

Carolina™ Solution Sheets

Biuret Reagent

Learn how to make Biuret reagent and how it is used to detect peptide bonds in proteins.

Materials

Distilled Water (item #858621)
Copper(II) Sulfate (item #856589)
Sodium Hydroxide (item #889460)
Stir Bar
Amber Bottle
Magnetic Stir Plate (item #701023)
Erlenmeyer Flask, 1,000-mL (item #731037)
Label

Don't want to make it yourself?
Find Biuret reagent at Carolina.com

Item Numbers
848209, 848211, 848213, 848214, 848215

Procedure

1. Dissolve 2.5 g of copper(II) sulfate in 1 L of water to yield a 0.01 M solution.
2. Prepare a separate solution of 10 M sodium hydroxide by dissolving 440 g of sodium hydroxide in water and then working up to 1 L volume.
3. Add 25 mL of the copper sulfate solution to 1 L of sodium hydroxide solution.

Notes

- Be extremely cautious when preparing the sodium hydroxide solution.
- Used for qualitative analysis, not quantitative.

Label Information

Biuret Reagent

Caution: Corrosive and toxic to body tissue

Date Prepared: _____

Initials of Preparer: _____

Health Risk: 3

Flammability: 0

Reactivity: 3

Applications

The Biuret's test is used to detect the presence of peptide bonds in proteins. The presence of a peptide bond is indicated by formation of a violet-colored coordination complex with the copper(II) ion.

Reference

Brandwein, P. F., and E. Morholt. 1986. *A sourcebook for the biological sciences*, 3rd ed. Orlando, FL: Harcourt Brace Jovanovich, 1986, p. 742.

The reaction was first observed in 1833: Ferdinand Rose. 1833. Über die Verbindungen des Eiweiss mit Metalloxyden (On the compounds of albumin with metal oxides). *Annalen der Physik und Chemie* 104:132–42. doi:10.1002/andp.18331040512. It was independently rediscovered in 1857 by a Polish physiologist: G. Piotrowski. 1857. Eine neue Reaction auf Eiweisskörper und ihre näheren Abkömmlinge (A new reaction of proteins and their related derivatives). *Sitzungsberichte der Kaiserliche Akademie der Wissenschaften in Wien, mathematisch-naturwissenschaftliche Classe* 24:335–7.