

Barfoed Reagent

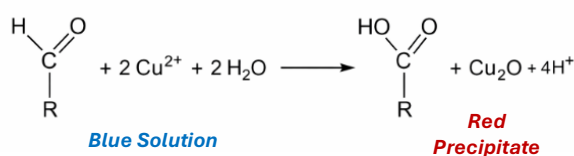
Ordering info

TBR0305, Barfoed Reagent, 250 mL

Description

Barfoed Reagent is an analytical reagent used in carbohydrate testing to differentiate reducing monosaccharides from reducing disaccharides. The reagent consists of copper acetate dissolved in dilute acetic acid, producing a mildly acidic solution.

In acidic conditions, monosaccharides act as strong reducing agents and rapidly reduce Cu^{2+} ions to Cu^+ upon heating, resulting in the formation of a brick-red precipitate of copper oxide (Cu_2O).



Reducing disaccharides react significantly more slowly under the same conditions, as they must first undergo acid hydrolysis to yield monosaccharide units capable of reducing the copper ions.

This difference in reaction rate allows **Barfoed Reagent** to be used for the qualitative differentiation of monosaccharides and disaccharides in carbohydrate analysis.

Storage

Store at 25°C. Protect from light.

Quality Control

Functionally tested.

Features

- Ready to use solution.
- Fast assay procedure.
- Very sensitive assay.

Applications

- Detection of monosaccharides in aqueous solutions.
- Carbohydrate analysis in food, biological and chemical samples.
- Food Industry.

PROTOCOL

A. BARFOED TEST

1. Add 1 mL of test solution in a test tube.
2. Add 1-2 mL per tube of Barfoed Reagent in the test tube.
3. In a boiling water bath, place the tubes until change is observed.
4. Note the amount of time needed for the red precipitate to occur in each case.

B. RESULT ANALYSIS

When a carbohydrate sample is heated with Barfoed Reagent, the reaction rate and the formation of a red precipitate can be used to differentiate between monosaccharides and disaccharides. Monosaccharides react rapidly under acidic conditions, while disaccharides react more slowly due to the need for prior hydrolysis. Non-reducing sugars do not produce a reaction under the test conditions.

The following table presents the expected results for different types of carbohydrates.

Carbohydrate Type	Observation	Reaction Time
Reducing monosaccharide	Formation of a brick-red precipitate	1-3 min
Reducing Disaccharide	Formation of a faint-red precipitate	7-8 min
Non-reducing sugars	No precipitate, colour solution remains unchanged	no reaction