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**Иркутск** (395)279-98-46
**Казань** (843)206-01-48
**Калининград** (4012)72-03-81
**Калуга** (4842)92-23-67
**Кемерово** (3842)65-04-62
**Киров** (8332)68-02-04
**Коломна** (4966)23-41-49
**Кострома** (4942)77-07-48
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**Магнитогорск** (3519)55-03-13
**Москва** (495)268-04-70
**Мурманск** (8152)59-64-93
**Набережные Челны** (8552)20-53-41
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**Орел** (4862)44-53-42
**Оренбург** (3532)37-68-04
**Пенза** (8412)22-31-16
**Петрозаводск** (8142)55-98-37
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**Ростов-на-Дону** (863)308-18-15
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**Сочи** (862)225-72-31
**Ставрополь** (8652)20-65-13
**Сургут** (3462)77-98-35
**Сыктывкар** (8212)25-95-17
**Тамбов** (4752)50-40-97
**Тверь** (4822)63-31-35
**Тольятти** (8482)63-91-07
**Томск** (3822)98-41-53
**Тула** (4872)33-79-87
**Тюмень** (3452)66-21-18
**Ульяновск** (8422)24-23-59
**Улан-Удэ** (3012)59-97-51
**Уфа** (347)229-48-12
**Хабаровск** (4212)92-98-04
**Чебоксары** (8352)28-53-07
**Челябинск** (351)202-03-61
**Череповец** (8202)49-02-64
**Чита** (3022)38-34-83
**Якутск** (4112)23-90-97
**Ярославль** (4852)69-52-93

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# Технические характеристики на материалы для белкового электрофореза и вестерн-блоттинга компании Sigma-Aldrich

**Виды товаров:** реагенты и субстраты для иммунодетекции, белковые гелевые пятна для электрофореза белков, гели и буферы для белкового электрофореза, белковые маркеры, буферы для переноса и реагенты.

# Protein Electrophoresis Gels & Buffers

Polyacrylamide gel electrophoresis (PAGE) and SDS-PAGE are common techniques used for protein separation. Protein gels can be hand-casted or purchased as pre-cast gels for convenience. The percentage of acrylamide in the gel affects resolution of protein bands, with higher percentages of acrylamide useful for resolving low molecular weight proteins and lower percentages of acrylamide useful in resolving higher molecular weight protein bands. Gradient pre-cast gels cover a wider range of molecular weight sizes. Hand-casting gel reagents, pre-cast gels, and running buffer powders are available for your lab needs.

## MPAGE® BIS-TRIS PRECAST GELS

mPAGE® Bis-Tris precast gels provide excellent protein resolution at a budget-friendly price. Offering high resolution of protein bands, mPAGE® gels require shorter run times and are compatible with large sample volumes, making mPAGE® precast gels a valuable tool for protein research.

**Features:**

- Publication-ready resolution at a fraction of the cost
- Compatible with popular electrophoresis tanks
- Up to 80 µL sample per well
- Efficient wet and semi-dry Western blot transfer
- Up to 15-minute shorter run time
- Neutral pH prevents protein modification
- Durable to prevent tearing during post-electrophoresis processing
- Excellent compatibility with the popular gel running equipment and tanks including Thermo/Invitrogen, Bio-Rad®, and others

## MPAGE® TURBOMIX BIS-TRIS GEL CASTING SOLUTIONS

Cast your own polyacrylamide gels using mPAGE® TurboMix Bis-Tris kits and solutions. mPAGE® TurboMix Bis-Tris Gel Casting Kits eliminate the variability and time-consuming nature of hand-casting gels by supplying pre-mixed buffer and acrylamide solutions.

**Features:**

- Premixed and ready-to-pour acrylamide buffer solutions reduce hands-on prep time
- Quick Cast protocol allows simultaneous polymerization of resolving and stacking gels

- Neutral pH running conditions result in reduced protein modification and sharper bands compared to standard Tris-glycine gels
- Easily dilute to any required percentage acrylamide gel between 8% and 15%, to separate proteins 6 kDa – 400 kDa in size
- Electrophoresis in as little as 20 minutes
- Longer cast gel shelf life (3-4 weeks, with proper storage)

## RUNNING BUFFERS FOR BIS-TRIS GELS

Two buffers that can be used as running buffers for SDS-PAGE gels: MES and MOPS. MES has a lower pKa than MOPS, which enables faster run times. MES buffer gives better separation of proteins at lower molecular weights, while MOPS buffer provides better separation at higher molecular weights. MES and MOPS SDS buffer powders are available for fast and easy preparation of running buffer for protein gel electrophoresis.

## OTHER REAGENTS FOR POURING GELS BY HAND

PAGE and SDS-PAGE gels can be hand-casted using acrylamide/bisacrylamide with TEMED and ammonium persulfate to polymerize the gel. The reagents are prepared, mixed together, then poured between two glass plates to polymerize. Acrylamide and bisacrylamide are neurotoxins in solution, so care should be taken to avoid direct contact. High purity TEMED, ammonium persulfate, and bisacrylamide and acrylamide in powder or solution form are available for hand casting gels.

1.10732
**N,N,N',N'-Tetramethyl ethylenediamine (Temed)**
GR for analysis

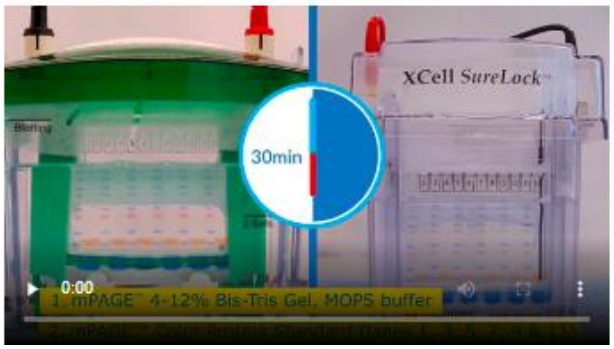
1.01546
**N,N'-Methylenebisacrylamide**
for electrophoresis, special grade for molecular biology

1.04169
**Glycine**
buffer substance for electrophoresis

1.10897
**N,N'-Methylenediacrylamide**
for electrophoresis

1.06062
**N,N'-Methylenebisacrylamide ready-to-use solution "BIS" 2%**
for electrophoresis

# Protein Markers




Protein molecular weight markers, sometimes referred to as protein standards or protein ladders, are used to estimate the molecular weight of proteins of interest and to monitor the progress of electrophoretic separation or transfer in Western blotting. Unstained molecular weight markers usually consist of a mixture of purified native or recombinant proteins of defined molecular weights. Visualizing their location on a gel or membrane requires a staining step. Pre-stained protein markers allow easy tracking of electrophoretic separation and transfer efficiency. Individual protein standards are also available for protein electrophoresis, isoelectric focusing, and 2D-PAGE applications.

- **Protein Marker Selection Table**
- **mPAGE® Protein Standards**
- **Colorburst Protein Markers**
- **Sigmamarker™ Protein Markers**
- **Perfect Protein Markers**
- **Ultra-Low Range Protein Markers**
- **Non-Denaturing Protein Markers**
- **Biotinylated Markers**

## PROTEIN MARKER SELECTION TABLE

| If You Want To… | Use… | Molecular Weight Range | | Prestained | Provided As |
|---|---|---|---|---|---|
| Separate very small proteins | Color Marker Ultra-Low Range (C6210) | 1-27 kDa | (6 bands) | Yes, Multicolor | Liquid |
| | Ultra-Low Range Molecular Weight Marker (M3546) | 1-27 kDa | (6 bands) | No | Liquid |
| Separate both very small and mid-range proteins | SigmaMarker (low) (S8445) | 7-66 kDa | (7 bands) | No | Powder |
| | SigmaMarker (wide) (M3913) | 7-200 kDa | (12 bands) | No | Powder |

| | | | | | |
|---|---|---|---|---|---|
| Easily track gel progression for mid-range proteins | mPAGE Color Protein Standard (MPSTD4) | 10-203 kDa | (10 bands) | Yes, Multicolor | Liquid |
| | ColorBurst Electrophoresis Marker (C1992) | 8-220 kDa | (8 bands) | Yes, Multicolor | Liquid |
| | BLUeye Prestained Protein Ladder (94964) | 11-245 kDa | (12 bands) | Yes, Multicolor | Liquid |
| | Prestained Molecular Weight Marker (SDS7B2) | 27-180 kDa | (7 bands) | Yes, Single Color | Powder |
| Precisely measure protein size using Coomassie staining | mPAGE Unstained Protein Standard (MPSTD3) | 10-200 kDa | (12 bands) | No | Liquid |
| | Perfect Protein Markers, 10-225 kDa (69079) | 10-225 kDa | (9 bands) | No | Liquid |
| | Perfect Protein Markers, 15-150kDa (69149-M) | 15-150 kDa | (7 bands) | No | Liquid |
| Visualize the ladder when using HRP-ECL reagents | mPAGE Western Protein Standard (MPSTD2) | 20-120 kDa | (7 bands) | No | Liquid |
| | Perfect Protein Western Markers (69959) | 15-150 kDa | (7 bands) | No | Liquid |
| Study biotinylated proteins | Biotinylated Molecular Weight Marker (B2787) | 7-180 kDa | (9 bands) | No | Powder |
| Separate very large proteins | Kit for Molecular Weights 14000-500000 Nondenaturing (MWND500) | 14-545 kDa | (7 bands) | No | Powder |

## MPAGE® PROTEIN STANDARDS

- mPAGE® Western Protein Standards consist of seven recombinant proteins at 20 kDa, 30 kDa, 40 kDa, 50 kDa, 60 kDa, 80 kDa and 120 kDa with an IgG binding site that

binds to most antibodies. This enables visualization of both the protein marker and sample proteins on the same western blot without additional reagents.

- mPAGE® Color Protein Standards include a mixture of ten highly purified pre-stained proteins ranging from 10 kDa to 203 kDa, covalently coupled with different chromophores. mPAGE® Color Protein Standards are designed for observing protein separation during SDS-PAGE, verifying Western blotting transfer efficiency on membranes, and approximating the size of proteins.
- mPAGE® Unstained Protein Standards include a mixture of twelve recombinant unstained proteins ranging from 10 kDa to 200 kDa. The 85 kDa, 25 kDa, and 10 kDa bands have higher intensity to serve as reference points. mPAGE® Unstained Protein Standards are suitable for molecular weight determination after SDS-PAGE or Western blotting and serves as standards to calibrate the mobility of pre-stained markers.

## COLORBURST PROTEIN MARKERS

ColorBurst Markers are composed of eight polypeptides that have been chemically reduced and conjugated to brilliantly colored dyes. Colorburst markers can be used to estimate sample molecular weights, monitor the progress of an electrophoretic run, or confirm completion of electroblotting.

## SIGMAMARKER™ PROTEIN MARKERS

SigmaMarker™ protein markers are designed for use with SDS-PAGE and cover the range of molecular weights common to most proteins or their subunits. These high and low wide range markers are lyophilized with sample buffer so that they are ready-to-use after reconstitution with deionized water. The markers are formulated to yield a distribution of well-defined bands of approximately equal intensity after electrophoresis and Coomassie blue staining.

## PERFECT PROTEIN MARKERS

Perfect Protein Markers were designed for routine use in SDS-PAGE to enable highly accurate size determination of unknown samples. Unlike many conventional markers (e.g., ovalbumin, serum albumin), Perfect Protein Markers contain no oligosaccharides that cause anomalous migration, heterogeneous "fuzzy" bands, or inaccurate size estimation. These markers are optimized for use with Coomassie blue staining, but adjusted amounts can also be used with other gel staining methods including silver staining and staining with fluorescent dyes.

## ULTRA-LOW RANGE PROTEIN MARKERS

Ultra-low Range Molecular Weight Markers (M.W. 1,060-26,600) have been used as protein markers in SDS-PAGE and Western blotting. Fixing is recommended.

## NON-DENATURING PROTEIN MARKERS

Non-denaturing markers have been used as standards for native PAGE, as well as to calibrate columns for gel exclusion chromatography.

**Biotinylated protein markers**

## BIOTINYLATED MARKERS

The Biotinylated Molecular Weight Standard Mixture contains proteins that are biotin-conjugated for use as both SDS-PAGE standards and as standards for Western blotting. Visualization is accomplished using streptavidin-peroxidase with an appropriate colorimetric or luminescent substrate. These markers can be detected simultaneously with immunostaining procedures.

# Immunodetection Reagents & Substrates

In Western blotting, the most important factor in determining the success of experiments is the quality of reagents used. We offer an array of Western blotting reagents that are pre-optimized to work synergistically, providing strong specific signals and low background to help you quickly produce publication-quality results.

D4418
**SIGMA*FAST*™ 3,3'-Diaminobenzidine tablets**
tablet, To prepare 15 mL

T9455
**TMB Enhanced One Component HRP Membrane Substrate**

G7663
**Gelatin blocking buffer**
for Western blotting, powder blend

CPS350
**Chemiluminescent Peroxidase Substrate-3**
sufficient for 50 mL substrate

CPS3500
**Chemiluminescent Peroxidase Substrate-3**
sufficient for 500 mL substrate

CPS260
**Chemiluminescent Peroxidase Substrate for ELISA**
sufficient for 60 mL substrate

CPS3100
**Chemiluminescent Peroxidase Substrate-3**
sufficient for 100 mL substrate

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## BLOCKING REAGENTS

Blocking of unbound membrane sites prevents non-specific binding of antibodies that can lead to high background. Traditional milk, gelatin, and other protein-based blockers are effective for many blotting applications but can reduce sensitivity or detection by masking signal or interfering with detection of specific protein targets. **Immobilon® Block Noise Cancelling Reagents** include protein-free, ready-to-use buffers optimized to reduce background levels when using chemiluminescence, fluorescent, or phosphoprotein detection.

Western Blot Blocking Reagents Selection Guide

| **If You Want…** | **Use…** | **For Chemiluminescent Blots** | **For Colorimetric Blots** | **For Fluorescent Blots** | **Provided As** |
|---|---|---|---|---|---|
| To amplify your antibody signal with plant-based protein | Immobilon Signal Enhancer (**WBSH0500**) | Yes | Yes | Yes | Ready-to-Use |
| A protein-free blocker optimized for chemiluminescent detection | Immobilon Block-CH (**WBAVDCH01**) | **Best** | Yes | No | Ready-to-Use |
| A protein-free blocker optimized for fluorescent detection | Immobilon Block-FL (**WBAVDFL01**) | No | No | **Best** | Ready-to-Use |
| A protein-free blocker optimized for phosphoprotein detection | Immobilon Block-PO (**WBAVDP001**) | Yes | Yes | Yes | Ready-to-Use |
| A blocking reagent with non- | Aquatic Block Reagent, Salmon | Yes | Yes | No | Ready-to-Use |

| | | | | | |
|---|---|---|---|---|---|
| mammalian proteins | Plasma (**558300**) | | | | |
| A blocking reagent optimized for HRP conjugates | Western Blocker Solution (**W0138**) | Yes | Yes | No | Ready-to-Use |
| Bulk quantity non-fat dry milk | Immunoblot Blocking Reagent (**20-200**) | Yes | Yes | No | Bulk Powder |
| Pre-buffered non-fat dry milk | Phosphate buffered saline with 5% nonfat dry milk (**P4739**) | Yes | Yes | No | Pre-Portioned Powder |
| To personalize blocking concentration for non-biotinylated samples | 5% Alkali-Soluble Casein (**70955**) | Yes | Yes | Yes | Concentrated Solution |
| Protein-free blocking optimized for avidin-biotin detection systems | ChemiBLOCKER (**2170**) | Yes | Yes | No | Concentrated Solution |
| Block both protein and nucleic acid samples on nitrocellulos | Gelatin Blocking Buffer (**G7663**) | Yes | Yes | Yes | Bulk Powder |

e or nylon
membranes

## STREPTAVIDIN AND SECONDARY ANTIBODY CONJUGATES

Modern immunodetection methods are based on enzyme-linked detection using streptavidin or secondary antibodies covalently bound to enzymes such as horseradish peroxidase (HRP) or alkaline phosphatase (AP). The conjugated enzyme catalyzes the degradation of specific substrates, resulting in signal generation. A variety of streptavidin, Protein A, Protein G, and secondary antibody conjugates are available for Western blotting. We also offer a broad selection of HRP and AP substrates for chemiluminescent, chromogenic, and chemifluorescent detection in Western blotting.

## CHEMILUMINESCENT SUBSTRATES FOR WESTERN BLOTTING

Immobilon® HRP substrates for chemiluminescent detection provide increased sensitivity for more quantitative blots, reducing costs by enabling you to decrease the concentration of antibody used for detection. Choose from a portfolio of Immobilon® substrates with varying sensitivities in convenient ready-to-use or two component formats to optimize detection for your Western blotting application.

- **Immobilon® Classico, Crescendo and Forte Chemiluminescent substrates** comprise a family of premixed, ready-to-use reagents for peroxidase-based detection offered in a range of sensitivities to provide optimal signal-to-background ratios across a spectrum of target protein concentrations. Detection limits:
    - Immobilon® Classico: ~ 6 pg of target protein
    - Immobilon® Crescendo: ~ 1-3 pg target protein
    - Immobilon® Forte: ~ 400 fg target protein

- **Immobilon® Western HRP, Immobilon® ECL Ultra, and Immobilon® UltraPlus Western substrates deliver exceptional sensitivity and long signal life in standard 2-component formats. These formulations permit the use of more dilute primary antibody solutions for immunoblot detection**. Detection limits:
    - Immobilon® Western HRP substrate: ~ 400 fg target protein
    - Immobilon® ECL Ultra substrate: low femtogram range
    - Immobilon® ECL UltraPlus Western Blot HRP Substrate: low femtogram range

Relative Sensitivity of Immobilon® Chemiluminescent HRP Substrates

**Figure 1.** Two-fold dilution series of A431 cell lysate [12-110] starting at 4 µg protein was run on 10% mPAGE® gels [MP10W15] in MOPS buffer [MPM0PS] at 200V for 25 minutes. Protein was transferred to Immobilon®-P membrane [IPVH00010] for 1 hour in mPAGE® transfer buffer [MPTRB] with 10% ethanol. Immunodetection of HH3 protein (15 kDa) was performed with rabbit anti-HH3 [H0164] and goat anti-rabbit [AP132P] antibodies at listed dilutions. Blots

were incubated with indicated ECL reagents for 5 minutes and images were taken with a 30s exposure on Bio-Rad® ChemiDoc system.
Cytiva™ Amersham™ ECL detection reagents use enhanced luminol-based HRP detection, with different formulations available to cover different Western blotting application needs.

- Cytiva Amersham™ ECL Western blotting detection reagents are recommended for confirmatory Western blotting applications.
- Cytiva Amersham™ ECL Prime Western blotting detection reagent enables detection of both high and low abundant proteins on the same blot.
- Cytiva Amersham™ ECL Select Western blotting detection reagents offer high sensitivity even when using diluted primary and secondary antibodies.
- Cytiva Amersham™ ECL Start Western Blotting detection reagent was developed for chemiluminescent detection of medium- and high-expression proteins.

## CHROMOGENIC SUBSTRATES FOR WESTERN BLOTTING

Chromogenic detection utilizes a peroxidase (e.g., HRP) or alkaline phosphatase (AP) conjugated enzyme to catalyze a reaction that results in the deposition of an insoluble colored precipitate for detection. Our chromogenic substrates for Western blotting are available in solution, powder, and tablet form to provide flexible options for storage and usage.

- **SIGMA*FAST*™ DAB Tablets** (chromogenic HRP substrate) are composed of a colorimetric precipitating substrate that produces a brown color upon reaction with horseradish peroxidase and can be dissolved in water to prepare a ready-to-use buffered solution for blotting detection.
- BCIP/NBT (blue/purple) and BCIP/TNBT (blue/brown) **Single Reagent** (chromogenic AP substrates) are highly sensitive colorimetric substrates for alkaline phosphatase.
- **TMB Enhanced One Component HRP Membrane Substrate** (chromogenic HRP substrate) is a single component colorimetric substrate that produces a dark blue product.

| Substrate | Color | Enzyme | Sensitivity |
|---|---|---|---|
| BCIP/NBT | Blue/purple | AP | High |
| Fast Red TR (4-Chloro-2-methylbenzenediazonium) | Red/orange | AP | High |
| DAB (3,3'-Diaminobenzidine) | Brown | HRP | Medium |
| TMB (3,3',5,5'-tetramethylbenzidine) | Dark blue | HRP | High |
| CN (4-chloro-1-naphthol) | Blue/purple | HRP | Low |

## SIGNAL ENHANCERS

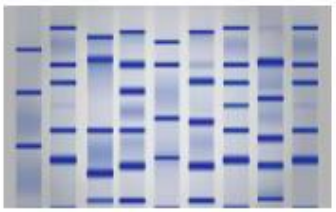
- **Immobilon® Signal Enhancer** is designed for use in Western blotting applications when low signal intensity is observed. Enhancement of the antibody-antigen reaction can produce a 2 to 10-fold increase in signal intensity. Immobilon® Signal Enhancer is compatible with PVDF and nitrocellulose membranes and can be used with chromogenic, chemiluminescent, and fluorescent detection methods.
- **SignalBoost™ Immunoreaction Enhancer Kit** is designed to enhance chemiluminescent or colorimetric target signal on nitrocellulose or PVDF membranes

## REAGENTS AND KITS FOR STRIPPING AND RE-PROBING

Stripping and re-probing reagents are specially formulated to quickly and effectively remove antibodies from Western blots without significantly affecting the immobilized proteins.

- ReBlot™ Plus reagents efficiently strip probed blots of bound antibodies. ReBlot™ Plus reagents are available in mild and strong formulations.

# Protein Electrophoresis Gel Stains



After separation by electrophoresis, protein bands are commonly visualized with gel stains. Utilizing either a dye-binding or color-producing chemical reaction, protein gel stains react selectively with proteins to yield a stained gel. Protein gel stains are typically selected based on the initial sample size, desired detection method, and compatibility requirements for downstream analysis.

1.12553
**Coomassie Brilliant blue R 250 (C.I. 42660)**
for electrophoresis Trademark of Imperial Chemical Industries PLC

1.15444
**Coomassie Brilliant blue G 250 (C.I. 42655)**
for electrophoresis

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## FIXING SOLUTIONS

After gel electrophoresis, proteins are typically "fixed" in the gel to prevent dispersion of the proteins prior to staining. Certain gel stains contain chemicals that obviate the need to fix gels prior to staining.

## COLORIMETRIC PROTEIN GEL STAINS

- Coomassie Brilliant Blue is used to stain proteins on polyacrylamide gels through electrostatic interactions with protein amino and carboxyl groups.
- ReadyBlue™ Protein Gel Stain is a rapid and sensitive colloidal Coomassie stain for polyacrylamide gels provided as a ready-to-use solution, allowing for a faster and simplified protocol. ReadyBlue™ can be imaged via colorimetric or IR fluorescence methods. This safe formulation contains no organic solvents or phosphoric acid and can be reused up to 3 times. Sensitivity down to 2 ng per band has been demonstrated with ReadyBlue™.
- EZBlue™ Gel Staining Reagent is a convenient, sensitive, and safe Coomassie Brilliant Blue G-250 colloidal protein stain that improves protein electrophoresis results while significantly reducing staining time. As a colloidal stain, it reacts only with proteins, not the gel itself. Background staining is reduced, so protein bands can be visualized almost immediately on polyacrylamide gels and PVDF membranes. No de-staining step is required, although a water wash may intensify bands and clarify the background. EZBlue™ reagent is extremely sensitive, detecting as little as 5 ng of protein.
- The Reversible Protein Detection Kit is a unique detection system designed for staining of proteins on nylon, nitrocellulose, and PVDF membranes or PAGE gels with the detection sensitivity similar to that of Coomassie stains. Most other stains produce high

backgrounds on nylon membranes due to strong charge interactions with the membrane. Staining is easily reversible with an EDTA solution so that the blot can be reused for Western blotting or for amino acid sequence analysis.

- Naphthol blue black dye can be used to stain proteins on polyacrylamide gels, agarose gels, and nitrocellulose membranes. After electrophoresis, fixing the proteins in the gel is recommended. The gel is then stained with 0.1% Naphthol Blue Black in 7% (v/v) acetic acid for at least 2 hours and destained with a soluion of 7% (v/v) acetic acid. Detection sensitivity is approximately 20% that of Coomassie Blue
- Providing the highest sensitivity, the ProteoSilver™ Silver Stain Kit has a sensitivity of ≥0.1 ng of protein per band with an incubation time of 3-12 minutes. This stain is recommended for very low abundance proteins and is compatible with MALDI-TOF applications.

## FLUORESCENT PROTEIN GEL STAINS

- EZFluor™ 1-step Fluorescent Protein Gel Stain is a ready-to-use fluorescent protein gel stain requiring only a single 5-30 minutes staining step without fixation and can detect as little as approximately 1-10 ng of protein per band. Staining is fully compatible with mass spectrometry and Edman-based sequencing.
- EZFluor™ UV 1-step Fluorescent Protein Gel Stain is a ready-to-use protein gel stain designed for imaging using a UV transilluminator and ethidium bromide filter compatible with mass spectrometry.
- SYPRO® Ruby protein gel stain is a ready-to-use, ultrasensitive, fluorescent stain for the detection of proteins separated by polyacrylamide gel electrophoresis (PAGE). This stain, designed especially for use in 2-D PAGE, has proven to be an excellent choice for 1-D PAGE and isoelectric focusing (IEF) gels as well. SYPRO® Ruby protein gel stain attains sensitivity comparable to many silver staining techniques.
- SYPRO® Orange is similar to SYPRO® Red, although it is somewhat brighter and gives slightly higher background fluorescence. The dye is efficiently excited by UV or broad band illumination. It is not suitable for staining proteins on blots or in IEF gels and shows reduced sensitivity when staining proteins on 2-D gels.

## DE-STAINING REAGENTS

- CoZap is used for rapid removal of Coomasie blue stain. The unique CoZap pad is placed directly into the de-staining tray and absorbs all free dye in solution, eliminating the need to change the de-staining solution.

# Transfer Buffers & Reagents

Protein transfer is a critical step in Western blotting techniques. Premixed transfer buffers offer consistent, highly reliable protein transfer in convenient ready-to-use options. High-quality electrophoresis-grade chemicals can also be used to make fresh transfer buffer in customizable volumes as needed. Specially formulated, high purity transfer buffer reagents and chemicals are available for optimal protein transfer to PVDF or nitrocellulose and superior Western blotting results.

1.12533
**Sodium dodecyl sulfate**
for biochemistry and surfactant tests

1.06022
**Sodium dodecyl sulfate**
for biochemistry 10% in $H_2O$

1.04169
**Glycine**
buffer substance for electrophoresis

**Алматы** (7273)495-231
**Ангарск** (3955)60-70-56
**Архангельск** (8182)63-90-72
**Астрахань** (8512)99-46-04
**Барнаул** (3852)73-04-60
**Белгород** (4722)40-23-64
**Благовещенск** (4162)22-76-07
**Брянск** (4832)59-03-52
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