformamide)

Listed as a Carcinogen? NTP: No IARC: No OSHA: No

Other: N,N-Dimethylformamide is not classifiable as to its carcinogenicity in humans.

SECTION 6 - FIREFIGHTING MEASURES

Flash Point: n/f

Upper Flammable Limit: n/f

Auto-Ignition Temperature: n/f

Lower Flammable Limit: n/f

Extinguisher Media: Water spray, dry chemical, carbon dioxide or foam as appropriate for surrounding fire and materials.

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Fire and Explosion Hazards: This material is combustible. Vapors may travel along the ground and be ignited by open flames or sparks at remote locations.

Firefighting Procedures: As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing.

SECTION 7 - PHYSICAL HAZARDS

Conditions to Avoid: Avoid exposure to light.

Incompatibilities: n/f

Decomposition Products: When heated to decomposition material emits toxic fumes. Emits toxic fumes under fire conditions.

Stable? Yes **Hazardous Polymerization?** No

SECTION 8 - HANDLING / SPILL / DISPOSAL MEASURES

Handling: As a general rule, when handling USP Reference Standards avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Wash thoroughly after handling.

Storage: Store in tight, light-resistant container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity.

Spill Response: Wear approved respiratory protection, chemically compatible gloves and protective clothing. Remove sources of ignition. Ventilate spill site. Wipe up spillage. Avoid breathing vapor. Place spillage in appropriately labelled container for disposal. Wash spill site.

Disposal: Dispose of waste in accordance with all applicable Federal, State and local laws.

SECTION 9 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory Protection: Use a NIOSH approved respirator, if it is determined to be necessary by an industrial hygiene survey involving air monitoring.

Ventilation: Recommended

Gloves: Chemically compatible

Eye Protection: Safety Goggles

Protective Clothing: Protect exposed skin.

SECTION 10 - PHYSICAL AND CHEMICAL PROPERTIES

NOTE: The data reported below is general information, and is not specific to the USP Reference Standard Lot provided!

Appearance and Odor: Colorless liquid.

Melting Point: n/f

Solubility in Water: n/f

Boiling Point: n/f

Specific Gravity: n/f

Vapor Pressure: n/f

Vapor Density: n/f

Evaporation Rate: n/f

Reactivity in Water: n/f

% Volatile by Volume: n/f