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TECHNICAL INFORMATION

Catalog Number: 190242, 194705, 194834, 806443, 806444, 806445
2-Mercaptoethanol

Structure:

Molecular Formula: C_2H_6OS

Molecular Weight: 78.13

CAS # : 60-24-2

Synonyms: b-Mercaptoethanol; 2-Hydroxyethylmercaptan; BME; Thioethylene glycol; 2-Hydroxy-1-ethanethiol; Monothioethyleneglycol

Physical Description: Clear, colorless to light yellow liquid with extreme Stench. The pure liquid (as supplied) is a 14.3 M liquid.

Storage: Room temperature; however, the product does decompose slowly on exposure to air. Bottles should be kept tightly sealed.

Density: 1.12 g/ml

Solubility: Miscible with water, alcohol, ether and benzene.[1] Solutions containing even trace levels (nanomolar) of some metal salts (especially copper (II) or cobalt(II)) are unstable at pH > 5 and progressively less stable at higher pH values. Most buffers (especially phosphate) contain enough metal salts to lead to substantial loss of -SH within 1-2 days. The addition of EDTA helps to stabilize solutions. If diluted product needs to be stored it is recommended to store at pH 6-7 with EDTA (0.05 mM) at 2-8°C for no more than 2 to 3 days; however, we highly recommend adding neat 2-mercaptoethanol as needed to the sample.

Description: Used to reduce disulfide linkages in solubilizing proteins for gel electrophoresis (typically used in SDS-PAGE sample buffer at 5% concentration). Also reduces excess oxidative polymerization of catalysts.

Cleaving intermolecular (between subunits) disulfide bonds allows the subunits of a protein to separate independently on SDS-PAGE. Cleaving intramolecular (within subunit) disulfide bonds allows the subunits to become completely denatured so that each peptide migrates according to its chain length with no influence due to secondary structure.

In solution, 2-mercaptoethanol is readily oxidized in air to a disulfide, especially at alkaline pH. Because of this property, it is widely used to protect proteins, enzymes in particular, from becoming inactive. An excess of 2-mercaptoethanol (generally used at 0.01 M) will maintain the protein thiol groups in their reduced state.

Note for Electrophoresis Use: Researchers have seen artifactual bands in SDS-PAGE systems, appearing in the range of 54 to 68 kDa, particularly in 2-dimensional electrophoresis systems when sensitive staining techniques are used to detect proteins, such as gold or silver staining.[4,10,11,13] Although these have appeared when 2-mercaptoethanol is used, they have been attributed to the action of 2-mercaptoethanol on some component in the system. These bands may be eliminated by removing the 2-mercaptoethanol from the protein sample during equilibration and replacing it by iodoacetamide, which reportedly improves recovery and detection of proteins.[4,11]

Availability:

Catalog Number	Description	Size

190242	2-Mercaptoethanol	100 ml 250 ml 500 ml 1 liter
194705	2-Mercaptoethanol, cell culture reagent	100 ml 250 ml 500 ml 1 liter
806443 806444 806445	2-Mercaptoethanol, purity not less than 98%	25 g 100 g 500 g
194834	2-Mercaptoethanol, molecular biology reagent	25 ml 100 ml 250 ml

References:

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