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

Agarose LE
low electroendosmosis

Version: 10
Content Version: June 2021

For use in standard gel electrophoresis.

Cat. No. 11 685 660 001 100 g
Cat. No. 11 685 678 001 500 g

Store the product at +15 to +25°C.

1. General Information

1.1. Contents

Vial / bottle	Label	Function / description	Catalog number	Content
1	Agarose LE	For analytical and preparative electrophoresis.	11 685 660 001	1 bottle, 100 g
			11 685 678 001	1 bottle, 500 g

1.2. Storage and Stability

Storage Conditions (Product)

When stored at +15 to +25°C, the product is stable through the expiry date printed on the label.

Vial / bottle	Label	Storage
1	Agarose LE	Store at +15 to +25°C. ⚠ ***Store dry.***

1.3. Additional Equipment and Reagent required

For preparation of agarose gels

- Electrophoresis buffer
- Boiling water bath or microwave oven

For electrophoresis of DNA and RNA

- Tris-acetate or Tris-borate buffer
- Formaldehyde
- MOPS buffer
- Bromophenol blue

For staining DNA in agarose gels

- Ethidium bromide

1.4. Application

Agarose LE can be used for the following applications:
- Analysis of PCR products.
- Examination of restriction endonucleases.
- Digests of plasmid, cosmid, and λ phage DNA.
- Electrophoresis of RNA, for example, in denaturing gels containing formaldehyde.

Nucleic acid fragments separated with Agarose LE can be blotted to nylon or nitrocellulose membranes by all standard blotting techniques.

⚠ ***Detection with nonradioactive probes, such as digoxigenin (DIG)-labeled nucleic acids, does not interfere with the use of Agarose LE.***

2. How to Use this Product

2.1. Before you Begin

General Considerations

Specifications

Specification	Value
Electroendosmosis (EEO)	0.05 – 0.13
Sulfur as SO_4	≤0.14%
Gelling temperature (1.5%)	+36°C (±1.5°C)
Melting temperature (1.5%)	+88°C (±1.5°C)
Gel strength (1%)	≥1,200 g/cm^2
Gel strength (1.5%)	≥2,500 g/cm^2
DNase	none detected
RNase	none detected

Digestion of electroeluted DNA is tested using the restriction endonucleases BamH I and Pst I.
Recovered DNA can be ligated with T4 DNA ligase.

Properties

- Agarose LE is suitable for analytical and preparative electrophoresis of nucleic acids in standard agarose gels.
- The appropriate size range of nucleic acid separation with Agarose LE is between 0.2 to 15 kbp depending on the concentration of Agarose LE applied.
- Agarose LE is tested for preparative electrophoresis and isolation of DNA fragments.

2.2. Protocols

Preparation of agarose gels

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

2. Add the correct amount of dry agarose to a measured quantity of electrophoresis buffer.

3. Select one of the following methods.

Method	Step
Boiling water bath	Melt the agarose by heating the slurry in a boiling water bath until the agarose dissolves.
Microwave oven	Heat the slurry in a microwave oven on a high power setting until it starts to boil. – Allow the solution to boil for 1 minute 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.***

4. Cool the solution to approximately +60°C before pouring.

Electrophoresis of DNA and RNA

The most commonly used technique for DNA separation is electrophoresis in horizontal agarose gels submerged in either Tris-acetate or Tris-borate buffer.

- RNA molecules are separated in denaturing agarose gels containing formaldehyde. RNA electrophoresis is performed in MOPS buffer.
- The efficient separation of DNA fragments of a wide size range is possible by adjusting the agarose concentration accordingly.
- The resolution ranges which can be obtained with various concentrations of Agarose LE are shown in the table along with the size of DNA fragments which comigrate with bromophenol blue, which is often used as a dye to monitor the extent of electrophoresis.

Concentration of Agarose LE in gel [%]	Efficient range of separation of linear DNA molecules [kbp]	Size of linear DNA fragment that comigrates with bromophenol blue [bp]
0.8	1 – 15	950
1	0.5 – 10	525
1.25	0.3 – 5	450
1.5	0.2 – 4	400
1.75	0.2 – 2.5	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.

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

3. Additional Information on this Product

3.1. Quality Control

For lot-specific certificates of analysis, see section, **Contact and Support.**

4. Supplementary Information

4.1. Conventions

To make information consistent and easier to read, the following text conventions and symbols are used in this document to highlight important information:

Text convention and symbols	
Information Note: Additional information about the current topic or procedure.	
Important Note: Information critical to the success of the current procedure or use of the product.	
① ② ③ etc.	Stages in a process that usually occur in the order listed.
❶ ❷ ❸ etc.	Steps in a procedure that must be performed in the order listed.
* (Asterisk)	The Asterisk denotes a product available from Roche Diagnostics.

4.2. Changes to previous version

Layout changes.
Editorial changes.

4.3. Trademarks

All product names and trademarks are the property of their respective owners.

4.4. License Disclaimer

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

4.5. Regulatory Disclaimer

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

4.6. Safety Data Sheet

Please follow the instructions in the Safety Data Sheet (SDS).

4.7. Contact and Support

To ask questions, solve problems, suggest enhancements or 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.

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