

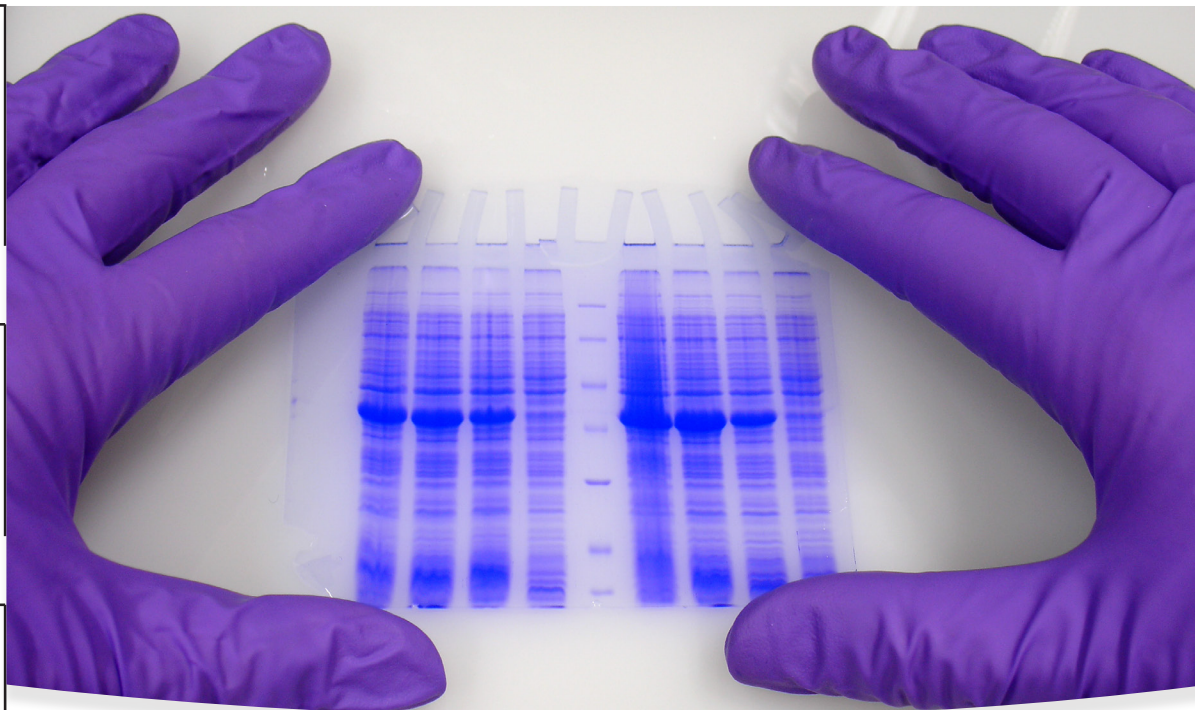
MP Biomedicals

Electrophoresis buffers, reagents & instrument

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electrophoresis**

Absence of inhibitors to restriction enzymes

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www.mpbio.com/electrophoresis



Summary

Agarose gel electrophoresis is most commonly done horizontally in a submarine mode whereby the slab gel is completely submerged in buffer during electrophoresis. The buffer used in the gel is the same as the running buffer in the electrophoresis tank, which is why electrophoresis in the submarine mode is possible with agarose gel.

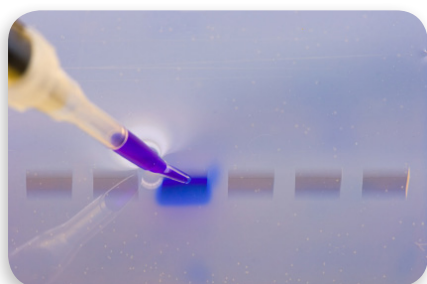
Agarose gel is a three-dimensional matrix formed of helical agarose molecules in supercoiled bundles that are aggregated into three-dimensional structures with channels and pores through which biomolecules can pass.[*] The 3-D structure is held together with hydrogen bonds and can therefore be disrupted by heating back to a liquid state.

From buffers, agarose powders to instruments, you will be served with highest quality of products to cast your agarose gels yourself.



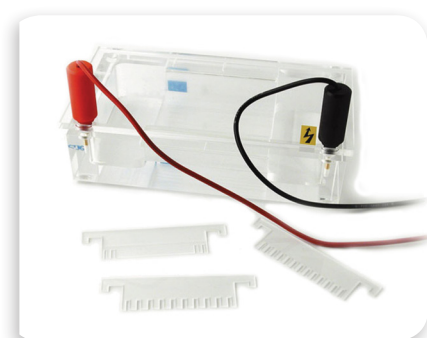
Buffers & Reagents for Electrophoresis.....2

The ideal buffer should have good conductivity, produce less heat and have a long life[**]. There is a large number of buffers used for agarose electrophoresis; common ones for nucleic acids include Tris/Acetate/EDTA (TAE) and Tris/Borate/EDTA (TBE).



Agarose powders for Electrophoresis.....3

The agarose polymer contains charged groups, in particular pyruvate and sulphate. These negatively charged groups create a flow of water in the opposite direction to the movement of DNA. This process called electroendosmosis (EEO), can therefore decelerate the movement of DNA and cause blurring of bands. Higher concentration gel would have higher electroosmotic flow. Low EEO agarose is therefore mostly preferred for use in agarose gel electrophoresis of nucleic acids.



Instrument & Cleaning for Electrophoresis.....6

Before electrophoresis begins, the liquid gel needs to be prepared, cooled and poured into a tray and fit with a toothed comb to create separations for each individual sample.

The right selection of appropriate gel equipment is crucial to reach the right electrophoresis process.

[*] Joseph Sambrook; David Russell. «Chapter 5, protocol 1». Molecular Cloning - A Laboratory Manual 1 (3rd ed.). p. 5.4. ISBN 978-0-87969-577-4.

[**] Sameh Magdeldin, ed. (2012). Gel electrophoresis – Principles and Basics. InTech. ISBN 978-953-51-0458-2.

Buffers & Reagents for Electrophoresis

Run the DNA Gel electrophoresis after amplification of DNA via PCR, for analytical purposes, or as a preparative technique prior to use of other methods such as mass spectrometry, RFLP, PCR, cloning, DNA sequencing, or Southern blotting for further characterization.

Tris

This grade of Tris is our standard biological buffer specially proposed for your less critical applications where cost savings are an important consideration.

Description	Pack Size	Cat. No
Tris Molecular Biology Grade	1 kg	11TRIS01KG
Tris Ultra Pure	5 kg	04819638

EDTA

EDTA is a chelating agent that binds to calcium. In biochemistry and molecular biology, ion depletion is commonly used to deactivate metal-dependent enzymes, either as an assay for their reactivity or to suppress damage to DNA or proteins.

Description	Pack Size	Cat. No
EDTA	100 g	0520189280

TBE

TBE buffer is used for the electrophoresis of nucleic acids and gives an excellent resolution of the DNA bands under low voltage. This buffer filtered through 0,2 µm PTFE is RNase, DNase and protease free.

Description	Pack Size	Cat. No
TBE 10x Buffer	1 L	11TBE10X02
	5 L	11TBE10X03

Ethidium Bromide

Safe & convenient packaging for ethidium bromide. Protect yourself from inhaling hazardous powder using the special ready to use solution of MP Biomedicals ethidium bromide.

Description	Pack Size	Cat. No
Ethidium Bromide (10mg/ml)	10 ml	04802511

TAE

TAE buffer for example is used for the electrophoresis of nucleic acids and gives an excellent resolution of the DNA bands under low voltage. This buffer filtered through 0,2 µm PTFE is RNase, DNase and Protease free.

Description	Pack Size	Cat. No
TAE 1x Buffer	10 L	04821804
TAE 50x Buffer	1 L	11TAE50X01

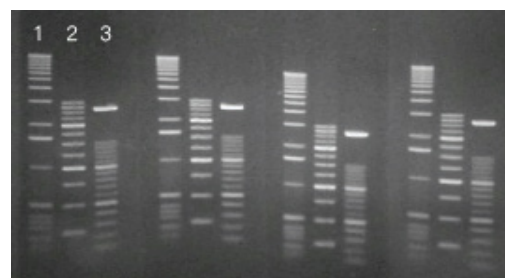
Agarose powders for Electrophoresis

Basic Agarose Premier

Your first price agarose for daily gels & standard analysis. This agarose has high gel strength even at low concentrations. It is ideal for routine and rapid separation of DNA and RNA fragments.

Recommended for:

- Separation of nucleic acid fragments from 250 bp to 23 Kb
- PCR products analysis
- Preparation of plasmids
- Screening, cloning and blotting techniques



First-Agarose Agarose 1 Agarose 2 Agarose 3

Lane 1: 1 kb Ladder
Lane 2: 250 bp Ladder
Lane 3: 100 bp Ladder

Description	Pack Size	Cat. No
BASIC AGAROSE PREMIER	100 g	11AGAF0100
	500 g	11AGAF0500

Agarose Standard (low EEO)

The optimal agarose for analytical and preparative purpose. Agarose Standard is a very low electroendosmosis agarose (EEO) which is advised for sharp resolution of nucleic acid fragments greater than 1000 bp.

Recommended for:

- Nucleic acid analytical and preparative electrophoresis
- Northern and Southern blotting
- Protein electrophoresis such as radial immunodiffusion

Description	Pack Size	Cat. No
AGAROSE STANDARD	100 g	11AGAH0100
	500 g	11AGAH0500

Agarose High Resolution

The perfect agarose for small DNA fragments. Agarose High Resolution is an intermediate melting and gelling point agarose with twice the resolution capabilities of routine agarose and presenting superior sieving characteristics. Ideal for DNA fragments under 1000 bp.

Recommended for:

- PCR products analysis
- Small DNA fragments generated by restriction enzyme digestion
- DNA fragments used in mutation analysis
- Separation of very low size DNA fragments (down to 20 bp)

Description	Pack Size	Cat. No
AGAROSE HIGH RESOLUTION	25 g	11AGAR0025
	50 g	11AGAR0050

Agarose multipurpose or high gel strength Agarose

This is the highest gel strength available especially designed for a wide range of molecular biology techniques.

Recommended for:

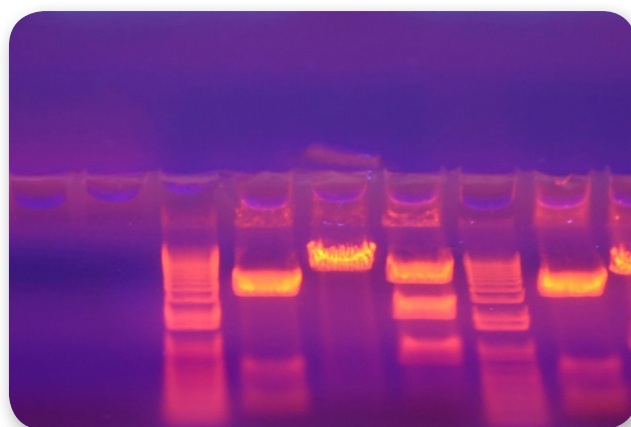
- Separation of nucleic acids fragments (DNA or RNA)
- PCR products and oligonucleotides separation
- Separation of high molecular weight DNA (chromosomes or fragments of genomic DNA up to 50 kb) by means of « Pulse Field Gel Electrophoresis » (PFGE)

Description	Pack Size	Cat. No
AGAROSE MULTIPURPOSE	100 g	11AGAP0100
	3 x 100 g	11AGAP0300

Agarose Low Melting Point

This Agarose has finer sieving characteristics than standard agaroses. The low melting temperature enables nucleic acid recovery without denaturation or damage. The agarose will remain in a liquid state at 37 °C allowing gel manipulations without prior DNA purification such as:

- Enzyme digestion
- DNA labelling
- Random priming
- PCR
- Sequencing
- Ligation
- Nick Translation



Recommended for:

- Preparative electrophoresis of DNA/RNA fragments greater than 1000bp.

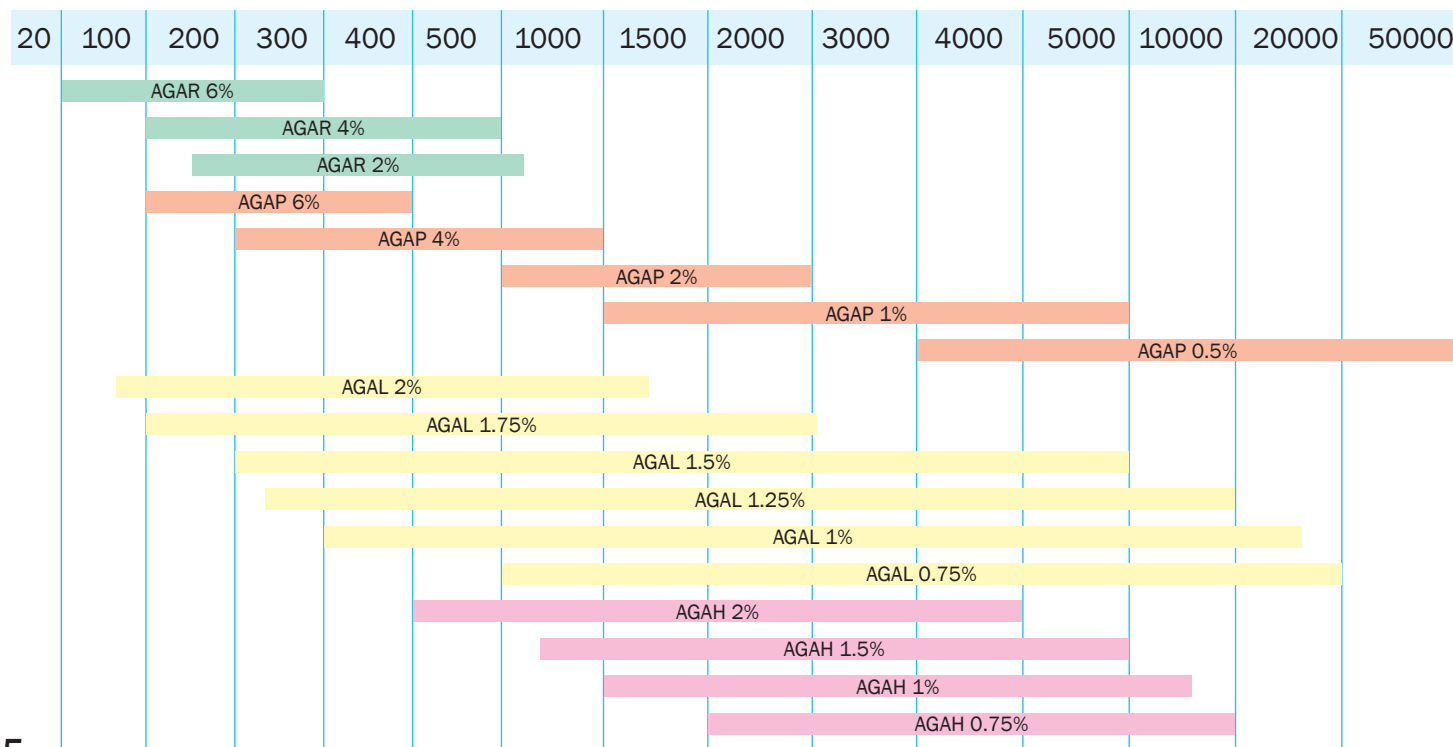
Description	Pack Size	Cat. No
AGAROSE LOW MELTING POINT	50 g	11AGAL0050

www.mpbio.com/electrophoresis

Agarose technical information

Specification	Name	Basic Agarose Premier	Standard Agarose	Agarose Low Melting Point	Agarose Multipurpose	Agarose High Resolution
	Gelling temperature (1.5 % gel)	36 ± 1.5 °C	36 ± 1.5 °C	26 ± 2 °C	36 ± 1.5 °C	35 ± 2 °C (3% gel)
	Melting temperature (1,5 % gel)	88 ± 1.5 °C	88 ± 1.5 °C	65.5 ± 2 °C	88 ± 1.5 °C	80 ± 2 °C (3 % gel)
	Gel strenght (1 %)	≥ 1000 g/cm ²	≥ 1200 g/cm ²	> 300 g/cm ²	≥ 1800 g/cm ²	≥ 1500 g/cm ² (3% gel)
	Gel strenght (1,5 %)	≥ 2200 g/cm ²	≥ 2500 g/cm ²	≥ 500 g/cm ²	≥ 3200 g/cm ²	≥ 600 g/cm ²
	EEO	N/A	0.05-0.13	≤ 0.12	≤ 0.12	≤ 0.12
	DNase/RNase free	Yes	Yes	Yes	Yes	Yes
	Application	<ul style="list-style-type: none"> • PCR products analysis • Preparation of plasmids • Blotting techniques 	<ul style="list-style-type: none"> • PCR products analysis • Preparation of plasmids • Blotting techniques 	<ul style="list-style-type: none"> • Preparative electrophoresis of DNA/RNA 	<ul style="list-style-type: none"> • Nucleic acids fragments • PCR products and oligonucleotides • Chromosomes or fragments of genomic DNA • Pulse Field Gel Electrophoresis 	<ul style="list-style-type: none"> • PCR products analysis • Restriction enzyme digestion analysis • Mutation analysis

Separation range for MP Agaroses



Instrument & Cleaning for Electrophoresis

MiniCuve Electrophoresis Unit

Make your mini-gels by yourself with MP Biomedicas MiniCuve. The MiniCuve 8x10 cm electrophoresis unit is machined from a solid block of acrylic to eliminate the possibility of leaks or breakage. Another advantage of this construction is that the unit is relatively heavy and therefore stable on the bench, helping to prevent spillage. Equipped with stainless steel and gold-plated electrical connectors, the MiniCuve is delivered complete with lid, gel tray and connecting wire.

- Absolutely leak-proof
- Low buffer volume
- Weighted and stable to avoid spillage
- Several combs sizes available
- Casting gel tray Kits



Description	Pack Size	Cat. No
MINICUVE 8.10 ELECTROPHORESIS	Each	11INSE1100
ANALYTICAL 9-TOOTH COMB 5X1 MM	Each	11INSE1201
GEL TRAY - BLUE COLOURED BASE	Each	11INSE1204B
ANALYTICAL 12-TOOTH COMB 3X2MM	Each	11INSE1206
PREPARATIVE COMB 60 MM X 2 MM	Each	11INSE1207
2-GEL CASTING TRAY DUO	Each	11INSE1211
10-WELL COMB (1 MM THICK)	Each	11INSE1213

Cleaning after Electrophoresis

The **EtBr GreenBag™ Kit** allows rapid and trouble-free concentration of ethidium bromide from large volumes of solutions into a small "tea bag" which is then conveniently disposed along with other solid hazardous wastes.

- Rapid concentration of EtBr from large volumes of liquid into a "tea bag"
- Small bag with absorbed EtBr safely disposed in solid waste
- One kit removes 500 mg of EtBr from solutions

Description	Pack Size	Cat. No
EtBr GreenBag™ Disposal Kit	50 bags	112350200

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Biochemicals

Cell Biology

Adsorbents

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Immunology

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Apoptosis

Research diets

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