

DTT, Cleland's reagent

Product Description

Hydrosoluble reagent to protect sulfhydryls or cleave disulfide bridges. Widely used for protein denaturation in biochemistry works and SDS-PAGE electrophoresis

Catalog number :	UP284250, 1g UP284255, 5g
Name :	1,4-Dithiothreitol, DTT
Formula :	$C_4H_{10}O_2S_2$
Molecular Weight :	154.25
Storage :	Store at +4°C protected from light and moisture Long term storage recommended at -20°C Harmful / Irritant; R: 36/37/38; S: 26-36

Scientific and Technical Information

Cleland's Reagent, or Dithiothreitol (DTT), is a water-soluble reducing reagent used in various analysis, biotechnologic technics and biology and biochemistry applications:

- maintain completely sulfhydryl groups of biomolecules in the reduced state
 - reduces quantitatively disulfhydes, generating sulfhydryls
 - reduction of proteins before SDS-PAGE analysis, studies of protein structure and function (Kaji 1993)
 - antitoxicant; used as a protective agent against ionizing radiations in living cells (Bick 1968)
 - prevents the fading of fluorescence such as FITC labeled conjugates (Picciolo 1984)
 - enhancement or inhibition of enzymes or receptors activity (Bohn 1974/DNA polymerase)(Antil 1967/aldolases)(Reynolds 1990,Aizenman 1989/NMDA receptors) (Sakai T. 1983)
- DTT is highly soluble in water (clear solution, OD<0.05 at 0.02M), but also in ethanol, chloroform, ether and ethyl acetate
 - Low tendency to be oxidized directly by air. Exposure to air should however be minimized. Reducing ability may be reduced after unproper storage conditions (at room temperature, or in solution)
 - DTT participates to disulfide exchange reactions (Zhang 1988). It is readily cross biological membranes. It protects notably enzyme activity lost by the oxidation of sulfhydryl groups (Klonne 1988)
 - DTT is used classically at 1-10mM for protein SS reduction

Literature

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