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Roche

Agarose MS (Molecular Screening Agarose)

for separation of small DNA fragments (50 bp – 1500 bp)

Cat. No. 11 816 586 001 100 g
Cat. No. 11 816 594 001 500 g

Version 07
Content version: August 2016
Store at +15 to +25°C

1. What this Product Does

Properties

Agarose MS provides high resolution for small DNA fragments. The resolution characteristics of the agarose enable fragments to be separated which differ in size by as little as 4 base pairs.
Due to the high gel strength (≥ 750 g/cm^2 at 1% and ≥ 1500 g/cm^2 at 3%) gels are easy to handle and cracking is minimized.

Specifications

Electroendosmosis (EEO)	≤ 0.12
Sulfate	≤ 0.11%
Gelling temperature (3 %)	≤ 35.5° C
Melting temperature (3 %)	≤ 80° C
Gel strength (1.5%)	≥ 600 g/cm^2
Gel strength (3 %)	≥ 1500 g/cm^2
DNase	none detected
RNase	none detected

Application

It is especially suited for analyzing fragments between 50 bp and 1500 bp e.g.

- separation of PCR products,
- genotyping,
- allele sizing,
- STR's analysis-tetranucleotide repeats

Quality control

Agarose MS is tested:

- for analytical electrophoresis with DNA fragments of various lengths (50 bp – 1500 bp),
- to ensure no interference with restriction digests and ligations following preparative separation and isolation of DNA fragments,
- for absence of DNases,
- for absence of RNases.

Digestion tests with electroeluted DNA use restriction endonucleases *Bam* H I and *Pst* I. Recovered DNA is then ligated with T4 DNA ligase using standard protocols.

Storage and stabilty

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

2. Preparation of Agarose Gels

Protocol

Use a flask that is 2 to 4 times the volume of the solution being prepared

Step	Action
❶	Add a measured quantity of electrophoresis buffer and a magnetic bar into the flask.
❷	Weigh out agarose and sprinkle it slowly while stirring onto the buffer
❸	• Weigh the flask and note weight. • Cover the flask.
❹	Place flask in a microwave oven and heat by medium power. Heat using 30 - 60 s intervals, and swirl cautiously between heatings to resuspend the powder.
❺	Continue heating until the agarose is completely dissolved. ⚠ The agarose should not boil over!
❻	• Weigh the flask again without cover and add double distilled water to obtain the initial weight. • Add ethidium bromide if desired. • Stir the solution briefly and carefully.
❼	Before pouring the gel, cool the covered solution on the bench **without stirring** until the temperature reaches +50 to +60°C. During this time any air bubbles will disappear. Alternatively the agarose can be melted by heating in a boiling water bath. Stir slowly while heating.

Electrophoresis of DNA

Protocol

The most commonly used technique for DNA separation is electrophoresis in horizontal agarose gels submerged in either Tris-acetate or Tris-borate buffer (1). The efficient separation of DNA fragments between 50 and 1500 bp is possible by adjusting the concentration of Agarose MS accordingly.
The resolution range which can be obtained with various concentrations and different electrophoresis times are listed in the table.

Table

Separation ranges (applied voltage: 3.5 V/cm):

Gel concentration of Agarose MS (%)	electrophoresis time (h)	efficient separation range of linear DNA molecules (bp)	
		in TAE buffer	in TBE buffer
1.5	2	50 – 500	50 – 400
	4	50 – 1500	50 – 800
	6	50 – 1500	50 – 1000
3.0	2	50 – 600	50 – 300
	4	50 – 800	50 – 400
	6	50 – 1000	50 – 500
4.5	2	50 – 300	30 – 150
	4	50 – 500	30 – 200
	6	50 – 1000	30 – 300

Staining DNA in agarose gels

The most common stain for detecting nucleic acids in agarose gels is ethidium bromide. It can be used in a concentration range between 0.5 and 1 μg/ml directly in the gel and in the electrophoresis buffer.
Note: If the gel contains more than 5 μg/ml, it is not necessary to add ethidium bromide to the running buffer.

3. 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

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