



SAFETY DATA SHEET

Preparation Date: 1/26/2015 Product identifier	Revision Date: 1/26/2015	Revision Number: G1
Froduct Identifier		
Product code: Product Name:	D2493 DIMETHYL SULFOXIDE-D6, 99.9 ATOM PERCENT D	
Other means of identification		
Synonyms:	Hexadeuterodimethyl Sulfoxide Please note that this product is not radioactive. The data of those for the corresponding unlabeled material unless spe otherwise. Health and safety data for the labeled material but are assumed to be similar or identical to the correspon	cifically indicated are generally unavailable,
CAS #:	2206-27-1	
RTECS # CI#:	Not available Not available	
CI#.	Not available	
Recommended use of the chemi	cal and restrictions on use	
Recommended use: Uses advised against	No information available. No information available	
Supplier:	Spectrum Chemicals and Laboratory Products, Inc. 14422 South San Pedro St. Gardena, CA 90248 (310) 516-8000	
Order Online At:	https://www.spectrumchemical.com	
Emergency telephone number Contact Person: Contact Person:	Chemtrec 1-800-424-9300 Martin LaBenz (West Coast) Ibad Tirmiz (East Coast)	

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation	Category 2B
Flammable liquids	Category 4

Label elements

Warning

Hazard statements Causes eye irritation Combustible liquid



Hazards not otherwise classified (HNOC) Not Applicable

Other hazards Not available

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling Keep away from heat/sparks/open flames/hot surfaces. — No smoking Wear protective gloves/protective clothing/eye protection/face protection

In case of fire: Use CO2, dry chemical, or foam to extinguish.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Precautionary Statements - Storage

Store in a well-ventilated place. Keep cool

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
Dimethyl Sulfoxide-d6 99.9 atom % 2206-27-1	2206-27-1	100	*

4. FIRST AID MEASURES

First aid measures General Advice:

Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126)

Product code: D2493

Product name: DIMETHYL SULFOXIDE-D6, 99.9 ATOM PERCENT

	4. FIRST AID MEASURES
Skin Contact:	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention.
Eye Contact:	Flush eye with water for 15 minutes. Get medical attention.
Inhalation:	Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion:	Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.
Most important symptoms and eff	ects, both acute and delayed
Symptoms	Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhoea. May cause constipation. May cause anorexia. Central nervous system effects. May cause headache. Dizziness. Ataxia. May affect behavior/central nervous system (tremor, convulsions). Analgesia. May cause cardiovascular effects. It may cause transient photophobia and disturbances of vision. May affect respiration. May cause cyanosis. May affect the liver. It may affect the kidneys. May cause hypoglycemia.
Indication of any immediate medic	cal attention and special treatment needed
Notes to Physician:	Treat symptomatically

Protection of first-aiders First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media:	Dry chemical. Carbon dioxide (CO2). Water spray mist or foam.
Unsuitable Extinguishing Media:	High volume water jet. Do not use a solid (straight) water stream as it may scatter and spread fire.
Specific hazards arising from the chemical	
Hazardous Combustion Products:	Carbon monoxide; Carbon dioxide; Sulfur oxides; Formaldehyde and Methyl mercaptan may also be formed
Specific hazards:	Combustible material. Vapors may form explosive mixtures with air. Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks). Container explosion may occur under fire conditions or when heated. Fire may produce irritating, corrosive and/or toxic gases.
Special Protective Actions for Firefighters	
Specific Methods:	Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out.
Special Protective Equipment for Firefighters:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions:	Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. All equipment used when handling the product must be grounded.
Environmental precautions	Should not be released into the environment. Prevent entry into waterways, sewers, basements or confined areas. In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.
Methods and material for contain	iment and cleaning up
Methods for containment	Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth).
Methods for cleaning up	Clean contaminated surface thoroughly. Use appropriate tools to put the spilled material in a suitable chemical waste disposal container.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

Safe Handling Advice:

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Do not ingest. Do not breathe vapors or spray mist. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Hygroscopic. Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Keep away from heat and sources of ignition. Protect from light. Sensitive to light. Store in lightresistant containers. Store in a segrated and approved area. Store away from incompatible materials.

Incompatible Materials:

Oxidizing agents. Reducing agents. Acids. Bases. Alkali Metals. Acid chlorides. Acid anhydrides. Potassium tbutoxide. boron compounds. Sodium isopropoxide. Dinitrogen tetraoxide. Carbonyl diisothiocyanate. Acetanilide. Many acyl, aryl, and nonmetal halides (eg acetyl chloride, benzenesulfonyl chloride, bromobenzoyl actanilide, cyanuric chloride, iodine pentafluoride, Mg(CIO4)2, CH3Br, NiO4, oxalyl chloride, P2O3, phosphorus trichloride, phosphoryl chloride, silver fluoride, silver difluoride, sodium hydride, sulfur dichloride, disulfur dichloride, sulfurylchloride, tetrachlorosilane, and thionyl chloride).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

U.S Occupational Exposure Limits:

United States					
Components	OSHA	NIOSH	ACGIH	AIHA WHEEL	

Product code: D2493

	None	None	None	None
Dimethyl Sulfoxide-d6 99.9 atom % -				
2206-27-1				

Canada

Canada Occupational Exposure Limits: Not determined

Components	Alberta	British Columbia	Ontario	Quebec
Dimethod Colfeside dC 00.0 stars %	None	None	None	None
Dimethyl Sulfoxide-d6 99.9 atom % - 2206-27-1				

Australia and Mexico

Occupational Exposure Limits for Australia and Mexico: Not determined

Components	Australia	Mexico
Dimethyl Sulfoxide-d6 99.9 atom %	None	None
2206-27-1		

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection:	Goggles.
Skin and body protection:	Long sleeved clothing. Chemical resistant apron. Gloves.
Respiratory protection:	Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Respiratory protection is not necessary for normal handling. Good room ventilation or use of local exhaust (fume hood) is sufficient. Use a vapor respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentrations of mist or vapor, inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent.
Hygiene measures:	Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

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Physical state: Liquid.

Odor: Slight. Sulfurous. Distinctive garlic or oyster-like.

Molecular/Formula weight: 87.14

Flash Point Tested according to: Closed cup

Autoignition Temperature (°C/°F): 300-301 °C/572-574 °F

Boiling point/range(°C/°F): 189 °C/372°F

Density (g/cm3): No information available

Evaporation rate: No information available

Odor threshold (ppm): No information available

Reactivity

No information available

Miscibility: Completely miscible with water Appearance: No information available

Taste No information available

Flash point (°C): 87

Lower Explosion Limit (%): 2.6-3.5%

pH: No information available

Decomposition temperature(°C/°F): No information available

Bulk density: No information available

Vapor density: 2.71

Partition coefficient (n-octanol/water): No information available

Solubility: No information available Color: Clear. Colorless.

Formula: CD3SOVD3

Flashpoint (°C/°F): 87-89 °C/188.6-192.2 °F

Upper Explosion Limit (%): 28.5-42%

Melting point/range(°C/°F): No information available

Specific gravity: No information available

Vapor pressure @ 20°C (kPa): 0.055

VOC content (g/L): No information available

Viscosity: No information available

10. STABILITY AND REACTIVITY

Chemical stability Stability: Possibility of Hazardous Reactions:	Stable at normal conditions Hazardous polymerization does not occur
Conditions to avoid:	Heat. Ignition sources. Exposure to light. Exposure to moisture. Exposure to moist air.
Incompatible Materials:	Oxidizing agents. Reducing agents. Acids. Bases. Alkali Metals. Acid chlorides. Acid anhydrides. Potassium t-butoxide. boron compounds. Sodium isopropoxide. Dinitrogen tetraoxide. Carbonyl diisothiocyanate. Acetanilide. Many acyl, aryl, and nonmetal halides (eg acetyl chloride, benzenesulfonyl chloride, bromobenzoyl actanilide, cyanuric chloride, iodine pentafluoride, Mg(ClO4)2, CH3Br, NiO4, oxalyl chloride, P2O3, phosphorus trichloride, phosphoryl chloride, silver fluoride, silver difluoride, sodium hydride, sulfur dichloride, disulfur dichloride, sulfurylchloride, tetrachlorosilane, and thionyl chloride).
Hazardous decomposition products:	When heated to decomposition it emits toxic fumes. Carbon monoxide. Carbon dioxide. Sulphur oxides. Formaldehyde. Methyl mercaptan. Dimethyl sulfide.

Other Information

Corrosivity:

No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure: Skin. Ingestion. Eyes.

Acute Toxicity

Component Information

Dimethyl Sulfoxide-d6 99.9 atom % - 2206-27-1

LD50/oral/rat = 14500 mg/kg (LD50 oral Rat for Dimethyl Sulfoxide (CAS no. 67-68-5)) LD50/oral/mouse = 7920-21400 mg/kg (LD50 oral Mouse for Dimethyl Sulfoxde (CAS no. 67-68-5)) LD50/dermal/rabbit = No information available LD50/dermal/rat = 40000 mg/kg (LD50 dermal Rat for Dimethyl Sulfoxide (CAS no. 67-68-5)) LC50/inhalation/rat = >1600 mg/m³ 4 hr (LC50 Rat for Dimethyl Sulfoxide (CAS no. 67-68-5)) LC50/inhalation/mouse = No infomation available Other LD50 or LC50information = 17400 mg/kg LD50 oral Rat (For Dimethyl Sulfoxide (CAS no. 67-68-5)) 28300 mg/kg LD50 oral Rat (For Dimethyl Sulfoxide (CAS no. 67-68-5))

Product Information

LD50/oral/rat = VALUE- Acute Tox Oral = No information available

LD50/oral/mouse = Value - Acute Tox Oral = No information available

LD50/dermal/rabbit VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat VALUE-Vapor = No information available VALUE-Gas = No information available VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse VALUE-Vapor = No information available VALUE - Gas = No information available VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Eye Contact:	May cause skin irritation. Mild skin irritation. May cause burning or stinging sensation, redness of the skin, inflammation of the skin May cause itiching. May cause urticaria (hives). Dimethyl Sulfoxide readily penetrates the skin and may carry other dissolved chemicals into the body. Skin absorption of DMSO may result in garlic-like breath and body odor. If absorbed through skin it may cause systemic effects with symptoms similar to those of ingestion. May cause dyspnea (shortness of breath and difficulty breathing) and cyanosis. May cause eye irritation. Mild eye irritation. May cause temporary burning sensation and vasodilation. May cause conjunctivitis. May cause conjunctival redness. May cause cataracts. May cause corneal opacity. It may cause transient photophobia and
	disturbances of vision.
Inhalation	May cause irritation of respiratory tract. Inhalation of a high concentration of vapors
Ingestion	may cause headache, dizziness, and sedation. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea May cause constipation May cause abdominal pain May cause decreased appetite or anorexia May affect respiration (difficult or labored breathing resulting in shortness of breath) May affect respiration (difficult or labored breathing resulting in shortness of breath) May affect respiration (respiratory depression) May affect urinary system (kidneys) May cause increase in urine volume May affect blood (changes in serum composition) It may affect the blood (anemia, eosinophilia) It may affect the blood (anemia, eosinophilia) It may affect the brain May affect the cardiovascular system (vasodilation, hypotension, tachycardia, chest pain) May affect behavior/central nervous system (ataxia) May affect behavior/central nervous system (dizziness, headache) May affect behavior/central nervous system (analgesia, fatigue, sedation, tremor) May cause hypoglycemia (low blood sugar), which is characterized by symptoms such as blurred vision, chills, cold sweat, dizziness, drowsiness, shaking, rapid heart rate, confusion, weakness, headache, fainting, hunger, tingling of the hands or feet May affect liver
.	
Aspiration hazard	No information available
Delayed and immediate effects a	is well as chronic effects from short and long-term exposure
Chronic Toxicity Sensitization:	Prolonged or repeated ingestion may cause nausea, vomiting, loss of appetite Prolonged or repeated ingestion may affect the blood (changes in red blood cell count) Prolonged or repeated ingestion may affect the blood (normocytic anemia) Prolonged or repeated ingestion may affect the kidneys (polyuria (increase in urine volume, hematuria (blood in the urine), tubular necrosis) Prolonged skin contact may cause skin irritation and/or dermatitis Chronic exposure may cause drying and scaling of the skin No information available
Mutagenic Effects:	May affect genetic material Mutations in microorganisms Experiments with bacteria and/or yeast have shown mutagenic effects Mutagenic effects in mammalian somatic cells

Components	ACGIH - Carcinogens	IARC	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
Dimethyl Sulfoxide-d6 99.9	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed
atom %						

Reproductive toxicity	No data is available
Reproductive Effects: Developmental Effects: Teratogenic Effects:	No information available No information available Showed teratogenic effects in animal experiments Dimethyl Sulfoxide (DMSO) has been associated with teratogenic and/or embryotoxic effects in animals (hamster, mouse, rat), particularly when administered parenterally (intraperitoneal or intravenous routes). DMSO has not been shown to be teratogenic or embryotoxic via oral or dermal routes at dose levels that do not produce overt maternal toxicity No data in humans was available to evaluate the effects of exposure on development
Specific Target Organ Toxicity	
STOT single experies	No information available

STOT - single exposure	No information available
STOT - repeated exposure	No information available
Target Organs:	Kidneys. Skin. Central nervous system.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects:	No data available.
Persistence and degradability:	No information available
Bioaccumulative potential:	No information available
Mobility:	No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
			Wastes	
Dimethyl Sulfoxide-d6 99.9 atom %	None	None	None	None

Product code: D2493

Product name: DIMETHYL SULFOXIDE-D6, 99.9 ATOM PERCENT Not Regulated No information available No information available

No information available No data available No information available

Not applicable

None

DOT

UN-No:
Proper Shipping Name:
Hazard Class:
Subsidiary Risk:
Packing Group:
ERG No:
Marine Pollutant
DOT RQ (lbs):

TDG (Canada)

UN-No:	Not Regulated
Proper Shipping Name:	No information available
Hazard Class:	No information available
Subsidiary Risk:	No information available
Packing Group:	No information available
Description:	No information available

ADR

UN-No:	Not Regulated
Proper Shipping Name:	No information available
Hazard Class:	No information available
Packing Group:	No information available
Subsidiary Risk:	No information available
Classification Code:	No information available
Description:	No information available
CEFIC Tremcard No:	No information available

IMO / IMDG

UN-No:	Not Regulated
Proper Shipping Name:	No information available
Hazard Class:	No information available
Subsidiary Risk:	No information available
Packing Group:	No information available
Description:	No information available
IMDG Page:	No information available
Marine Pollutant	No information available
MFAG:	No information available
Maximum Quantity:	No information available

RID

UN-No:	Not Regulated
Proper Shipping Name:	No information available
Hazard Class:	No information available
Subsidiary Risk:	No information available
Packing Group:	No information available
Classification Code:	No information available
Description:	No information available

Not Regulated

No information available

ICAO

UN-No: Proper Shipping Name:

Product code: D2493

Product name: DIMETHYL SULFOXIDE-D6, 99.9 ATOM PERCENT

14. TRANSPORT INFORMATION

Hazard Class:	No information available
Subsidiary Risk:	No information available
Packing Group:	No information available
Description:	No information available

ΙΑΤΑ

UN-No:	Not Regulated
Proper Shipping Name:	No information available
Hazard Class:	No information available
Subsidiary Risk:	No information available
Packing Group:	No information available
Description:	No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Dimethyl Sulfoxide-d6 99.9 atom %	Not Listed	Present KE- 11860***	Present***	Not present	Present***	Present***	Present 218-617-0***

U.S. Regulations

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity: This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Dimethyl Sulfoxide-d6 99.9 atom %	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

•	Substances and their	Hazardous	Section 302 Extremely Hazardous Substances and RQs	Chemical Category	Section 313 - Reporting de minimis
Dimethyl Sulfoxide-d6 99.9 atom %	None	None	None	None	None

U.S. TSCA

•	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Dimethyl Sulfoxide-d6 99.9 atom %	Not Applicable	Not Applicable

Canada

WHMIS hazard class:

B3 Combustible liquid

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

Components	Canada (DSL)	Canada (NDSL)
Dimethyl Sulfoxide-d6 99.9 atom %	Present***	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Manditory Reporting
Dimethyl Sulfoxide-d6 99.9 atom %	Not listed	Not listed

EU Classification

R-phrase(s)

not determined

S -phrase(s)

none

Components	Classification	Concentration Limits:	Safety Phrases
Dimethyl Sulfoxide-d6 99.9 atom %		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

Not dangerous

16. OTHER INFORMATION

16. OTHER INFORMATION		
NFPA	HMIS	Personal Protective Equipment
2 0	Health Hazard1Fire Hazard2Reactivity0	

1/26/2015

1/26/2015 Sonia Owen

Preparation Date: Revision Date: Prepared by:

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet