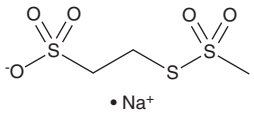
PRODUCT INFORMATION

MTSES

Item No. 16529

CAS Registry No.:	184644-83-5
Formal Name:	2-[(methylsulfonyl)thio]-ethanesulfonic acid, monosodium salt
Synonym:	Sodium (2-Sulfonatoethyl)methanethiosulfonate
MF:	$C_3H_7O_5S_3 \bullet Na$
FW:	242.3
Purity:	≥98%
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

MTSES is supplied as a crystalline solid. A stock solution may be made by dissolving the MTSES in the solvent of choice, which should be purged with an inert gas. MTSES is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of MTSES in these solvents is approximately 20 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of MTSES can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of MTSES in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Methanethiosulfonates (MTS) are sulfhydryl-reactive compounds that form mixed disulfide linkages and are commonly used to study cysteine residues on proteins. Sodium (2-sulfonatoethyl)methanethiosulfonate (MTSES) is a negatively-charged, membrane impermeant MTS. It is highly reactive with ionized thiolates but not with unionized thiols and, therefore, targets sulfhydryl groups accessible from the aqueous medium. MTSES is used to probe the structural and functional properties of native proteins, particularly those associated with membranes, including channels and transporters.[1-3] In addition, charged MTS compounds like MTSES are combined with cysteine scanning mutagenesis to study non-cysteine residues.[4,5]

References

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2. Li, R.A., Tsushima, R.G., Kallen, R.G., *et al.* Pore residues critical for μ-CTX binding to rat skeletal muscle Na^+ channels revealed by cysteine mutagenesis. *Biophys. J.* **73(4)**, 1874-1884 (1997).
3. Guan, L. and Kaback, H.R. Site-directed alkylation of cysteine to test solvent accessibility of membrane proteins. *Nat. Protoc.* **2(8)**, 2012-2017 (2007).
4. Engh, A.M. and Maduke, M. Cysteine accessibility in ClC-0 supports conservation of the ClC intracellular vestibule. *J. Gen. Physiol.* **125(6)**, 601-617 (2014).
5. Liu, X., Alexander, C., Serrano, J., *et al.* Variable reactivity of an engineered cysteine at position 338 in cystic fibrosis transmembrane conductance regulator reflects different chemical states of the thiol. *J. Biol. Chem.* **281(12)**, 8275-8285 (2006).

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