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TECHNICAL INFORMATION

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:	***Moderately compatible with:***	***Compatible with:***
– polysulfone – flexible and rigid PVC tubing – polycarbonate	– polystyrene – Halar ECTFE (ethylene-chlorotrifluoroethylene copolymer) – Tefzel ETFE (ethylene-tetrafluoroethylene)	– 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:

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– *Bretherick's Handbook of Reactive Chemical Hazards, 4th ed.*, p. 299-303.
– Cheng, S., et al., *Proc. Natl. Acad. Sci. USA*, **v. 91**, 5695-5699 (1994).
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– Nalgene Reference/Chemical Resistance Chart (Nalgene/Nunc Life Science Products Company catalog; www.nalgenenunc.com)
– Rondinini, S., et al., *Pure and Applied Chem.*, **v. 59**, 1693-1702 (1987).
– Winship, P.R., et al., "An improved method for directly sequencing PCR amplified material using dimethyl sulphoxide." *Nucleic Acids Res.*, **v. 17**, 1266 (1989).