Print

For life science research only.
Not for use in diagnostic procedures.

Agarose MP (multi purpose agarose)

Cat. No. 11 388 983 001 100 g
Cat. No. 11 388 991 001 500 g

Version 10
Content version: August 2016
Store at +15 to +25°C

1. What this Product Does

Properties

Agarose MP is a high gel strength agarose (≥1,800 g/cm²; 1%).

The high gel strength permits the use of low concentrations of agarose in electrophoretic gels. The agarose matrix of gels made with low concentrations of Agarose MP allows rapid migration of high molecular weight molecules without significant restriction.

Agarose MP is especially well suited for pulse field gel electrophoresis.

The high gel strength reduces separation times for large DNA molecules while maintaining high resolution. Agarose MP is also suited for the preparative separation of nucleic acids.

Biologically active DNA can be recovered quantitatively.

Specifications

Electroendosmosis (EEO)	≤ 0.12
Sulfur as SO_4	≤ 0.12%
Gelling temperature (1.5 %)	+36°C (± 1.5°C)
Melting temperature (1.5 %)	+88°C (± 1.5°C)
Gel strength (1%)	≥ 1,800 g/cm²
Gel strength (1.5 %)	≥ 3,200 g/cm²
DNase	none detected
RNase	none detected

Digestion of electroeluted DNA is tested using the restriction endonucleases *Bam*H I and *Pst* I.

Recovered DNA can be ligated with T4 DNA ligase.

Application

Agarose MP, a multi purpose agarose, is developed for analytical and preparative electrophoresis of nucleic acids and separation of high molecular weight DNA [pulse field gel electrophorese (PFGE)]

Quality Control

Agarose MP is tested:

- the analytical electrophoresis of DNA of various lengths;
- Southern blots;
- PFGE;
- separation of RNA;
- preparative electrophoresis of DNA and
- isolation of DNA fragments followed by restriction digests and ligation.

Storage and Stabilty

Agarose MP should be stored cool and dry at +15 to +25°C until the expiration date printed on the label.

2. Protocol for Preparation of Agarose Gels

Conc. < 2%

For gels with agarose concentrations less than 2% please refer to the following table:

Step	Action
❶	Use a flask that is 2 to 4 times the volume of the solution being prepared.
❷	Add the correct amount of dry agarose to a measured quantity of electrophoresis buffer.
❸	If you use a **boiling wather bath**: • melt the agarose, simply by heating the slurry in a boiling water bath until the agarose dissolves. If you use **a microwave oven:** • melt the agarose in solutions of less than 2%, heat the slurry in a microwave oven on a high power setting until it starts to boil. • Allow the solution to boil for 1 min or until all particles are dissolved. • Remove the flask from the microwave oven, and gently swirl to mix the agarose solution. ⚠ Use extreme caution when handling. The solution may become superheated and boil vigorously when touched.
❹	Cool the solution to approx. +60°C before pouring.!

Conc. > 2%

For gels with agarose concentrations greater than 2% please refer to the following table:

Step	Action
❶	• Use a flask that is 2 to 4 times the volume of the solution being prepared. • Add the correct amount of dry agarose to a measured quantity of electrophoresis buffer.
❷	Heat the slurry in a microwave oven on a medium power setting until it starts to boil. (The lower power setting will make it less likely that the solution will foam, a tendency of concentrated agarose solutions).
❸	Remove the flask from the oven and gently swirl to resuspend the gel particles.
❹	Reheat the solution on a medium power setting until it starts to boil again.
❺	Afterwards, remove the flask from the microwave and gently swirl. ⚠ If the agarose did not competely dissolve, reheat the solution again.
❻	Cool to approx. +70°C before pouring.

2.1 Electrophoresis of DNA

Resolution Ranges

The most commonly used technique for DNA separation is horizontal electrophoresis in 0.5 to 2% agarose gels submerged in one of the two buffers (Tris-acetate or Tris-borate buffer) (1).

The use of gels having different agarose concentrations makes the resolution of a wide size range of DNA fragments possible.

The resolution ranges which can be obtained with various concentrations of Agarose MP are shown in the table. The corresponding migration behavior of bromophenol blue is depicted in the figure.

Concentration of Agarose MP in gel (%)	Efficient range of separation of linear DNA molecules (kb)
0.4	2–30
0.75	1–15
1	0.5–10
1.25	0.3–5
1.5	0.2–4
2	0.1–2.5

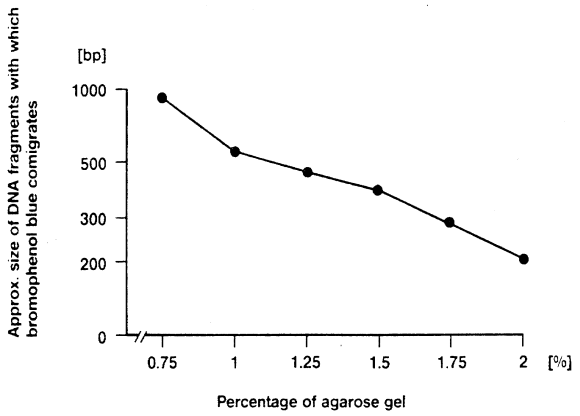

Fig.: Migration of DNA-fragments in agarose MP

2.2 Staining DNA in Agarose Gels

Handling instructions

The most common stain for detecting nucleic acids is ethidium bromide. Ethidium bromide can be used in concentrations between 0.5 and 5 µg/ml in the gel and in the electrophoresis buffer.

If the gel contains 5 µg/ml ethidium bromide, it is not necessary to add ethidium bromide to the running buffer.

Detection of very small amounts of DNA is made easier when the background fluorescence caused by ethidium bromide is reduced by soaking the stained gel in 1 mM $MgSO_4$ for 1 h at +15 to +25°C.

To stain the DNA after electrophoresis, soak the gel in a 1 µg/ml ethidium bromide solution for 10 min.

Destaining of gels

Destain with a 30 min rinse in running buffer.

Keep the gel in an opaque box when ethidium bromide is present to avoid nicking of the DNA.

3. Supplementary Information

3.1 References

1 Sambrook, J., Fritsch, E. F. & Maniatis, T. (1989) Molecular Cloning: A Laboratory Manual, 2nd edition, CSH Laboratory Press, Cold Spring Harbor, New York

4. Conventions

Text Conventions

To make information consistent and memorable, the following text conventions are used in this package insert:

Text Convention	Use
Numbered Instructions labeled ❶, ❷,etc.	Steps in a procedure that must be performed in the order listed
Asterisk *	Denotes a product available from Roche Diagnostics

Symbols

In this package insert the following symbol is used to highlight important information:

Symbol	Description
⚠	Important Note: Information critical to the success of the procedure or use of the product.

Changes to previous version

Editorial Changes

Trademarks

Regulatory Disclaimer

For life science research only. Not for use in diagnostic procedures.

Disclaimer of License

For patent license limitations for individual products please refer to: List of biochemical reagent products

Contact and Support

To ask questions, solve problems, suggest enhancements and report new applications, please visit our **Online Technical Support Site**.

To call, write, fax, or email us, visit **sigma-aldrich.com**, and select your home country. Country-specific contact information will be displayed.

Roche Diagnostics GmbH
Sandhofer Strasse 116
68305 Mannheim
Germany