Catalog Number: 190186, 191418, 194819, 196055, 510722, 510723, 510823

Dimethyl Sulfoxide

Structure:

Molecular Formula: C_2H_6SO (for non-heavy labels)

Molecular Weight: 78.13 (non-heavy labels)

CAS #: 67-68-5

Synonyms: DMSO; Methyl sulfoxide; Methyl sulphoxide; Sulfinylbismethane

Physical Description: Clear colorless liquid to solid. The melting point is approximately 18° C so the product may appear anywhere from the liquid phase to the solid phase when in the pure form. By heating the solid form to approximately 30° C, the product can be melted without harming it's stability. DMSO supercools easily; melts at room temperature slowly.

Solubility: Soluble in water, methanol, acetone, ether, benzene, chloroform.[1] To prepare sterile solutions use a a teflon or nylon membrane to sterile-filter the DMSO - do not use a cellulose acetate membrane.

Stability: A thermally stable compound. DMSO is stable up to 100° C in alkaline, acidic and neutral conditions. It is stable in neutral or alkaline conditions at temperatures approaching its boiling point of 189° C. DMSO can be heated to 150° C for 24 hours with less than 0.1% loss in purity.[5]

DMSO is very hygroscopic.[1]

Density: Approximately 1.10 g/ml

Autoprotolysis constant: Approximately 33 at 25° C.[7]

Dielectric constant: 45 [1]

Description: A dipolar, aprotic solvent.[1] Has been shown to accelerate

strand renaturation (1-10% concentration) and is believed to give the nucleic acid thermal stability against depurination.[3,8]

Typical Uses:

- Used to enhance dermal absorption of many chemicals.
- A solvent for many organic and inorganic compounds including fats, carbohydrates, dyes, resins, and polymers.
- Used in antifreeze or hydraulic fluids.
- As a cryopreservative for cell cultures.[5]
- Used in the oxidation of thiols and disulfides to sulfonic acids.[4]
- Used as a PCR cosolvent to help improve yields, especially in long PCR.

Plastic Compatibility:[6]

Incompatible with:

- polysulfone
- flexible and rigid PVC tubing
- polycarbonate

Moderately compatible with:

- polystyrene
- Halar ECTFE (ethylene-chlorotrifluoroethylene copolymer)
- Tefzel ETFE (ethylene-tetrafluoroethylene)

Compatible with:

- Low-density polyethylene (LDPE)
- High-density polyethylene (HDPE)
- Polypropylene
- Polypropylene copolymer (PPCO)
- Nylon
- Teflon ETFE (ethylene-tetrafluoroethylene)

Caution: Rapidly absorbed through skin and mucous membranes.

Availability:

Catalog Number	Description	Size
190186	Dimethyl Sulfoxide	100 ml 500 ml 1 liter
194819	Dimethyl Sulfoxide, molecular biology reagent	50 ml 100 ml 250 ml

191418	Dimethyl Sulfoxide, ACS Reagent Grade	100 ml 500 ml 1 liter
196055	Dimethyl Sulfoxide, cell culture reagent	25 ml 100 ml 500 ml 1 liter

Heavy Labels Available:

510722	Dimethyl Sulfoxide - D_6 CAS # 2206-27-1 CD_3SOCD_3 Purity: 99.9% D atom Density = 1.19 gm/ml MW = 84.17	1 g 5 g 10 g 25 g 50 g
510723	Dimethyl Sulfoxide - D_6 Contains +1% TMS CAS # 2206-27-1 CD_3SOCD_3 Purity: 99.9% D atom Density = 1.19 gm/ml MW = 84.17	1 g 5 g 10 g 25 g 50 g
510823	Dimethyl Sulfoxide - D_6 CAS # 2206-27-1 CD_3SOCD_3 Purity: 99.96% D atom Density = 1.19 gm/ml MW = 84.17	0.5 ml 5 ml

References:

1. *Merck Index*, **13th Ed.**, No. 3285.
2. *Bretherick's Handbook of Reactive Chemical Hazards, 4th ed.*, p. 299-303.
3. Cheng, S., et al., *Proc. Natl. Acad. Sci. USA*, **v. 91**, 5695-5699 (1994).
4. Lowe, O.G., *J. Org. Chem.*, **v. 41**, 2061 (1976).
5. *Martindale, The Extra Pharmacopoeia, 29th ed.*, p. 1426 (1989).
6. Nalgene Reference/Chemical Resistance Chart (Nalgene/Nunc Life Science Products Company catalog; www.nalgenenunc.com)
7. Rondinini, S., et al., *Pure and Applied Chem.*, **v. 59**, 1693-1702 (1987).

8. Winship, P.R., et al., "An improved method for directly sequencing PCR amplified material using dimethyl sulphoxide." *Nucleic Acids Res.*, **v. 17**, 1266 (1989).