

EPICENTRE Biotechnologies
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MATERIAL SAFETY DATA SHEET

VERSION: 8/2010

Section 1: Chemical Identification

Product: DMSO; a component of catalog numbers C905ML, and KNK49025

Section 2: Composition and Information on Hazardous Ingredients

<u>Component</u>	<u>CAS No</u>	<u>EC#</u>	<u>% Wt</u>
Dimethyl sulfoxide (DMSO)	67-68-5	200-664-3	10-100 %

Section 3: Hazards Identification

Combustible liquid, target organs are eyes and skin

HMIS Classification: Health hazard 1 Flammability 2 Physical hazard 0

NFPA Rating: Health hazard 0; Fire 2; Reactivity: 0

Inhalation: May be harmful; may cause respiratory tract irritation

Skin contact: May absorb through skin. May cause skin irritation

Eyes: May cause irritation

Ingestion: May be harmful if swallowed

Not classified as a carcinogen, teratogen or mutagen.

Prolonged exposure is not known to aggravate medical conditions

Section 4: First Aid Measures

General: DMSO is an universal solvent that can dissolve many compounds. In addition, it can penetrate skin. Avoid exposure to skin, make sure gloves are DMSO resistant and change contaminated clothing equipment immediately. Dilution with water will reduce its ability to solubilize toxic substances and penetrate skin barrier.

Inhalation: Move to fresh air, give artificial respiration if needed

Skin contact: Immediately wash with plenty of water. Soapy water only after initial water rinses.

Eyes: Flush eyes with water

Ingestion: If conscious, rinse mouth with water

Section 5: Fire Fighting Measures

Flammability: may be combustible at high temperatures

Open cup flash point: 87°C Closed cup flash point 94.9°C.

Ignition temp: 301 °C

Suitable extinguishing media. water spray, dry chemical, alcohol resistant foam, or carbon dioxide.

Section 6: Accidental Release Measures

Personal precautions: Avoid vapors

Environmental precautions and cleanup: Contain spills with inert dry material; follow local disposal regulations

Section 7: Handling and Storage

Handling: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Deep away from ignition sources. No smoking. Prevent build up of electrostatic charge. DMSO penetrates skin and readily dissolves many compounds, avoid skin contact.

Storage: Keep container tightly closed in a dry well ventilated area. Hygroscopic.

Section 8: Exposure Controls/Personal Protection

Contains no substances with occupational exposure limit values

Respiratory protection: Not required; where desired use respirator approved to NIOSH, CEN or other standards

Ventilation: Fume hood not required

Personal Protective Equipment: goggles or safety glasses, labcoats, gloves and certified respirator

Work/Hygienic practices: Follow standard/general industrial hygiene practices

Section 9: Physical and Chemical Properties

Chemical Formula: (CH₃)₂SO

Molecular Weight: 78.13

Molecular Formula: C₂H₆OS

Boiling Point: 189°C

Vapor Pressure (mm Hg): 0.41 mm at 20°C

Vapor Density (air = 1): 2.70

Solubility in water: Miscible

Appearance and odor: Clear, very viscous, colorless liquid. Slightly bitter taste with sweet aftertaste.

Specific Gravity: 1.100

Melting Pt.: 18.45°C

Ignition Temperature: 301°C

Flash Point: 87°C

Lower explosion limit: 3.5%

Upper explosion limit: 42%

Water solubility: completely soluble

Evaporation Rate (butyl acetate =1): not available

Section 10: Stability and Reactivity

Stability: Stable under recommended storage conditions

Incompatibility: oxidizing and reducing agents, acids, acid chlorides and moisture acetyl chloride; benzenesulfonyl chloride; benzyl chloride; *p*-bromobenzyl acetamide; cyanuric chloride; iodine; pentafluoride; magnesium perchlorate; methyl bromide; perchloric acid; periodic acid; phenyl chloride; phosphorous oxychloride; silver fluoride; sodium hydroxide.

Hazardous decomposition products: Carbon and sulfur oxides

Hazardous polymerization: Will not occur

Section 11: Toxicological Information

Acute Effects: LD50 oral rat 14,500 mg/kg LD50 Inhalation: rat 4 hour 40,250 PPM LD50 rabbit > 5000 mg/kg

Chronic Effects: Not a carcinogen by IARC, ACGIH, NTP or OSHA

Genotoxicity in vitro mouse lymphocyte: cytogenetic analysis/mutation in mammalian somatic cells

Genotoxicity in vitro mouse lymphocyte: Genotoxicity in vivo rat intraperitoneal: cytogenetic analysis

Genotoxicity in vivo mouse intraperitoneal: DNA damage

Developmental toxicity mouse intraperitoneal: Effects on embryo or fetus: fetotoxicity (except death, e.g., stunted fetus)

Specific Developmental abnormalities: musculoskeletal system.

Reproductive toxicity rat intraperitoneal: fertility: abortion/post implantation mortality

Reproductive toxicity, rat subcutaneous: fertility: post implantation mortality/litter size

Reproductive toxicity mouse oral: Fertility: Pre-implantation mortality Fertility: Fetotoxicity.

Irritation Data: skin rabbit mild skin irritation, 24 hours; eyes rabbit mild eye irritation

Toxicity Data: Acute oral toxicity LD50 mouse: 7920 mg/kg

Sensitization: no data available

Target Organ Data: Eyes and skin

Inhalation: May be harmful if inhaled. May irritate respiratory tract.

Ingestion: May be harmful if swallowed.

RTECS: PV6210000

Section 12: Ecological Information

Ecotoxicity:

LC50 bluegill: 335000 PPM 48 hours

LC50 fathead minnow: 34,000 mg/l 96 hours

LC50 rainbow trout: 35,000 mg/l 96 hours

EC50 water flea: 27,500 mg/l

EC50 bluegill: > 400,000 mg/l 96 hours

The product and degradation products are not toxic

Section 13: Disposal Considerations

Dispose in accordance with federal, state, and local environmental control regulations. The combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber by a licensed waster disposal service.

Section 14: Transport Information

USDOT: Un number 1993 Class: CBL Packing group: III Proper shipping name: combustible liquid, n.o.s (dimethyl sulfoxide)

Marine pollutant: no

IMDG: Not a dangerous good

IATA: Not dangerous

Section 15: Regulatory Information

TSCA: 8(b) inventory: Dimethyl sulfoxide

TSCA 8(d) Health and Safety data reporting: Dimethyl sulfoxide

HCS class: Irritation substance:

OSHA: combustible liquid; target organ effect.

Not subject to clean air or water acts.

DSL status: on Canadian DSL list

SARA 302 and 313: No SARA Title III 302 or part 313 reporting requirements.

SARA 311/312: Fire hazard, chronic health hazard

Massachusetts right to know components: not subject to this act.

Pennsylvania & New Jersey right to know components: Dimethyl sulfoxide CAS # 67-68-5

No California Prop 65 components.

Not controlled under Canadian WHMIS, EINECS

Section 16: Other Information

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