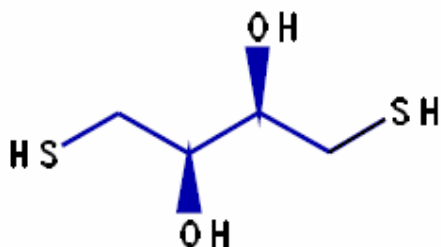


SPECIFICATIONS



Europa Bioproducts Ltd
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15-17 North Street, Wicken,
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DITHIOTHREITOL, pharmaceutical grade

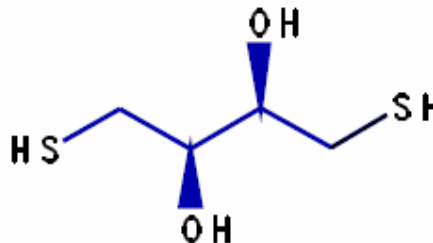
Catalogue Number	EU280		
Empirical Formula	C ₄ H ₁₀ O ₂ S ₂		
CAS Registry Number	3483-12-3		
Lot	-		
Molecular weight	154.25 g.mol ⁻¹		
Melting Point	42 ± 2°C (Corr.)		
I.R.	Consistent with assigned structure		
Titration ex -SH (iodometric)	>/= 99.0%		
T.L.C.	One Spot		
UV Assays	1% Solution	0.02 M Solution	1 M Neutral Solution
	A ₂₈₀ < 0.067	A ₂₈₃ < 0.040	A ₄₀₀ < 0.062
	A ₃₀₅ < 0.050	-	A ₄₀₅ < 0.062
	-	-	OD 700-500 </= 0.035
Loss on Drying	< 0.50%		
Appearance	White crystals		

5% Solution in Water	Clear and colourless			
% Oxidized DTT	< 0.50%			
Residual Solvents in ppm	Toluene	Hexane	Methanol	THF
	< 890	< 290	< 3000	< 720
Storage	2-8°C under Nitrogen			
Date	Friday, 29 February 2008			

Raised by: RH

DTT

Dithiothreitol (DTT), or Cleland's Reagent, is used to reduce disulfide bonds quantitatively and maintain monothiols in the reduced state. At low concentrations, DTT can stabilize enzymes.



DTT can readily permeate cell membranes allowing it to be used in pharmaceutical applications for high yield isolation and extraction of proteins. At higher concentrations, DTT is an effective protein denaturant which cleaves disulfide linkages between cysteine groups in proteins and peptides.

Applications:

- Suitable for large-scale isolation and purification of proteins 4
- Important in the study of enzymes, antibodies, and growth factors 2,3,4
- Useful reagent for the protection of thiol groups in organic synthesis.

DITHIOTHREITOL, pharmaceutical grade

DTT is not a regulated product by the US FDA, and therefore is not registered as such. Our pharmaceutical grade DTT is manufactured based on the following:

- [1] DTT involves a multi-step synthesis for which retrospective process validation has been executed. Any change that could affect product quality is subject to change control, governed by Quality Assurance (QA).
- [2] cGMP becoming effective in the final reaction step. From this point forward:
 - Manufacturing work instructions (BPRs) and associated QC forms are controlled and issued to manufacturing by QA
 - Verifications are required for all critical processing steps such as raw material charges, temperature profiles, etc.
 - All raw materials and starting materials are subject to statistical sampling for QC testing prior to use in production. Vendors of these raw materials are approved and materials are qualified.
- [3] Analytical methods for final product testing are validated. Total impurities do not exceed 1%; individual impurities > 0.1% are characterized.
- [4] QA releases product upon completion of a batch record review.
- [5] Process is subject to an Annual Product Review by Manufacturing and QA.
- [6] Product is subject to a Stability Study Program.