



SIGMA-ALDRICH

3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

Product Information

N-(3-Dimethylaminopropyl)-N'-ethylcarbodiimide hydrochloride

Product Number **E7750**

Storage Temperature -0 °C

Product Description

Molecular Formula: $C_8H_{17}N_3 \bullet HCl$

Molecular Weight: 191.7

CAS Number: 25952-53-8

Melting Point: approximately 112 °C

Synonyms: EDAC, EDC,

1-Ethyl-3-(3-dimethylaminopropyl)carbodiimide hydrochloride

EDAC is a water soluble condensing reagent generally used as a carboxyl activating agent for amide bonding with primary amines.^{1,2} It will also react with phosphate groups. EDAC has been used in peptide synthesis, crosslinking proteins to nucleic acids,³ and preparation of immunoconjugates.⁴ The use of EDAC in fluorescent determination of uronic acids and carboxylic acids has been reported.⁵

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

EDAC is soluble in water (100 mg/ml, approximately 0.5 M), yielding a clear, colorless to light yellow solution.

Storage/Stability

The product is water soluble, but is not stable. It is suggested to prepare a fresh solution immediately before use.²

Procedure

For attachment of ligands to agarose,⁶⁻⁹ the solid is weighed out, dissolved in a minimal amount of water (148 mg in 0.3 ml) immediately before adding drop wise over a 5-minute period to the reaction mixture. Its purpose is to activate a carboxyl group.

The immobilized derivative is prepared by first coupling diamino-hexane to agarose and then condensing the terminal amino group with a carboxylate molecule via an amide bond. This condensation is achieved by activating the carboxylate with a water soluble carbodiimide. The "activated carboxylate" is very unstable.

References

1. Khaon, M. K. Synthesis of esters. *J. Org. Chem.*, **47**, 1962 (1982).
2. Lundblad, R. L., et al., Modification of carboxyl groups in proteins. *Chemical Reagents for Protein Modification* **2**, 105 (1984).
3. Thomas, J. O., et al., Altered arrangement of the DNA in injection-defective lambda bacteriophage. *J. Mol. Biol.*, **123**, 149 (1978).
4. Drabick, J. J., et al., Covalent polymyxin B conjugate with human immunoglobulin G as an antiendotoxin reagent. *Antimicrob. Agents Chemother.*, **42**, 583-588 (1998).
5. Kobayashi, M., et al., Use of water-soluble 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide for the fluorescent determination of uronic acids and carboxylic acids. *Anal. Biochem.*, **189(1)**: 122-125 (1990).
6. O'Carra, P., et al., Lactate Dehydrogenase: Specific Ligand Approach. *Methods in Enzymology*, **34B**, 598-603 (1974).
7. Parikh, I., et al., Topics in the Methodology of Substitution Reactions with Agarose. *Methods in Enzymology*, **34**, 77-102 (1974).
8. Matsuura, A., et al., Thiamine Pyrophosphate-Agarose and the Purification of a Thiamine-Binding Protein. *Methods in Enzymology* **34**, 303-304 (1974).
9. Steers, E., et al., Beta-Galactosidase. *Methods in Enzymology*, **34**, 350-358 (1974).

JLH/NSB 5/06

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.