Electrophoresis

Gel electrophoresis is used to separate biological macromolecules. When an electric current is applied to these molecules in a gel matrix they can be separated based on their sizes and net charges. Proteins are typically separated with polyacrylamide as the gel matrix. Separation is affected by the percentage of acrylamide in the gel. Higher acrylamide percentages produce small pores in the gel matrix and are more suitable for resolving smaller molecules. Gels for purifying large molecular weight proteins require larger pores and a lower acrylamide concentration. Electrophoresis can be performed in one or two dimensions. One dimensional electrophoresis is used for most routine protein and nucleic acid separations. Two dimensional separation of proteins is used for finger printing, and when properly constructed can be extremely accurate in resolving all of the proteins present within a cell (over 1,500 proteins). Alfa Aesar offers a complete line of high quality reagents for electrophoresis purification including sample and loading buffers, stains, and molecular weight markers.

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Россия +7(495)268-04-70 Казахстан +7(7172)727-132 Киргизия +996(312)96-26-47

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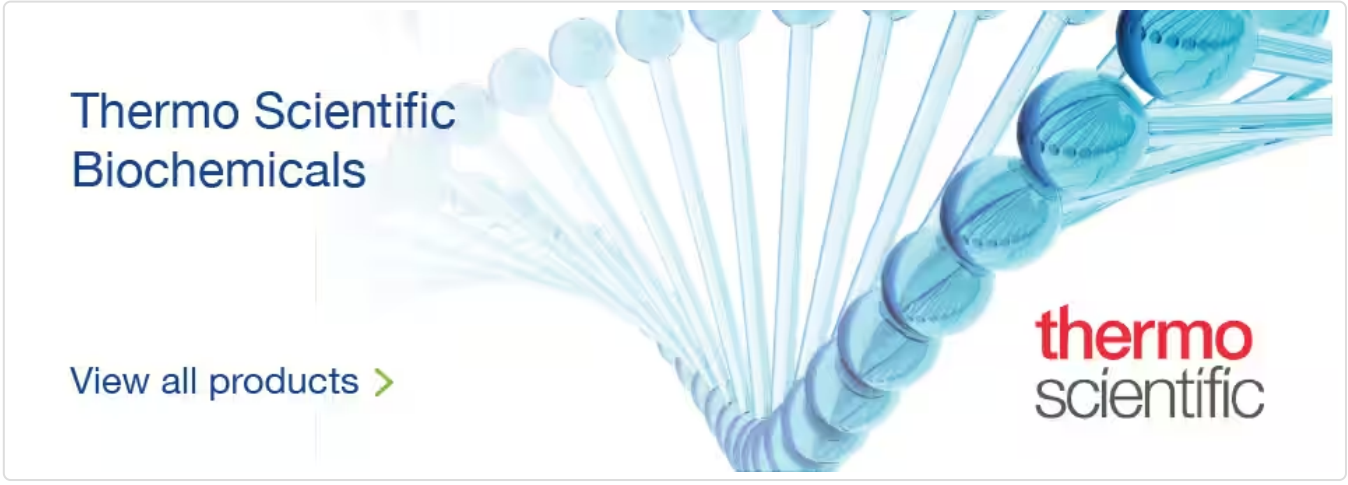
L13159	Acridine Orange
40193	Ammonium chloride, ACS, 99.5% min
11566	Ammonium sulfate, ACS, 99.0% min
33253	Boric acid, ACS, 99.5% min
J66096	Brij® L23, Electrophoresis Reagent
43318	Brilliant Blue G, ultrapure
A10395	Citric acid, 99+%
J64578	Deoxy-bigCHAP
J63570	Ethylenediamine-N,N'-diacetic acid
J62786	Ethylenediaminetetraacetic acid, 0.5M aq. soln, pH 8.0
J60292	Ethylenediaminetetraacetic acid, 0.5M aq. soln., pH 8.0, autoclaved
J65585	Ethylenediaminetetraacetic acid, Electrophoresis Grade, 99.4+%
J60767	Ethylene glycol-O,O'-bis(2-aminoethyl)-N,N,N',N'-tetraacetic acid, 0.5M aq. soln., pH 8.0
J61721	Ethylene glycol-O,O'-bis(2-aminoethyl)-N,N,N',N'-tetraacetic acid, 0.5M aq. soln., pH 8.0, autoclaved
J63303	IEF Anode buffer (50X)
J61903	IEF Cathode buffer (10X) with lysine
J62204	IEF Cathode buffer (10X) with lysine and arginine
J62241	IEF Sample buffer (2X) pH 3-10 with lysine and arginine

J63633	IEF Sample buffer (4X) pH 3-7 with lysine
J63615	Laemmli SDS sample buffer, non-reducing (4X)
J60660	Laemmli SDS sample buffer, non-reducing (6X)
J60015	Laemmli SDS sample buffer, reducing (4X)
J61337	Laemmli SDS sample buffer, reducing (6X)
J61716	Laemmli SDS sample buffer with pyronin Y, non-reducing (4X)
J62115	Laemmli SDS sample buffer with pyronin Y, reducing (4X)
J61894	LDS-sample buffer (4X), non-reducing
J61942	LDS-sample buffer (4X), reducing
39328	Lithium dodecylsulfate, 99+%
J62138	MES-SDS running buffer (20X)
J62847	MOPS-SDS running buffer (20X)
L13259	n-Octyl-beta-D-glucopyranoside
40529	Polyethyleneimine, branched, M.W. 70,000, 30% w/v aq. soln.
J66672	Potassium peroxydisulfate, Electrophoresis Grade, 99.0%
J62832	RNA sample loading buffer
J62468	RNA sample loading buffer (6X)
J61937	RNA sample loading buffer, no ethidium bromide

	J60181	Separating or resolving buffer (4X)
	J63450	Stacking buffer (4X)
	J64437	Tricine, Electrophoresis Grade, 99%
	J61042	Tricine-SDS Sample Buffer (2X), reducing
	J61016	Tris(hydroxymethyl)aminomethane, Electrophoresis Grade, 99.5%
	J62569	Tris(hydroxymethyl)aminomethane, Electrophoresis Grade, 99.9%
	J65594	Tris(hydroxymethyl)aminomethane, ultrapure, 99.9%
	J66624	Triton® X-100, Electrophoresis Reagent
	36428	Urea, ACS, 99.0-100.5%

Electrophoresis Reagents

Gel electrophoresis is used to separate biological macromolecules. When an electric current is applied to these molecules in a gel matrix they can be separated based on their sizes and net charges. Proteins are typically separated with polyacrylamide as the gel matrix. Separation is affected by the percentage of acrylamide in the gel matrix. Higher acrylamide percentages produce small pores in the gel matrix and are more suitable for resolving smaller molecules. Large molecular weight proteins require larger pores and a lower acrylamide concentration in the gel. Electrophoresis can be performed in one or two dimensions. One dimensional electrophoresis is used for most routine protein and nucleic acid separations. Two dimensional separation of proteins is used for resolving majority of the proteins present within a cell (over 1,500 proteins). Alfa Aesar offers a comprehensive range of reagents for electrophoresis including premixed acrylamide solutions, loading and running buffers, and polymerization initiators.



J66421	1,4-Diacryloylpiperazine, Electrophoresis Reagent, 97%
A15797	1,4-Dithio-DL-threitol, 98%
J64545	1,4-Dithio-DL-threitol, Electrophoresis Grade, 99%
A10138	1,4-Dithioerythritol, 98+%
J64656	1,4-Dithioerythritol, Electrophoresis Grade, 99%
A15235	(1-Hexadecyl)trimethylammonium bromide, 98%
A17814	2-Amino-2-methyl-1-propanol, 95%, may cont. ca 5% water
J60131	2-Iminothiolane hydrochloride
A15890	2-Mercaptoethanol, 98+%
J66742	2-Mercaptoethanol, Electrophoresis Grade, 98+%
J62100	Acrylamide (30%) Solutions
J62480	Acrylamide (40%) Solutions
J66184	Acrylamide, 99.5%, Molecular Biology Grade

J60486	Acrylamide/Bisacrylamide 19:1, powder
J60824	Acrylamide/Bisacrylamide 29:1, powder
J61220	Acrylamide/Bisacrylamide 37.5:1, powder
J60868	Acrylamide/Bisacrylamide Solution (40%, 37.5:1)
L15075	Acrylamide, electrophoresis grade, 99+%
M10010	AGAROSE
H26855	Agarose D1-LE, molecular biology grade
J66501	Agarose, Electrophoresis Grade
J62157	Agarose Gel Loading Dye (6X, Alkaline)
J62800	Agarose Gel Loading Dye (6X, Ficoll-Based)
J63869	Agarose Gel Loading Dye (6X, Glycerol-Based)
J63429	Agarose Gel Loading Dye (6X, Glycerol-Based, no Bromophenol Blue)
J60933	Agarose Gel Loading Dye (6X, Glycerol-Based, no Xylene Cyanol FF)
J60333	Agarose Gel Loading Dye (6X, Sucrose-Based)
J66208	Agarose, Genetic Technology Grade
J66704	Agarose, high gelling temperature, Molecular Biology Reagent

J61123	Agarose, high melting temperature, medium resolution
J32802	Agarose LE, Molecular Biology Grade, Ultrapure, Thermo Scientific
J66369	Agarose, low EEO
J66319	Agarose, low gelling temperature, Molecular Biology Reagent
J75817	Agarose - Separation ≥ 500 bp, Genetic Performance Certified, Molecular Biology Grade, Ultrapure, Thermo Scientific
12361	Ammonium chloride, 99.5% min
A10533	Ammonium peroxydisulfate, 98%
J61856	Ammonium peroxydisulfate, Electrophoresis Grade
J76322	Ammonium persulfate, ACS, 98+%, Ultrapure, Thermo Scientific
89363	Ammonium sulfate, 99.95% (metals basis)
J63465	Benzyldimethyl-n-tetradecylammonium chloride hydrate, 98%
J77507	Betaine, 5M Solution, Molecular Biology Grade, Ultrapure, Thermo Scientific
J12091	Bicine, 98.5-101.5% (dry basis), Ultrapure, Thermo Scientific
J67087	BICINE, Electrophoresis Grade, 99+%
J60126	BioAcryl-P (30%, 19:1)
J63279	BioAcryl-P (30%, 29:1)
J61505	BioAcryl-P (30%, 37.5:1)

J12112	Bis-Tris, 98+% (dry basis), Ultrapure, Thermo Scientific
33253	Boric acid, ACS, 99.5% min
J67202	Boric acid, Electrophoresis Grade, 99.5% min
J67419	Boric acid, Molecular Biology Grade, 99.5% min
J64391	Butyrylcholine chloride, 98+%
89188	Cesium chloride, 99.999+% (metals basis)
J75822	Cesium chloride, 99.999% (metals basis), Molecular Biology Grade, Ultrapure, Thermo Scientific
10018	Cesium chloride, 99.9% (metals basis)
J65950	Cesium chloride, ultrapure, 99.9% (metals basis)
13233	Cesium hydroxide hydrate, 99.9% (metals basis)
12884	Cesium nitrate, 99.8% (metals basis)
B21927	CHAPS, 98+%
J67359	CHAPS, Electrophoresis Grade
L14759	Chloroform, ethanol-free, 99+%, stab. with ca 50 ppm amylene
22920	Chloroform, HPLC Grade, 99.5+% min
43685	Chloroform, HPLC Grade, 99.5+% min, stab. with amylene
32442	Chloroform, Spectrophotometric Grade, 99.5+%

J64322	Citric acid, Electrophoresis Grade, 99.5+%
J60370	Denaturing solution
J63781	Diethylaminoethyl dextran
43244	Dimethylsuberimidate dihydrochloride
J15395	Dithiothreitol, 97+%, Thermo Scientific
J15397	Dithiothreitol, 99.5+%, Molecular Biology Grade, Ultrapure, Thermo Scientific
J14380	DNA, E. coli, Thermo Scientific
J14377	DNA, fish sperm, sodium salt, Thermo Scientific
J76712	DNA Ladder, 100 bp, Thermo Scientific
J76714	DNA Ladder, 1 kb plus, Thermo Scientific
J62291	DNA marker, broad range
J63178	DNA marker, high range, 1,000 Base Pair Ladder
J63973	DNA marker, low range, 250 Base Pair Ladder
J60637	DNAzol® Reagent
L07482	Ethidium bromide, 95%
J62931	Ethidium bromide de-staining bags, with activation soln.
J66192	Ethidium bromide, Electrophoresis Reagent, 98% (dry weight)
J67270	Ethidium bromide, Molecular Biology Grade, 98%

J62029	Ethidium bromide soln., 0.625mg/ml
J62282	Ethidium bromide soln., 10mg/ml
A10713	Ethylenediaminetetraacetic acid, 99%
J15701	Ethylenediaminetetraacetic acid disodium salt dihydrate, (EDTA), 99.0-101.0%, MB Grade, Ultrapure, Thermo Scientific
J15694	Ethylenediaminetetraacetic acid, (EDTA), 0.5M soln., Molecular Biology Grade, Ultrapure, Thermo Scientific
B22095	Ficoll® 400
14835	Formamide, ACS, 99.5+%
J16374	Glycerol, 99.0-101.0%, Molecular Biology Grade, Ultrapure, Thermo Scientific
J64719	Glycerol, ultrapure, 99.5+%
A13816	Glycine, 99%
J64365	Glycine, Electrophoresis Grade, 99+%
A13543	Guanidine hydrochloride, 98%
J60786	Guanidine hydrochloride, 99+%
J75823	Guanidine hydrochloride, 99.5+%, Molecular Biology Grade, Thermo Scientific
J65661	Guanidine hydrochloride, Molecular Biology Grade

J65485	Guanidine hydrochloride, ultrapure, 99%
M10020	GUANIDINE HYDROCHLORIDE, ULTRA PURE, 99%
J65104	Guanidine thiocyanate, Molecular Biology Grade
A12024	Guanine, 98%
A16516	HEPES sodium salt, 99%
J60076	Hydroxylapatite, fast flow
J61055	IGEPAL® CA-630
J67132	Imidazole, Molecular Biology Grade, 99+%
J61007	India Ink soln., 0.2% in PBS buffer
J66291	L-(+)-Ascorbic acid, Electrophoresis Grade, 99+%
J60087	LiSorb
J32816	Lithium dodecylsulfate, 98+%, Thermo Scientific
A18174	Methylene Blue, high purity, biological stain
J60173	N-Decanoyl-N-methyl-D-glucamine
J66265	N-Dodecyl-N,N-dimethyl-3-ammonio-1-propanesulfonate

N-Dodecyl-N,N-dimethyl-3-ammonio-1-propanesulfonate is a zwitterionic detergent for protein solubilization. It has been used to assess protein structural change in a mixed system of ionic and zwitterionic surfactants.

J60040	N-Lauroylsarcosine sodium salt, 95%
J64928	N-Lauroylsarcosine sodium salt, ultrapure, 97%
44132	N,N'-Bis(acryloyl)cystamine, 98%

J66893	N,N'-Bis(acryloyl)cystamine, Electrophoresis Reagent, 98%
A12195	N,N'-Diallyl-L-tartardiamide, 99%
J66587	N,N'-Diallyl-L-tartardiamide, Electrophoresis Reagent, 99%
J63265	N,N'-Methylenebisacrylamide, 2% soln.

Bis-acrylamide is the most frequently used cross-linking agent for preparing polyacrylamide gels. When it polymerizes with acrylamide, it creates a network of chains, rather than linear chains, and helps maintain the firmness of gel. A 2% w/v bis-acrylamide solution is commonly used for most electrophoresis applications.

43701	N,N'-Methylenebisacrylamide, 99+%
J75821	N,N'-Methylenebisacrylamide, 99.9+%, Molecular Biology Grade, Ultrapure, Affymetrix/USB
J66710	N,N'-Methylenebisacrylamide, 99+%, Electrophoresis Grade
A12536	N,N,N',N'-Tetramethylethylenediamine, 99%
J63734	N,N,N',N'-Tetramethylethylenediamine, Electrophoresis Grade
J63574	N-Octanoyl-N-methyl-D-glucamine
J67390	n-Octyl-beta-D-glucopyranoside, 98+%
J61028	n-Octyl-beta-D-thioglucopyranoside, 98+%
J66416	n-Octyl-beta-D-thioglucopyranoside, Electrophoresis Grade, 98+%
J62098	Orange G/blue dye (6X)
J61877	Orange G/blue loading dye (6X)
J60562	Orange G loading dye (6X), glycerol based
J76710	PCR Markers, 50-2000 bp, Thermo Scientific
44526	Phenol, 99.5%, unstab.

	J75831	Phenol:Chloroform:Isoamyl Alcohol (25:24:1), Molecular Biology Grade, Ultrapure, Thermo Scientific
	J62336	Phenol:Chloroform:Isoamyl alcohol 25:24:1, Ready-to-Use saturated aq. soln., pH 5.2
	J60331	Phenol:Chloroform:Isoamyl alcohol 25:24:1, Ready-to-Use saturated aq. soln., pH 6.7, with alkaline buffer
	J75829	Phenol, pH 8.0, equilibrated, Molecular Biology Grade, Ultrapure, Affymetrix/USB
	J64011	Phenol, ultrapure, 99%, unstab.
	J66087	Poloxamer 188
	J61495	Polyethylene glycol (PEG), 50% soln.
	J61270	Polyethyleneimine, M.W. 60,000, 50% w/w aq. soln.
	L15029	Polysorbate 20
	J66278	Polysorbate 20, Electrophoresis Reagent
	L13315	Polysorbate 80
	J63139	Ponceau S, 0.1% v/v soln. in 5% acetic acid
	13145	Potassium peroxydisulfate, ACS, 99.0% min
	J63710	Proteinase K, Ready-to-Use soln.

J60505	Pyronin Y, 0.2% w/v aq. soln.
A14545	Riboflavin-5'-phosphate sodium salt dihydrate
J66949	Riboflavin-5'-phosphate sodium salt dihydrate, 73.0% min.
J66632	Riboflavin, 97%, Electrophoresis Grade
A11764	Riboflavin, 98%
J61574	RNase Removal Reagent
J64449	Sodium 4-aminosalicylate dihydrate, 98%
J77504	Sodium dodecylsulfate, 10% solution, Ultrapure, Thermo Scientific
J75832	Sodium dodecylsulfate, 20% soln., Thermo Scientific
J75819	Sodium dodecylsulfate, 98+%, Ultrapure, Thermo Scientific
J18220	Sodium dodecyl sulfate (SDS), 95+%, Thermo Scientific
J64241	Sodium n-dodecyl sulfate, 97%, for electrophoresis
A11183	Sodium n-dodecyl sulfate, 99% (dry wt.), water <2%
J67606	Sodium n-dodecyl sulfate, 99%, Molecular Biology Grade
J63394	Sodium n-dodecyl sulfate (SDS), 20% aq. soln.
J65148	Sucrose, Molecular Biology Grade
J64270	Sucrose, ultrapure, 99%
J75904	TAE Buffer, 10X Solution, Molecular Biology Grade, Ultrapure, Thermo Scientific

J70454	TBE Buffer, 10X Ready-Mixed Powder, Ultrapure, Thermo Scientific
J62507	Tetraethylammonium chloride
J62496	Tetraethylene glycol monooctyl ether
J62677	Tricine-SDS Sample Buffer (2X), non-reducing
J60316	Tris(2-carboxyethyl)phosphine hydrochloride, 98%, Molecular Biology Grade

TCEP is a thiol-free reducing agent that is highly effective at reducing protein and peptide disulfide bonds. It is odorless unlike common thiol contatining reducing agents such as beta-mercaptoethanol and DTT.

J75825	Tris, 99.8-100.1% (dry basis), Molecular Biology Grade, Ultrapure, Thermo Scientific
A11379	Tris(hydroxymethyl)aminomethane hydrochloride, 99+%
J67233	Tris(hydroxymethyl)aminomethane hydrochloride, Molecular Biology Grade, 99+%
J20605	Tween 20®, Ultrapure, Thermo Scientific
A12360	Urea, 98+%
J23036	Urea, 99.0-100.5%, Thermo Scientific
J75826	Urea, 99.5+%, Molecular Biology Grade, Ultrapure, Thermo Scientific
J64769	Urea, Molecular Biology Reagent
J65769	Urea, ultrapure, 99%
J71786	Water, nuclease-free, Molecular Biology Grade, Ultrapure, Thermo Scientific
J60610	Water, RNase, DNase-free
J70783	Water, RNase-free, DEPC treated, Molecular Biology Grade, Ultrapure, Thermo Scientific

Molecular Weight Markers

Molecular weight markers are sets of standards that are used to identify the approximate size of a molecule in the gel matrix. The markers are also referred to as a protein-, DNA- or RNA-ladders. Since molecular weight is inversely proportional to migration rate through a gel matrix, markers effectively provide a scale by which to estimate the size of the other fragments (providing the fragment sizes of the marker are known). Molecular weight markers can also be used to provide evidence of protein migration, determine transfer efficiency when blotting and as positive controls. Alfa Aesar supplies multiple protein and DNA molecular weight markers with pre-determined fragment sizes and concentrations. These products can be run in either agarose or polyacrylamide gels.

	J67383	DNA Molecular Weight Marker, 100bp Ladder, (100-1517 bp)
	J67225	DNA Molecular Weight Marker, 1Kb Ladder, (500-10,000 bp)
	J67051	DNA Molecular Weight Marker, wide range Ladder (100-12,000 bp)

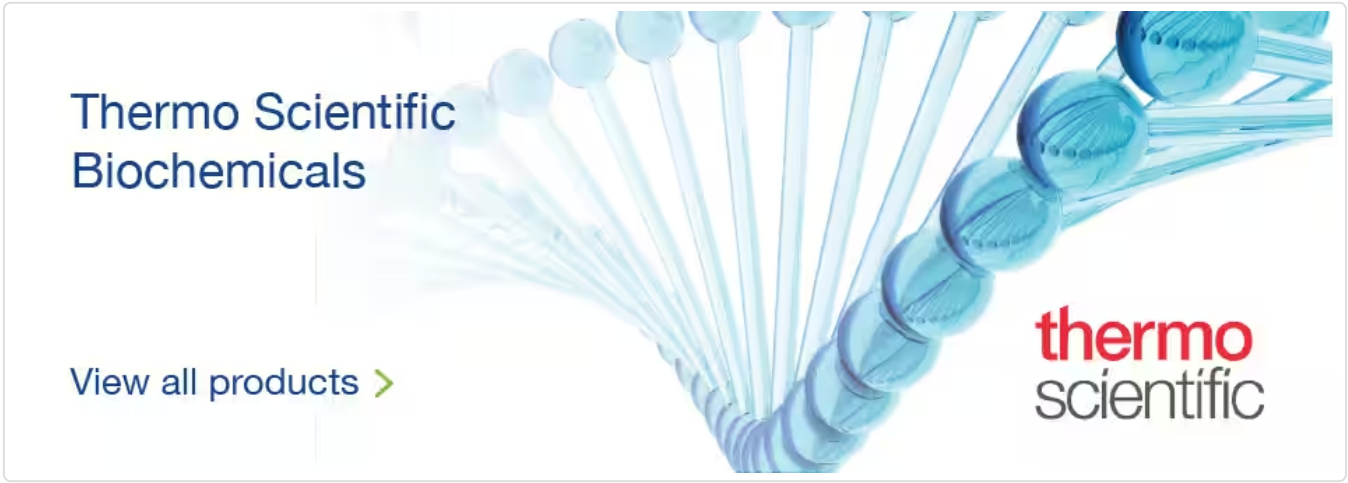
Stains, dyes and indicators

Staining is frequently used in microscopy to enhance contrast in images. Life science researchers use both stains and dyes to highlight structures in biological tissues for viewing. Stains and dyes may be used to define and examine bulk tissues, cell populations, or organelles within individual cells. Staining techniques are commonly used in microbiological assays and histology. Fluorescent dyes can be used to mark cells for flow cytometry and to flag biological molecules for detection by fluorometry.

Indicators are related to stains and dyes. These reagents indicate the presence, absence, or concentration of another substance by means of a characteristic color change. Indicators are commonly used to determine pH or to detect the presence of metal ions.

In electrophoresis, stains bind non-specifically to peptides, proteins and oligonucleotides and are used to visualize their location within the gel matrices. The most common dye for DNA or RNA staining is ethidium bromide while Brilliant Blue is traditionally used for protein staining.

Alfa Aesar offers a wide of range of biological stains, fluorescent dyes and various indicators.



J65304	8-Aminonaphthalene-2-sulfonic acid, 95%
J65332	8-Anilinonaphthalene-1-sulfonic acid, 95%
J65538	8-Anilinonaphthalene-1-sulfonic acid ammonium salt, 98%
L13159	Acridine Orange
J60122	Alcian Blue 8GX
A11374	Amido Black 10B
J66798	Amido Black 10B, Electrophoresis Reagent

Amido Black 10B can be used to stain proteins on polyacrylamide gels, agarose gels and nitrocellulose membranes.

J66494	Basic Fuchsin, Electrophoresis Reagent
J63797	Brilliant Blue G soln., Ready-to-Use
J64297	Brilliant Blue R
J61384	Brilliant Blue R soln., Ready-to-Use
J12355	Bromocresol Green sodium salt, ACS, Thermo Scientific
A16899	Bromophenol Blue sodium salt
A16520	Fast Green FCF

	J66570	Fast Green FCF, Electrophoresis Reagent
	H37721	Methyl blue
	J60823	Methylene Blue trihydrate
	J61509	Methyl Green, zinc chloride
	44161	Methyl Red sodium salt, 0.02% w/v aq. soln.
	J62743	Orange G, Electrophoresis Grade
	J60744	Ponceau S, Electrophoresis Grade
	J61068	Pyronin Y
	J62630	Stains-All, 95%
	B21530	Xylenecyanol FF, dye content 70%
	J66377	Xylenecyanol FF, Electrophoresis Reagent, dye content 70%

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Россия +7(495)268-04-70 Казахстан +7(7172)727-132 Киргизия +996(312)96-26-47

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