



# Material Safety Data Sheet

12601 Twinbrook Parkway,  
Rockville, MD 20852 USA

Phone Calls: 301-881-0666  
8 a.m. to 5 p.m. EST Mon. - Fri.

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## RESIDUAL SOLVENT CLASS 2 - HEXANE

Catalog Number: 1601601

Revision Date:

October 9, 2003

### SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

**Common Name:** Hexane

**Manufacturer:** U.S. Pharmacopeia

**Responsible Party:** Reference Standards Technical Services

**Mailing Address:** 12601 Twinbrook Parkway, Rockville, MD 20852 USA

**Phone:** 301-816-8129

**Hours:** 8 a.m. to 5 p.m. EST Mon. - Fri.

**Product Use:** USP Reference Standards and Authentic Substances are used for chemical tests and assays in analytical, clinical, pharmaceutical, and research laboratories.

### SECTION 2 - HAZARD INFORMATION

This reference standard contains hexane 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.

Hexane is toxic and an irritant.

**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. Adverse effects of hexane may include headache, dizziness, blurred vision, giddiness, numbness, gastrointestinal irritation, nausea, cramps, weight loss, taste of gasoline, lightheadedness, hallucinations, and muscle weakness. Nerve damage from chronic hexane exposure may cause muscle weakness, loss of sensation, and impaired gait. Possible allergic reaction to material if inhaled, ingested or in contact with skin.

**Overdose Effects:** Hexane overdose may cause paralysis, severe central nervous system depression, and death. Aspiration of hexane may lead to chemical pneumonia or pulmonary edema. If it vaporizes in the lungs and dilutes oxygen to a critical level, asphyxiation, brain damage, and cardiac arrest may result.

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

**Chronic:** Possible hypersensitization and nerve damage.

**Medical Conditions Aggravated by Exposure:** Hypersensitivity to material; skin, eye, respiratory, or neurological conditions.

**Cross Sensitivity:** n/f

**Target Organs:** Central and peripheral nervous system (Hexane)

**For additional information on toxicity, see Section 11.**

**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

**Common Name:** Hexane

**Formula:** See Composition

**Synonym:** n-Hexane

**Chemical Name:** Hexane in dimethyl sulfoxide

**CAS:** See Composition

**RTECS Number:** See Composition

**Chemical Family:** Alkanes (Hexane)

**Therapeutic Category:** Residual solvent

**Composition:** Hexane (C<sub>6</sub>H<sub>14</sub>; CAS # 110-54-3; RTECS # MN9275000): 1450 ppm  
DMSO (C<sub>2</sub>H<sub>6</sub>O<sub>S</sub>; CAS # 67-68-5; RTECS # PV6210000): balance

**SECTION 4 - FIRST AID MEASURES**

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

**Eye:** Causes irritation. Avoid contact. 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. Avoid ingestion. Flush out mouth with water.

**General First Aid Procedures:** 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.

**Note to Physicians**

**Overdose Treatment:** Treatment of hexane overdose should be symptomatic and supportive. Do not induce vomiting. Monitor pulse oximetry and arterial blood gasses to ensure adequate ventilation. Obtain baseline chest x-ray. Maintain ventilation and oxygenation. Early use of PEEP and mechanical ventilation may be needed. [Poisindex 2003]

**SECTION 5 - FIREFIGHTING MEASURES**

**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 6 - ACCIDENTAL RELEASE MEASURES**

**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 an appropriately-labelled container for disposal. Wash spill site.

**SECTION 7 - HANDLING AND STORAGE**

**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.

<b>SECTION 8 - EXPOSURE CONTROL / PERSONAL PROTECTION</b>
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**Engineering Controls:** Engineering controls such as exhaust ventilation are recommended.

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

**Gloves:** Chemically compatible

**Eye Protection:** Safety goggles

**Protective Clothing:** Protect exposed skin.

**Exposure Limits:** Hexane:  
OSHA: TWA 500 ppm  
NIOSH: TWA 50 ppm; IDLH 1100 ppm  
ACGIH: TWA 50 ppm (skin)

<b>SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES</b>
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Properties as indicated on the MSDS are general and not necessarily specific to the USP Reference Standard Lot provided.

**Appearance and Odor:** Clear liquid.

**Odor Threshold:** n/f

**pH:** n/f

**Melting Range:** n/f

**Boiling Point:** n/f

**Flash Point:** n/f

**Autoignition Temperature:** n/f

**Evaporation Rate:** n/f

**Upper Flammability Limit:** n/f

**Lower Flammability Limit:** n/f

**Vapor Pressure:** n/f

**Vapor Density:** n/f

**Specific Gravity:** n/f

**Solubility in Water:** n/f

**Fat Solubility:** n/f

**Other Solubility:** n/f

**Partition Coefficient: n-octanol/water:** n/f

**Percent Volatile:** n/f

**Reactivity in Water:** n/f

**Explosive Properties:** n/f

**Oxidizing Properties:** n/f

**Formula:** See Composition

**Molecular Weight:** n/f

**SECTION 10 - STABILITY AND REACTIVITY****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 11 - TOXICOLOGICAL PROPERTIES****Oral Rat:** LD50: 25 grams/kg (Hexane); 14500 mg/kg (DMSO)**Oral Mouse:** LD50: 7920 mg/kg (DMSO)**Other Toxicity Data:** n/f**Irritancy Data:** RTECS - Rabbit/eye: mild (Hexane); Rabbit/skin,eye: mild (DMSO)**Corrosivity:** n/f**Sensitization Data:** n/f**Listed as a Carcinogen by:**      **NTP:** No      **IARC:** No      **OSHA:** No**Other Carcinogenicity Data:** No**Mutagenicity Data:** n/f**Reproductive and Developmental Effects:** Hexane was not found to cause birth defects in rats or mice, but behavioral effects and decreased weight gain were seen in rats.**SECTION 12 - ECOLOGICAL INFORMATION****Ecological Information:** n/f**SECTION 13 - DISPOSAL CONSIDERATIONS****Disposal:** Dispose of waste in accordance with all applicable Federal, State and local laws.**SECTION 14 - TRANSPORT INFORMATION****Shipping Name:** n/f**Class:** n/f**UN Number:** n/f**Packing Group:** n/f**Additional Transport Information:** n/f**SECTION 15 - REGULATORY INFORMATION****U.S. Regulatory Information:** n/f**International Regulatory Information:** n/f**SECTION 16 - OTHER INFORMATION****Revision:**                    09-Oct-03**Previous Revision Date:** None