Citraconic Anhydride

20907

Number Description
20907 Citraconic Anhydride (2-methylmaleic anhydride), 100g
Molecular Weight: 112

Introduction
Thermo Scientific Citraconic Anhydride reacts with a primary amine to create an amide linkage and a terminal carboxylate. The linkage is stable at neutral to alkaline pH values (pH > 7), but it is rapidly hydrolyzed in acidic conditions (pH 3-4). Hydrolysis of the amide bond releases the citraconic acid and frees the amine, thus making citraconic anhydride a useful tool for reversibly blocking amine groups in proteins and other molecules.

Example Protocol for Blocking Amines
1. Dissolve the amine-containing sample in the reaction buffer (sodium phosphate or sodium carbonate at 0.1-1.0M, pH 8-9). For samples already in solution, perform a buffer exchange by dialysis or gel filtration.
   Note: Avoid Tris, glycine or other amine-containing buffers; free amines will quench the reaction.
2. Add citraconic anhydride to the reaction using at least a 5- to 10-fold molar excess of reagent over the amount of amines. Add the reagent by multiple additions to maintain reagent solubility in the reaction mixture.
3. React for at least 1-2 hours at room temperature. If desired, react overnight at 4°C.
4. Remove any excess reactant from the modified molecule by dialysis or gel filtration.
5. To remove the citraconic modification, adjust the pH to 3.5-4.0 by adding acid. Incubate at room temperature overnight or for at least 3 hours at 30°C. Alternatively, treat the sample with hydroxylamine, pH 10 (1M final concentration), for 3 hours at room temperature.

General References

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