Material Safety Data Sheet

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Responsible Party: Reference Standards Technical Services

RESIDUAL SOLVENTS MIXTURE - CLASS 1

Catalog Number: 1601102 **Package Size:** See label **Revision Date:** September 4, 2003

This reference standard contains the Class 1 residual solvents in dimethyl sulfoxide (DMSO). The mixture has not been tested to determine specific health or 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. Class I residual solvents are toxic, irritant, and possible carcinogens.
Concentrations of the Class I residual solvents are: Benzene (CAS # 71-43-2): 10,000 ppm; Carbon tetrachloride (CAS # 56-23-5): 20,000 ppm; 1,2-Dichloroethane (CAS # 107-06-2): 25,000 ppm; 1,1-Dichloroethene (CAS # 75-35-4): 40,000 ppm; 1,1,1-Trichloroethane (CAS # 71-55-6): 50,000 ppm

SECTION 1 - IDENTIFICATION

Common Name: Residual Solvents Mixture - Class 1 **Formula:** C2H6OS (DMSO)

Synonym: n/f

Chemical Name: n/f

CAS Number: 67-68-5 (DMSO) **RTECS Number:** PV6210000 (DMSO)

Chemical Family: n/f

Therapeutic Category: Residual solvents

SECTION 2 - INGREDIENT INFORMATION

Principle Components	Percent	Exposure Limits
Dimethyl Sulfoxide	85.5 %	n/f
Class 1 Residual Solvents	14.5 %	n/f

SECTION 3 - HEALTH HAZARD INFORMATION

Usual Adult Dose: n/f

Adverse Effects: Adverse effects of DMSO may include redness, itching, or rash on skin; garlic-like taste or odor on breath

n/f = not found

and skin; swelling of face; troubled breathing; shortness of breath; and nasal congestion. Exposure to the residual solvents may cause central nervous system depression with headache, dizziness, drowsiness, and gastrointestinal disturbances. Possible allergic reaction to material if inhaled, ingested or in contact with skin.

Overdose Effects: Overexposure or exposure to high levels of residual solvents may cause seizures, loss of consciousness, cardiac problems, respiratory arrest, coma, and death. Carbon tetrachloride, 1,2-dichloroethane, and 1,1-dichloroethene may cause kidney and liver damage.

Acute: Eye, skin, gastrointestinal and/or respiratory tract irritation and central nervous system depression.

Chronic: Possible hypersensitization, liver and kidney damage, bone marrow depression, and cancer.

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

Eye: Causes irritation. Avoid contact. Flush with copious quantities of water.

Skin: Causes irritation. Avoid contact. Wash with copious quantities of soap and water for at least 15 minutes. DMSO readily penetrates skin and may enhance skin absorption of other chemicals.

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

Medical Conditions Aggravated by Exposure: Hypersensitivity to material.

Cross Sensitivity: n/f

Pregnancy Comments: Studies in hamsters, rats, and mice have shown that DMSO causes abnormal development when administered by injection at high doses; however, DMSO did not cause reproductive problems in animals when administered in oral or topical doses. Adverse reproductive effects have been seen in animal studies of some residual solvents.

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 should be symptomatic and supportive. Induced vomiting is not recommended because of the potential for seizures and central nervous system depression. Support respiratory and cardiac function.

SECTION 5 - TOXICOLOGICAL INFORMATION

Oral Rat: LD50: 14500 mg/kg (DMSO)

Oral Mouse: LD50: 7920 mg/kg (DMSO)

Irritancy Data: RTECS - Rabbit/skin: mild; Rabbit/eye: mild (DMSO)

Target Organ(s): Central nervous system

Listed as a Carcinogen? **NTP:** Yes **IARC:** Yes **OSHA:** Yes

Other: Benzene is listed as a carcinogen by the NTP, IARC, and OSHA. Carbon tetrachloride and 1,2-dichloroethane are listed as carcinogens by the NTP and IARC. 1,1-Dichloroethene and 1,1,1-trichloroethane are not classifiable as to their carcinogenicity in human

SECTION 6 - FIREFIGHTING MEASURES

Flash Point: n/f **Upper Flammable Limit:** n/f

Auto-Ignition Temperature: n/f **Lower Flammable Limit:** n/f

n/f = not found

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

Fire and Explosion Hazards: This material is expected to be combustible. Vapors may form explosive mixtures with air. Vapors may travel to sources of ignition and flash back.

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 ignition sources. Ventilate enclosed spaces. Absorb with suitable material. Do not flush into a confined space such as a sewer. Avoid breathing vapors. Place spillage and all contaminated cleanup materials in a thick plastic hazardous waste disposal bag or leakproof container and label it CAUTION: HAZARDOUS CHEMICAL WASTE. Wash spill site.

Disposal: Place material in a thick plastic hazardous waste disposal bag or leakproof container and label it CAUTION: HAZARDOUS CHEMICAL WASTE. 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: Clear 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

n/f = not found