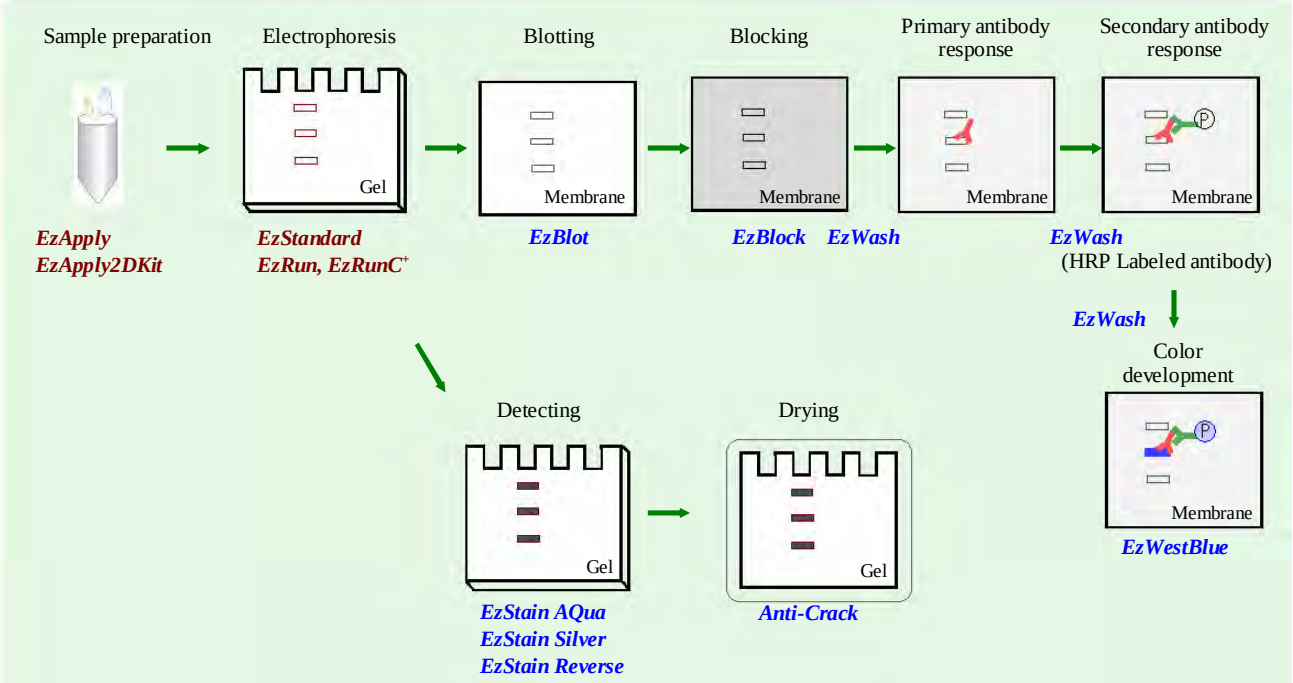
List of Reagent for Electrophoresis and Blotting

ATTO's products support electrophoresis of proteins and gel-to-membrane transfer (Western Blotting), and detection after the respective processes.

Use	Product name	Type	Product code
Protein molecular weight marker	*EzStandard*	AE-1440	2332340
Protein molecular weight marker:2-bottles package		AE-1440-2	2332345
Prestained protein molecular weight marker	*EzStandard PrestainBlue*	AE-1450	2332347
SDS sample preparation solution Kit	*EzApply*	AE-1430	2332330
Sample-extraction, sample preparation solution for 2-D electrophoresis	*EzApply2DKit*	AE-1435	2332335
Buffer for SDS-PAGE	*EzRun*	AE-1410	2332310
Buffer for high resolution SDS-PAGE electrophoresis	*EzRunC*$^{+}$	AE-1412	2332320
CBB staining solution	*EzStain AQua*	AE-1340	2332370
Reverse staining kit	*EzStain Reverse*	AE-1310	2332350
Silver staining kit	*EzStain Silver*	AE-1360	2332360
Anti-crack reagent for gel dry	*Anti-Crack*	AE-3780	2398045
Western blotting solution Kit	*EzBlot*	AE-1460	2332600
Blocking solution	*EzBlock*	AE-1470	2332610
Wash solution (TBS solution)	*EzWash*	AE-1480	2332620
Substrate for HRP	*EzWestBlue*	AE-1490	2332630

Purpose of Use

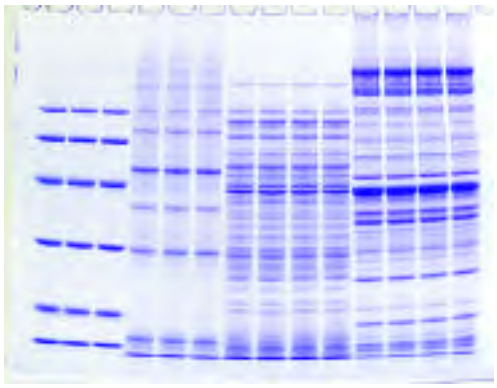


REAGENTS *EzRun*

Electrophoresis Buffer for SDS-PAGE

AE-1410 *EzRun*

Sample



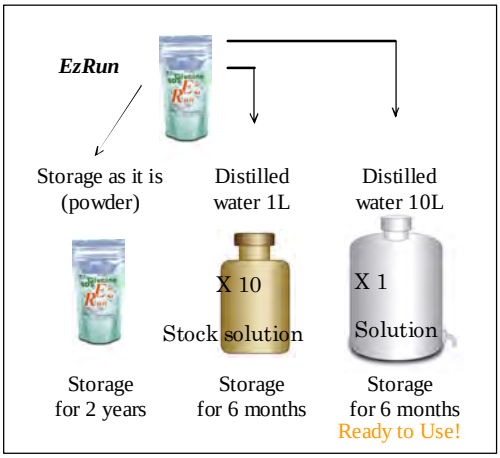
Code No.	Type	Name	Quantity	Shipping	Storage
2332310	AE-1410	*EzRun*	1bag	Room temperature (refrigerable)	Room temperature

Purpose of Use

EzRun is an electrophoresis buffer for SDS-PAGE of proteins and applicable to Laemmli's method.

Features

- Easily prepared by just dissolving with distilled water
- Powder form saves space and allows long storage
- Prepared to your desired volume and concentration
- Low running cost

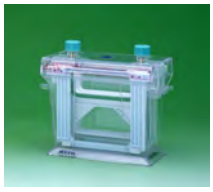


Specifications

Type / Name	AE-1410 *EzRun*
Major components	Tris, glycine and SDS (final concentrations of 25 mM Tris,192 mM glycine and 0.1% SDS)
Form	Powder/bag
Method of use	Dissolve powder with distilled water to a final volume of 1 L, you have X 10 stock solution
Applicable amount	Serve 10L (20 runs with ATTO Mini Slab Chamber)
Storage period	At room temperature for 2 years (powder) or 6 months (solution)

Related Products

AE-6531P/M



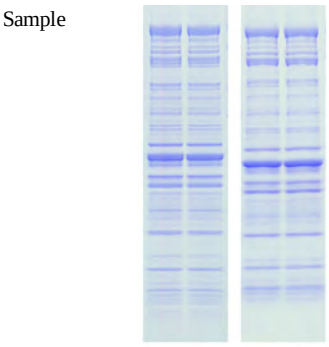
AE-6530P/M

AE-8155

EzRunC+

Electrophoresis Buffer for SDS-PAGE (high-dfresolution type)

AE-1412 *EzRunC*$^{+}$



EzRunC^{+} 25 mM Tris, 192 mM glycine 0.1%SDS

Code	Type	Name	Quantity	Shipping	Storage
2332320	AE-1412	*EzRunC*$^{+}$	1set	4℃	4℃

Purpose of Use

EzRunC^{+} is an electrophoresis buffer designed for SDS-PAGE of proteins, with high-resolution performance. It prevents oxidation of proteins (recombination of -SH groups) during electrophoresis and thus makes the bands sharper and more separated.

Features

- Prevent protein oxidation (recombination of -SH groups) during electrophoresis, providing more accurate results and sharper bands
- Easily prepared by dissolving with distilled water
- Powder form saves space and allows long period storage

Specifications

Type / name	**AE-1412 *EzRunC*$^{+}$**
Major components	Tris, glycine, SDS, and SH protective agent (final concentrations of 25 mM Tris, 192 mM glycine, 0.1% SDS, and SH-protective agent)
Manner of package	Powder/bag x 10 bags
Method of use	Dissolve powder in distilled water (1 bag dissolved with distilled water to a final volume of 500 mL)
Applicable amount	500 mL x 10 runs (ATTO Mini Slab Chamber x 10 runs)
Storage period	At 4℃ for 1 year (powder)

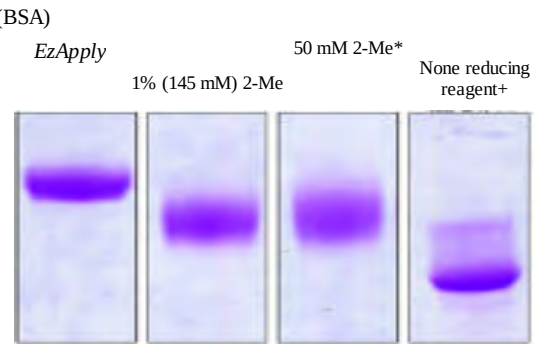
Detailed Features

The results of electrophoresis (PAGE) depend on the method of sample (protein) preparation. For example, the three-dimensional structure of the protein affects the mobile phase and the migration distance may differ between the linear (reduced) and spherical (oxidized) forms even of the same molecular weight. To achieve correct mode of migration according to the molecular weight, it is indispensable to ensure the complete reduction (reaction to cleave the S-S bonds) of the protein of interest at the sample preparation to achieve linear structure of the molecule in a uniform manner. Furthermore, the sulfide bonds can partially recombine (from -SH toS-S) during electrophoresis, causing false results. EzRunC^{+} solves this problem. Please refer to the EzApply section on the next page for the relationship between the mode of reduction and extent of migration.
Combined use with EzApply is more effective in maintaining the reduced condition throughout the process.

REAGENTS *EzApply*

Sample Preparation Kit for SDS-PAGE

AE-1430 *EzApply*



Code	Type	Name	Quantity	Shipping	Storage
2332330	AE-1430	*EzApply*	1 set	-20℃(refrigerable)	-20℃

*(refrigerable): shipped frozen. Temporal refrigeration does not affect the quality.

Purpose of Use

EzApply is a sample preparation buffer for SDS-polyacrylamide gel electrophoresis (SDS-PAGE) of proteins.

Features

- Use of dithiothreitol (DTT) as a reducing reagent
  Reduction reaction more secure than 2-Me
  Less likely to produce false bands than 2-Me
  No smell like 2-Me
- Low running cost and simple preparation procedure

*2-Me: 2-mercaptoethanol

Specifications

Type / name	AE-1430 *EzApply*
Major components	Tris-HCl buffer, 2% SDS, 20% sucrose, BPB, and 100 mM DTT (final concentrations: about halves of the above figures)
Manner of package	Solution/30 mL bottle (EzApply solution) Solution/5 mL bottle x 5 bottles (DTT)
Method of use	EzApply solution is added to DTT bottles and mixed with sample at a ratio of 1:1
Applicable amount	5 mL x 5
Storage period	At –20 °C for 6 months (before dissolved in DTT) or 1 week after dissolved with DTT

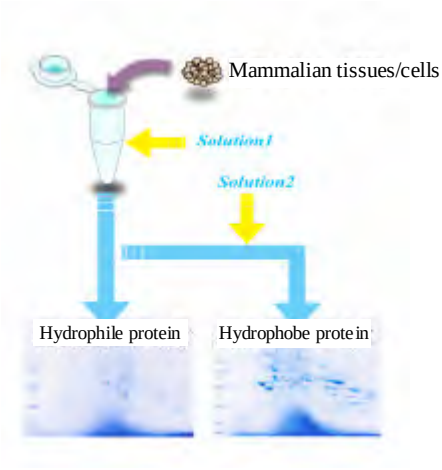
Detailed Features

The results of electrophoresis (PAGE) depend on the method of sample (protein) preparation. For example, the three-dimensional structure of the protein affects the mobile phase and the migration distance may differ between the linear (reduced) and spherical (oxidized) forms even of the same molecular weight. To achieve accurate mode of migration according to the molecular weight of the protein of interest, it is indispensable to ensure the reduction of the protein (reaction to cleave the S-S bonds) at the sample preparation to achieve linear structure of the molecule in a uniform manner. DTT is reported to be dozens of times more potent in reduction than 2-mercaptoethanol (2-Me). The above results were obtained from an actual electrophoresis of albumin. Use of 2-Me as a reducing reagent resulted in a longer migration distance and broader band. This is because the protein was not reduced enough to take a completely linear form and thus could migrate a longer distance. As a result, the molecular weight could be underestimated by 5 kDa. Furthermore, the insufficient reduction could result in a structurally uneven group of molecules, thus resulting in a broader band. These problems can be solved by combination use with EzRunC+, which effectively prevents S-S recombination during electrophoresis. Finally, DTT is less likely than 2-Me to produce reagent-derived false bands.

EzApply2DKit

Sample Preparation Kit for 2-D Electrophoresis

AE-1435 *EzApply2DKit*



Code No.	Type	Name	Quantity	Shipping	Storage
2332335	AE-1435	*EzApply2DKit*	1 set	-20℃ (refrigerable)	-20℃

*: Shipped frozen. Temporal refrigeration does not affect the quality.

Purpose of Use

EzApply 2D Kit is designed to extract proteins from mammalian tissues/cells in a serial manner and prepare samples for 2-D electrophoresis.

Features

- Separate extraction allows higher protein concentration per gel, facilitating easy detection.
- Reducing reagent, alkylating reagent, washing buffer and stratified solutions are also incorporated into a kit
- Low running cost, while allowing short-time extraction and easy sample preparation
- Combination use with AE-1430EzApply (sample preparation kit for SDS-PAGE) makes it applicable to SDS-PAGE as well as 2-D electrophoresis.

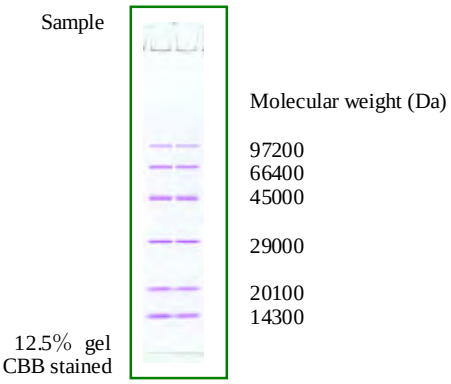
Specifications

Type / name	**AE-1435 *EzApply2DKit***	
Major components	Wash buffer Solution 1 Solution 2 Alkylated reagent Stratified solutions	Tris, NaCl Tris, Ampholine , DTT Urea, thiourea, surfactant, Ampholine , DTT Acrylamide, BPB Urea
Manner of package	Solution/30 mL bottle x 2 Solution/20 mL bottle Solution/10 mL bottle Solution/1 mL tube Solution/500 µL tube Powder/tube	(Wash Buffer) (Solution 1) (Solution 2) (Alkylated reagent) (Stratified solution) (DTT)
Method of use	Appropriate amount of solution is applied to tissues or cells, which were lysed and extracted.	
Applicable amount	Extracted from 100 mg of mammalian tissue 20 runs.	
Storage period	Frozen at –20ºC for 6 months (before dissolved with DTT) or 1 week after dissolved with DDT	

REAGENTS *EzSandard*

Molecular Weight Marker for SDS-PAGE

AE-1440 *EzStandard*

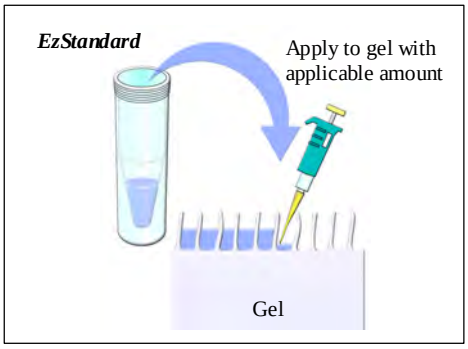


Code No.	Type	Name	Quantity	Shipping	Storage
2332340	AE-1440	*EzStandard*	1 bottle	-20℃ (refrigerable)	-20℃
2332345	AE-1440-2	*EzStandard*	2 bottles		

*(refrigerable): shipped frozen. Temporal refrigeration does not affect the quality.

Purpose of Use

EzStandard is a molecular weight marker designed for SDS-PAGE of proteins.



Features

- Produce sharp bands
- Stable after repeated freeze-thaw cycles
- Ready to use
  No need for preparation

Specifications

Type / name	AE-1440/-2 *EzStandard*
Major components	Protein, Tris-HCl buffer and BPB (6 bands [protein] of 14.3 to 97.2 kDa) (correspond to 0.07 to 0.16 µg/µL of each protein), See the above-mentioned data
Manner of package	500 µL/tube (AE-1440-2 comes in 2 tubes)
Method of use	Appropriate amount applied to the gel (e.g., 3 µL/lane to Minigel stained with CBB)
Applicable amount	Approximately 160 lanes (gel) using Minigel
Storage period	At –20°C for 1 year

Related Products

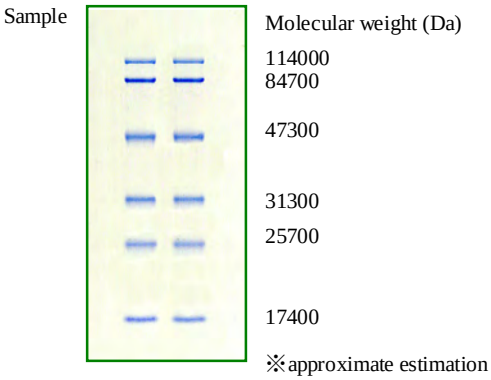
AE-6531P

Precast Gels

EzSandard PrestainBlue

Prestained Marker for Protein SDS-PAGE

AE-1450 *EzStandard PrestainBlue*



Code No.	Type	Name	Quantity	Shipping	Storage
2332347	AE-1450	*EzStandard PrestainBlue*	1 bottle	-20℃ (refrigerable)	-20℃

*(refrigerable): shipped frozen. Temporal refrigeration does not affect the quality.

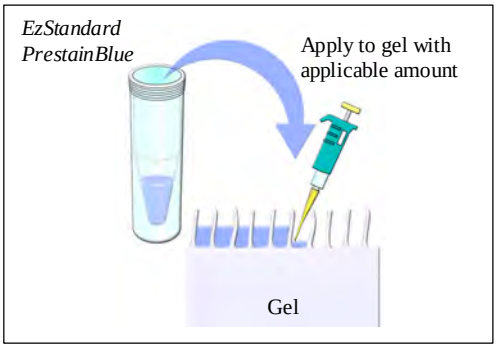
Purpose of Use

EzStandard PrestainBlue is a pre-stained (colored) molecular weight marker designed for SDS-PAGE of protein and blotting. The band is visualized in blue during electrophoresis. During blotting, you can confirm the migration of the band from the gel to the membrane without protein staining.

Note: Accurate estimation of molecular weight should not be expected. Only for an approximate estimation

Features

- Bands visualized in color
- Provide sharper bands
- Stable after repeated freeze-thaw cycles
- Ready to use
  No need for preparation



Specifications

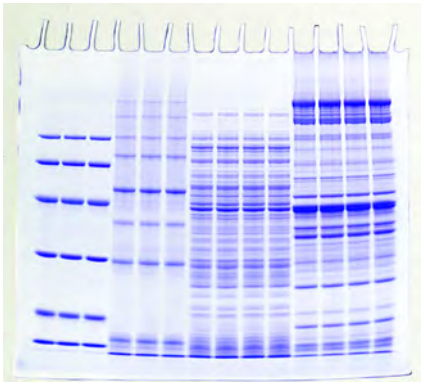
Type / name	**AE-1450 *EzStandard PrestainBlue***
Major components	Protein, Tris-HCl buffer and BPB (6 bands [proteins of about 17 to 115 kDa) See the above-mentioned data
Manner of package	300 µL/tube
Method of use	Appropriate amount applied to the gel (e.g., 3 to 5 µL/lane to Minigel
Applicable amount	Serve approximately 60 lanes (gel) with Minigel
Storage period	At –20°C for 1 year

REAGENTS *EzStain AQua*

Coomassie Brilliant Blue (CBB) Staining Reagent for PAGE of Protein

AE-1340 *EzStain AQua*

Staining example



Code No.	Type	Name	Quantity	Shipping	Storage
2332370	AE-1340	*EzStain AQua*	1 bottle	Room temperature	Room temperature

Purpose of Use

EzStain AQua is Coomassie brilliant blue (CBB) staining solution used for visualization of proteins detected by polyacrylamide gel electrophoresis (PAGE). Without the use of organic solvents or acetic acid, it can easily detect protein band against a clear background in a short time.

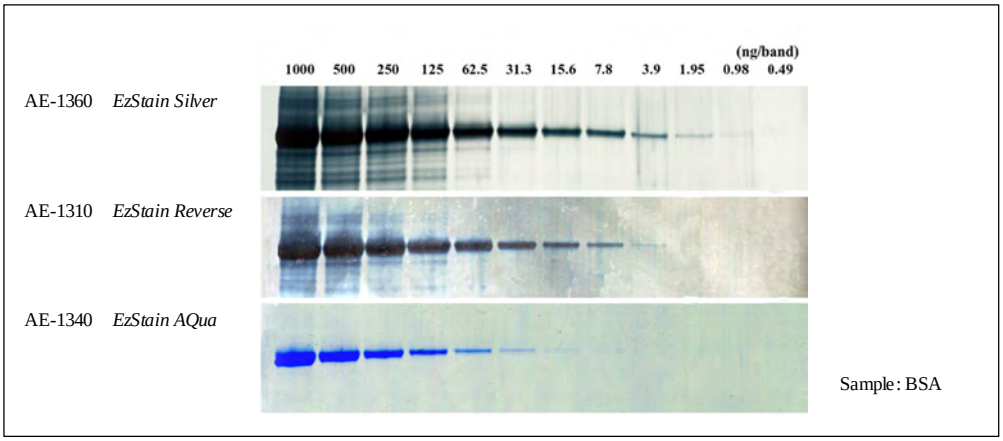
Features

- Applicable to PAGE of proteins
- Absence of organic solvents and acetic acid reduces concern about waste liquid and bad smell
- Ready to use
  Easily prepared only by pouring to the tray
- Staining time of only 30 to 120 minutes for detection
- Discoloration with distilled water results in nearly transparent background
- Sensitivity is up to several ng of protein per band

Specifications

Type / name	AE-1340 *EzStain AQua*
Major components	Coomassie brilliant blue (CBB), acid, and stabilizing reagent
Manner of package	1L/bottle
Method of use	Pour appropriate amount to the tray and soak the gel
Applicable amount	Approximately 20 sheets of mini-gel
Storage period	At room temperature for 1 year

Comparison of Staining

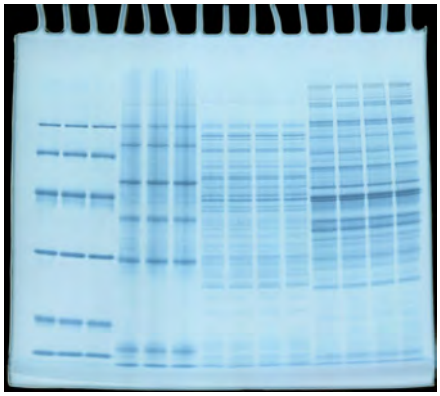


EzStain Reverse

Reverse Staining Reagent Kit for SDS-PAGE

AE-1310 *EzStain Reverse*

Staining example



The picture on the black board

Code No.	Type	Name	Quantity	Shipping	Storage
2332350	AE-1310	*EzStain Reverse*	1 set	Room temperature	Room temperature

Purpose of Use

EzStain Reverse is a reverse staining kit for detection of proteins after SDS-PAGE. It whitens the background and detects protein band. Ease of stain removal facilitates the trimming and extraction of target proteins.

Features

- Applicable to SDS-polyacrylamide gel electrophoresis
  Whiten the background while keeping the protein band transparent
- Sensitivity is up to several ng of protein per band (several to 10 times sensitive than Coomassie)
- Staining time of only 20 to 25 minutes for detection
- Easy to handle
- Ease of stain removal facilitates the trimming and recovering of protein bands.

Specifications

Type / name	**AE-1310 *EzStain Reverse***
Major components	R-1 imidazole, SDS R-2 zinc sulfate
Manner of package	Each solution: 500 mL/bottle
Method of use	Gel is placed in a tray filled with appropriate amount of the solution and immersed in each solution in order.
Applicable amount	Approximately 50 sheets of mini-gel
Storage period	At room temperature away from light for 2 years

Related Products

Please refer to shakers and protein recovery from gel. (Please ask ATTO for below related products)

Mini shaker

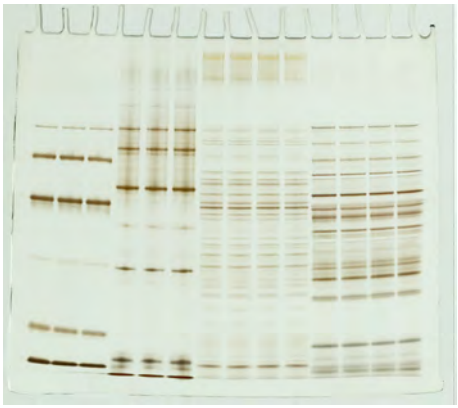
AB-1171

REAGENTS *Ez Stain Silver*

Silver Staining Reagent Kit for Proteins and Nucleic Acids

AE-1360 *EzStain Silver*

Staining example



Code No.	Type	Name	Quantity	Shipping	Storage
2332360	AE-1360	*EzStain Silver*	1 set	Room temperature (refrigerable)	4℃

* (refrigerable): shipped at room temperature generally; however can be shipped together with other articles in refrigeration.

Purpose of Use

EzStain Silver is a silver staining kit for detection of proteins and DNAs after electrophoresis. This kit is easy to prepare and detects protein and DNA components with high sensitivity.

Features

- Easily prepared by sampling 1 mL of each reagent and diluting
- Small containers save space for storage.
- Absence of glutaraldehyde allows application to MS.
- Sensitivity is up to approximately 1 ng of protein and dozens of pg of nucleic acid per band.
- Staining takes approximately 55 minutes.
- Low running cost

Specifications

Type / name	AE-1360 *EzStain Silver*
Major components	S-1 sodium thiosulfate, S-2 silver nitrate S-3 sodium hydrate, S-4 sodium thiosulfate and formaldehyde
Manner of package	Each solution: 50 mL/bottle
Method of use	Appropriate amount of the respective preparation is placed in trays and the gel is immersed in order
Applicable amount	Approximately 50 sheets of Minigel
Storage period	At 4℃ away from light for 2 years

Related Products

Automatic gel stainer
(Please ask ATTO for AE-6610)

AE-6610

Anti-Crack

Polyacrylamide Gel Anti-Crack Reagent

AE-3780 *Anti-Crack*

The product comes in a single bottle.

Code No.	Type	Name	Quantity	Shipping	Storage
2398045	AE-3780	*Anti-Crack*	1 bottle	Room temperature	Room temperature

Purpose of Use

Anti-Crack prevents cracking of polyacrylamide gel when drying the gel to save the pattern data (gel) after electrophoresis.

Features

- Easily operated only by dripping
- Not poisonous or deleterious, with no irritation or corrosive potential
- Clear gel after dryness
- Less viscous than glycerol
- Store at room temperature for a long time

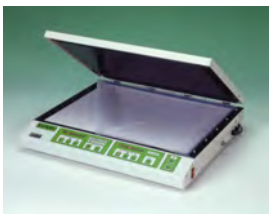
Specifications

Type / name	AE-3780 *Anti-Crack*
Major components	Gel anti-crack reagent
Manner of package	1 L/bottle
Method of use	Appropriate amount is dripped to the gel
Applicable amount	Approximately 40 sheets of mini-gel
Storage period	At room temperature away from light for 1 year

Related Products

Please refer to following gel drier.

AE-3711



AE-3750

Model 1426