

TOTAL PROTEIN TEST KIT

Biuret Method (Colorimetric)



Product Code: 10049	Reaction Type: End Point with Standard
Pack Size: 2 × 50 ml	Matrix Target: Human Serum & Plasma
Storage Temp: RT (Reagent) / 2–8°C (Standard)	Wavelength: 555 nm (Hg 546 nm) Photometric Path

INTENDED USE & CLINICAL SIGNIFICANCE

Intended Use: This liquid diagnostic reagent system is configured for the direct quantitative in vitro colorimetric determination of Total Protein concentrations in human serum or plasma specimens.

Clinical Significance: The plasma proteins form a complex mixture in serum with a wide variety of metabolic and physical functions, acting primarily as vital structural and transport elements. Measurement of Total Protein serves as an essential baseline diagnostic test across a variety of systematic disorders:

- **Decreased Total Protein** concentrations are primarily detected in scenarios involving defective protein synthesis in the liver, accelerated protein loss due to impaired kidney function (nephrotic syndromes), intestinal malabsorption, or severe nutritional deficiency states.
- **Elevated Protein Levels** characteristically occur in chronic inflammatory disorders, advanced liver cirrhosis, and physical dehydration states.

METHOD PRINCIPLE

This automated and manual formulation utilizes an alkaline medium wherein proteins bind specifically with divalent copper ions present in the Biuret reagent to produce a stable, highly distinct purple-colored coordination complex:



The continuous rate of optical density or static absorbance of the formed colored complex is measured photometrically at 555 nm (or Hg 546 nm). The intensity of the optical absorbance is directly proportional to the absolute total protein concentration present in the specimen.

STEP 1: REAGENT CONFIGURATION & PIPETTING BASELINE

Set up the assay components and calibrate tracking paths on the photometer equipment according to the following analytical manual pipetting matrix:

Reagent / Component Line	Blank	Standard	Test
R1-Biuret Reagent (Optimized Alkaline Copper Mixture)	1000 µl	1000 µl	1000 µl
Protein Standard (Conc. stamped on vial; store at 2–8°C)	—	20 µl	—
Patient Serum / Plasma Sample (Cleanly processed matrix)	—	—	20 µl
Distilled Water (Baseline blanking element)	20 µl	—	—

Operational Directive: Mix well and incubate at 37°C for exactly 10 minutes. Measure the absolute absorbance of the Standard (A_{Std}) and Test (A_{Test}) against the Reagent Blank (A_{Blank}) on a photo-colorimeter or spectrophotometer.

STEP 2: CALCULATIONS & DATA TRACKING

The analyzer equipment captures the absolute optical density at the conclusion of the incubation period. The system or laboratory operator computes absolute total protein using the programmed multiplier equation:

$$\text{Total Protein (g\%)} = (\text{Abs. of Test} / \text{Abs. of Std.}) \times \text{Standard Concentration}$$

TECHNICAL PARAMETERS & CLINICAL SUPPORT MATRIX

Universal Safeguards	This diagnostic system is engineered exclusively for professional in vitro diagnostic use. Handle all components and clinical samples following standard biosafety protocols and universal laboratory regulations. Contains less than 0.1% sodium azide as a preservative (very toxic / dangerous for environment).
Expected Range	Total Proteins: 6.0 – 8.0 g%. These values are for orientation purposes; each individual laboratory must establish its own specific standard reference range.
Analytical Linearity	Up to 10.0 g%. Samples with concentrations exceeding 10.0 g% should be diluted 1:1 with standard saline and assayed again. Multiply the final results by a dilution factor of 2.

Critical Hemolysis Rule & Reagent Stability: Do not utilize grossly hemolyzed or turbid sample matrices. Red blood cell rupture particles falsely alter baseline absorbance values. Keep the matrix protected from intense contamination; discard the standard immediately if bacterial or fungal growth / visible turbidity is observed.

Pipette Rules & Structural Preservation: To fully preserve the chemical and optical integrity of the assay, always utilize fresh, separate micro-pipette tips for dispensing reagents, standards, and patient specimens. Cross-contamination will heavily compromise baseline stability and degrade analytical performance profiles.

Manufactured by: M/s. SAWIN BIOMEDICALS PVT. LTD.

Plot No: M82/2, Medical Devices Park, Sultanpur, Ameenpur Mandal, Sangareddy Dist-502 319, Hyderabad, Telangana, INDIA.

Phone: +91 8455-240822 / +91 7816075705 | E-mail: info@sawinbio.com | Web: www.sawinbio.com

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