Dimethyl sulphoxide (DMSO)

Cell Culture Tested

Product Code: TC185

Product Description :

Molecular Weight: 78.13
Molecular Formula: $C_2H_6O_S$
CAS No: 67-68-5
Synonym: DMSO, Methyl sulfoxide

Dimethyl sulfoxide (DMSO) is one of the strongest organic solvents that exhibits complete miscibility in water and most organic polar liquids. It is produced by oxidation of dimethyl sulfide with oxygen or nitrogen dioxide. It has both hydrophobic and hydrophilic properties depending on temperature.

It plays an important role in sample management and drug designing operations because of its ability to dissolve different kinds of compounds. It is a common ligand in organic chemistry and used as a mild oxidant in organic synthesis. DMSO is also used in Polymerase chain reaction to reduce the formation of secondary structures of DNA template and primers.

DMSO is widely used in cell culture as a cryoprotective agent for cryopreservation of animal cells and tissues, human embryos, blood cells. It prevents formation of ice crystals during freezing process and prevents cell damage. It is generally used at 10% concentration (v/v) in cell freezing medium. However, it has been used successfully at a concentration as low as 5% (v/v) for many cell lines. Use of lower concentration of DMSO has the benefit of quicker post-thaw removal of this toxic reagent from cells upon dilution with growth medium.

Apart from its utility in cryopreservation, DMSO has also been used for induction of cell differentiation.

Although DMSO itself is quite non-toxic, it can be dangerous because of its solvent power. Hence, the materials (containers, filters, syringes, tips, pipettes etc.) that come in contact with DMSO should be DMSO compatible. Consumables and accessories made up of polypropylene, polymethylpentene, nylon, teflon FEP, LDPE, HDPE, PPCO (polupropylene copolymer) are completely DMSO-compatible whereas those of polystyrene, ECTFE/ETFE are moderately DMSO-compatible. Polysulfone, PVC tubings and polycarbonate materials are incompatible with DMSO hence should not be brought in contact with DMSO.

For filter sterilization of DMSO, teflon or nylon membrane filters are recommended. Cellulose acetate membranes should not be used.

Directions :

Precautions:
DMSO can penetrate many synthetic and natural membranes including skin and rubber gloves. Consequently, any potentially harmful substances in regular use (e.g. carcinogens) may also be carried into the circulation through the skin and even through rubber gloves. DMSO should always be handled with caution, particularly in presence of any toxic substances.

Quality Control:

Appearance
Clear colourless liquid

Free acid
NMT 0.001%

Assay by gas chromatography
NLT 99.5%

Water content by Karl Fischer
NMT 0.1%

ID by FTIR
Passes

Cell Culture Test
Passes

Please refer disclaimer overleaf

Storage and Shelf Life:

Store at 15 - 30ºC away from bright light.
Shelf life is 48 months.
Use before expiry date given on the product label.

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