

Product Information

One-Step Blue® Protein Gel Stain, 1X

Catalog Number: 21003-1L

Unit Size:
21003-1L: 1 liter

Storage and Handling

Store at 4°C. Product is stable for at least 6 months from date of receipt when stored as recommended.

Spectral Properties

Abs: ~610 nm; Em: ~680 nm (broad)

Product Description

One-Step Blue® is a ready-to-use protein gel staining solution. It produces fast (5-60 min) protein staining in a single step without fixation or washing. Proteins can be detected by visible blue staining, or by near-infrared fluorescence. In addition to rapid results and simple staining, One-Step Blue® offers safer handling and disposal compared to Coomassie staining because it is entirely aqueous-based, without hazardous methanol or acetic acid. One-Step Blue® solution (after pH neutralization) passed environmental toxicity testing and is classified as non-hazardous to the environment under CCR Title 22 regulations (see the product protocol for disposal instructions).

One-Step Blue® has comparable sensitivity as the widely used Coomassie Blue, with a lower limit of detection around 10-20 ng depending on the detection method used (Figure 1). Note that staining intensity varies between proteins. The staining is fully compatible with mass spectrometry and Edman-based sequencing.

Biotium also offers One-Step Lumitein™, a rapid, easy-to-use, non-toxic red fluorescent protein gel stain for detection using a UV transilluminator or laser gel scanner, and One-Step Lumitein™ UV, a non-toxic red protein gel stain optimized for use with UV transilluminators (see related products).

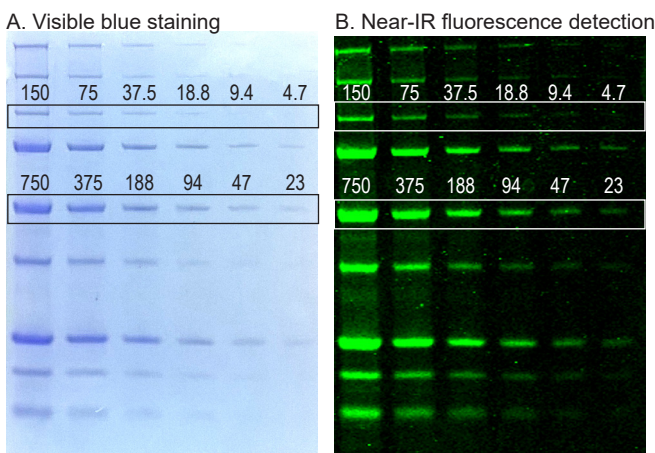


Figure 1. One-Step Blue®-stained SDS-PAGE gel. Two-fold dilutions of Unstained Precision Plus Protein™ Standard (Bio-Rad) were separated on a 1 mm thick Novex® NuPage® 4-12% Bis-Tris MES mini-gel (Thermo Fisher). The gel was stained with One-Step Blue® for 60 minutes. A) Visible blue staining. B) Near-infrared fluorescence in the 800 channel of a LI-COR® Odyssey®. Labels indicate approximate amount of protein (ng) in the boxed bands beneath.

Protocol

The following protocol is optimized for 1 mm thick, 8 cm X 8 cm SDS-PAGE mini-gels.

1. Staining: Mix One-Step Blue® just before use by inverting the bottle several times. Place your unfixed gel in a clean container containing 25 mL of One-Step Blue® per mini-gel. Bands may start to appear in a few minutes, depending on the amount of protein present. For best sensitivity, incubate the gel for 60 minutes with gentle rocking.

Note: Blue particulates may be seen in the solution before or after adding your gel. This is normal and will not negatively affect staining.

Note: The gel can be left in the staining solution overnight without over-staining.

Note: For larger gels, scale up the volume of staining solution accordingly using the mini-gel size as a reference.

Note: One-Step Blue® can also be used to stain fixed gels. Fixation with 45% methanol/10% acetic acid for 1 hour before staining, followed by destaining in water can increase sensitivity.

2. Destaining (optional): Destaining is not required, but can be done to reduce background (Figure 2). Gels can be destained in water for one hour to overnight with rocking.
3. Imaging and Quantitation: The gel can be photographed in visible light, or imaged using a standard densitometry-based imager. One-Step Blue® dye also emits near infrared fluorescence, allowing staining to be detected with a near-IR fluorescence gel scanner, such as the LI-COR® Odyssey® imaging system, in either the 700 nm or 800 nm channel (Figure 1).

Note: After staining, gels can be dried in cellophane according to standard protocols for Coomassie-stained gels.

Note: For downstream analysis such as sequencing or mass spectrometry, gel slices can be processed the same way as Coomassie-stained gels.
4. Disposal: One-Step Blue® is a 100% aqueous solution uniquely formulated using chemicals that qualify as food ingredients that can be disposed down the drain. It does not contain methanol and is classified as non-hazardous to the environment. However, the solution is acidic and must be neutralized before drain disposal. To neutralize, add 743 uL 1N sodium hydroxide per mL One-Step Blue® and mix well. Alternatively, you can add 30 mg sodium hydroxide pellets per mL One-Step Blue® and stir to dissolve completely.

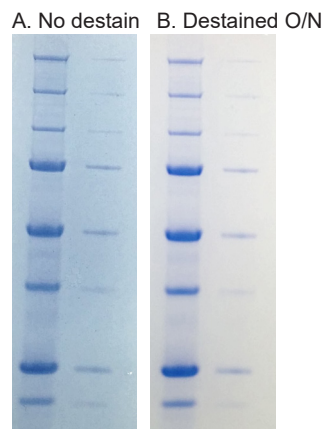


Figure 2. One-Step Blue®-stained SDS-PAGE gel (A) immediately after staining, or (B) after destaining in water overnight.

Catalog No.	Product
21004-1L	One-Step Lumitein™ Protein Gel Stain
21005-1L	One-Step Lumitein™ UV Protein Gel Stain
22001	Ponceau S Solution
30071	AccuOrange™ Protein Quantitation Kit
22012	Non-fat dry milk
22011	Fish gelatin powder
22014	BSA, IgG- and protease-free, 30% solution
22002	TWEEN® 20
41003	GelRed™ Nucleic Acid Gel Stain
41005	GelGreen™ Nucleic Acid Gel Stain
41008-500uL	PAGE GelRed™ Nucleic Acid Gel Stain
41007-500uL	PAGE GelGreen™ Nucleic Acid Gel Stain

Please visit our website at www.biotium.com for information on our life science research products, including fluorescent CF® dye antibody conjugates and reactive dyes, near-infrared CF® dye conjugates for western blotting and other applications, EvaGreen® dye and master mixes for qPCR, apoptosis reagents, fluorescent probes, and kits for cell biology research.

Precision Plus Protein is a trademark of Bio-Rad. SYPRO, Novex, and NuPage are registered trademarks of Thermo Fisher Scientific.

Materials from Biotium are sold for research use only, and are not intended for food, drug, household, or cosmetic use.