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TECHNICAL INFORMATION

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

Dimethyl Sulfoxide

Structure:

Molecular Formula: C₂H₆SO (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. 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. 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

polystyreneHalar ECTFE - flexible and rigid PVC tubing

- polycarbonate

(ethylene-chlorotrifluoroethylene

copolymer) Tefzel ETFE

(ethylene-tetrafluoroethylene)

Low-density polyethylene (LDPE)

High-density polyethylene (HDPE)

Polypropylene

Polypropylene copolymer (PPCO)

– Nvlon

- Teflon ETFE

(ethylene-tetrafluoroethylene)

Caution: Rapidly absorbed through skin and mucous membranes.

Availability:

Catalog Number	Description	Size
190186	1	100 ml 500 ml
		1 liter

194819	reagent	50 ml 100 ml 250 ml
191418		100 ml 500 ml 1 liter
196055		25 ml 100 ml 500 ml 1 liter

Heavy Labels Available:

510722	CD ₃ SOCD ₃ Purity: 99.9% D atom	1 g 5 g 10 g 25 g 50 g
510723	CAS # 2206-27-1 CD ₃ SOCD ₃	1 g 5 g 10 g 25 g 50 g
510823	Dimethyl Sulfoxide - D ₆ CAS # 2206-27-1 CD ₃ SOCD ₃ Purity: 99.96% D atom Density = 1.19 gm/ml MW = 84.17	0.5 ml 5 ml

References:

- Merck Index, 13th Ed., No. 3285.
- 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).
 Lowe, O.G., *J. Org. Chem.*, v. 41, 2061 (1976).
- Martindale, The Extra Pharmacopoeia, 29th ed., p. 1426 (1989).
- 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).