Glycolaldehyde Dimer

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ESSENTIAL CHEMISTRY

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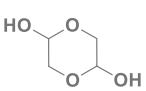
INTRODUCTION

Glycolaldehyde dimer is the cyclic dimeric form of glycolaldehyde, the simplest hydroxyaldehyde. Glycolaldehyde is often supplied as stable dimeric solid, commonly identified as 2,5-dihydroxy-1,4-dioxane. Due to its bifunctional reactivity, glycolaldehyde dimer serves as a valuable intermediate in organic synthesis and various industrial applications. It serves as a convenient precursor wherever glycolaldehyde reactivity is needed.

MANUFACTURE

Glycolaldehyde dimer is generally produced through the controlled oxidation of ethylene glycol or through catalytic processes involving formaldehyde-derived intermediates. The resulting glycolaldehyde monomers spontaneously dimerize during isolation and crystallization, yielding the more dimeric product. Purification is typically achieved through crystallization.

Synonyms	2,5-Dihydroxy-1,4-dioxane, Glycerol aldehyde dimer, 2,5-Dihydroxy-p-dioxane *p*-Dioxane-2,5-diol
CAS no.	23147-58-2
EINECS no.	607-202-3
Molecular formula	$C_4H_8O_4$
Molecular weight	120.10
Structure	

APPLICATIONS

Glycolaldehyde dimer is valued because under process conditions it serve as a source of highly reactive monomeric glycolaldehyde. The main areas of application include:

- **Pharmaceutical Industry:**
  - Intermediate in the synthesis of pharmaceutical intermediates.
  - Building block for the preparation of heterocyclic compounds and specialty molecules.
- **Fine Chemicals and Organic Synthesis:**
  - Versatile C2 synthon for carbon-carbon bond-forming reactions.
  - Used in the synthesis of carbohydrates, amino alcohols, and other functionalized organic compounds.
- **Polymer and Resin Industry:**
  - Crosslinking and chain-extension agent in specialty polymer formulations.
  - Intermediate for the preparation of advanced materials and functional resins.
- **Research and Biotechnology:**
  - Utilized in studies related to prebiotic chemistry and carbohydrate formation.
  - Reagent for biochemical and synthetic chemistry research applications.

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SPECIFICATIONS

Test	Unit	Specification
Appearance	-	White solid mass
Melting Point	°C	Min 80.0
Assay (by GC)	%	Min 98.0

STORAGE & PRECAUTION
Keep container tightly closed at 2-8 °C for short-term storage or below −20 °C for extended storage.

PACKING
30 kg / 250 kg UN Approved drums.

REACH Status
Not registered

ExSyn offers Glycolaldehyde dimer on a commercial scale and welcomes your enquiries. Regardless of the quantity required, our commitment to exceptional quality and reliable service makes ExSyn the preferred supplier of choice. Should you require any additional information or the SDS, please feel free to contact us.