

Product Information

Hydroxypyruvic acid dimethyl ketal phosphate tri(cyclohexylammonium) salt

Product Number **H1378**

Storage Temperature $-20\text{ }^{\circ}\text{C}$

Product Description

This product is the stable dimethyl ketal derivative of hydroxypyruvic acid phosphate. It may be used to prepare hydroxypyruvic acid phosphate in solution.

The molecular weight of hydroxypyruvic acid dimethyl ketal phosphate tri(cyclohexylammonium) salt is 527.6 Da. The molecular weight of hydroxypyruvic acid phosphate is 202.1 Da ($\text{C}_3\text{H}_7\text{O}_8\text{P}$).

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

This procedure describes the preparation of a solution of hydroxypyruvic acid phosphate from this product.

A package of specially washed Dowex[®] 50 \times 4-200R resin is included with this product for preparing the solution. The Dowex 50 (H^+ form) resin (Product Code 50X4200R) has been washed; however, upon aging it may contribute some color to the solution. It is therefore recommended that the resin be suspended in water and washed by decantation several times before use.

1. Dissolve 100 mg of hydroxypyruvic acid dimethyl ketal phosphate tri(cyclohexylammonium) salt in 10 ml of water.
2. Swirl for 2 minutes with 2 ml of Dowex 50 (H^+ form) to exchange with the cyclohexylammonium ions.
3. Filter the suspension and save the filtrate. Wash the resin with a small amount of water, filter, and save the filtrate.
4. After filtration, keep the combined filtrates at $40\text{ }^{\circ}\text{C}$ for 4 days to hydrolyze the ketal.

The hydrolysis can be followed using descending paper chromatography on Whatman[®] No. 1 acid washed paper in a butanol:acetic acid:water (35:10:25) system. At the start of the hydrolysis only the ketal will appear at an R_f 0.52. As the hydrolysis proceeds, another phosphate spot appears at R_f 0.32 along with a trace of inorganic phosphate.² About 50% of the ketal is hydrolyzed in the first 24 hours and the hydrolysis is practically complete in 4 days. When the faster component can no longer be detected, the solution is neutralized and used as a source for hydroxypyruvic acid phosphate. The solution of hydroxypyruvic acid phosphate free acid is about 0.018 M and contains 2 moles of methanol per mole of hydroxypyruvic acid phosphate. Inorganic phosphate content is approximately 7% expressed as a percent of total phosphate.

References

1. Ballou, C.E., *Biochemical Preparations*, **7**, 66-68 (1960).
2. Axelrod and Bandurski, *J. Biol. Chem.*, **193**, 405 (1951).

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