



ROTI®Garoses

General Information and Applications

Our agarose ROTI®Garose is a neutral polysaccharide which is obtained in many purification steps from the cell wall of certain algae, called *Rhodophyceae*. ROTI®Garose forms very clear gels with all standard running buffers and will result in a sharp and clear separation of your biomolecules. Extremely pure agarose with very low interference binding to staining reagents. ROTI®Garose produces a low background and high contrast appearance after staining.



- For clear and sharp bands
- Gels with high transparency
- Low background
- Suitable for all standard running buffers and high-speed buffer systems
- Compatible with all nucleic acid staining systems
- Non-toxic in cell immobilisation assays
- Of course DNase and RNase free

Agarose as Gelling Reagent

Chemically, agarose is a galactan which is capable of forming extremely solid gels, even at a low concentration. The pore size of the gels is determined by the concentration of the agarose used. Because there are no ionic groups in the gel, hydrophilic materials without any interaction with the gel matrix will also be separated according to their size. The high hysteresis of the agarose, that is the thermal stability after solidification, ensures that the gels remain reliably stable even during heatproducing running conditions.

Electroendosmosis (EEO)

Osmotic liquid migration caused by electric current

In gel matrices of agarose gels, minor impurities caused by cations (sulphate ester) are frequent. When an electric field is applied they move in the direction of the cathode, generating an electroosmotic flow (EOF) of the entire aqueous medium towards the negative pole. The migration speed of the flow depends, amongst other things, on the strength of the electric field and the frictional force generated by the gel matrix. The EOF always runs in the direction of the cathode, that is opposite to the movement of the anions separated during nucleic acid electrophoresis, and slows down their migration.

In the event of an agarose with high EEO, many cations are present, which generate a strong EOF. Furthermore, the gel strength is low, causing only weak frictional force. The strong EOF can lead to a change of behaviour during the run of the negatively-charged molecules (DNA/RNA) when using the agarose MEEO or HEEO. In extreme case anions with low self-mobility can even be diverted and transported in the direction of the cathode, causing band shifting.





Well advised with Roth.

Technical Info

Roth has the right agarose for each application:

Roti®garose	Art. No.	Application
Standard	3810	Routine gels, student's courses, general analyses (1-20 kb).
NEEO ultra quality	2267	All standard applications, qualitative and quantitative gels, screening and blotting. Range 500 bp-20 kb.
Agarose Tablets	HP67	Highly reproducible gels, or simple applications in students courses. Suitable for all standard-gels (0,5-0,25 %). For fragments ≥ 300 bp.
GTQ	6352	Genetic engineering quality, for DNA-elution of fragments ≥ 500 bp without melting the agarose*
Broad Range	T846	For the total analytical range (200 bp up to 40 kb), Pulsed-Field electrophoresis, blotting, shift assays. Ideal when only a few agaroses are to be used in the laboratory.
Pulsed-Field	3771	Separation of large fragments (up to 20 kb), Pulsed Field gel electrophoresis (PFGE).
HR PLUS	HP30	Analysis of fragments between 100 and 3000 bp.
High Resolution	K297	Analysis of fragments between 50 and 1000 bp.
Low Melt	6351	With low melting and gelling temperatures (MT $\leq 65,5$ °C, GT ≤ 28 °C). For gel elution from melted agarose. Range 500 bp-20 kb.
LM / PCR	HP31	Genetic engineering quality with low melting and gelling temperatures (MT ≤ 65 °C, GT ≤ 35 °C). For DNA-elution of fragments < 1500 bp from melted agarose.
Super LM	HP45	With extremely low melting and gelling temperatures. (MT ≤ 62 °C, GT ≤ 20 °C). For gel elution from melted agarose. Recommended for in-gel analysis, capillary electrophoresis and cell and tissue culture. For fragments ≥ 1000 bp.
MEEO ultra quality	2268	With medium EEO. For immune, serum and antibody electrophoresis. Range 500 bp-10 kb.
HEEO ultra quality	2269	With high EEO. For protein precipitation and countercurrent electrophoresis.
Synergel®	0184	Agarose additive for finer pore formation. Increases the separative power of the agarose. For fragments from 10 bp up.

* Tip: Use Kit Roti®-Prep Gel Extraction (Art. No. 8510.1)



Technical Info

Running distance in bp of xylene cyanol (XC) and bromophenol blue (BPB), with respect to agarose, gel concentration and buffer system used.

3810 Standard		0,3 %	0,5 %	1 %	1,5 %
1xTAE	XC	16 000	6 200	2 800	1 300
	BPB	1 600	500	300	150
1xTBE	XC	12 000	4 200	1 800	900
	BPB	1 300	400	200	70
2267 NEE0		0,5 %	1 %	1,5 %	2 %
1xTAE	XC	16 000	6 100	2 800	1 300
	BPB	1 650	500	300	150
1xTBE	XC	12 000	4 100	1 800	850
	BPB	1 350	400	200	70
HP67 Agarose Tablets		0,5 %	1 %	1,5 %	2 %
1xTAE	XC	15 000	5 000	2 600	1 500
	BPB	1 800	650	400	200
1xTBE	XC	11 000	4 000	1 800	800
	BPB	1 100	350	150	60
6352 GTQ		0,5 %	1 %	1,5 %	2 %
1xTAE	XC	15 000	5 000	2 600	1 500
	BPB	1 800	650	400	200
1xTBE	XC	11 000	4 000	1 800	800
	BPB	1 100	350	150	60
T846 Broad Range		0,3 %	0,7 %	1,2 %	1,7 %
1xTAE	XC	30 000	11 200	3 900	1 700
	BPB	4 000	1 200	520	300
1xTBE	XC	18 000	10 000	4 500	1 800
	BPB	2 200	950	450	200
3771 Pulsed-Field		1 %	2 %	3 %	4 %
1xTAE	XC	24 800	13 000	6 100	2 600
	BPB	3 550	2 050	760	400
1xTBE	XC	19 400	10 000	4 000	1 900
	BPB	2 550	1 500	500	250
HP30 HR PLUS		1 %	2 %	3 %	4 %
1xTAE	XC	2 500	1 000	400	200
	BPB	250	150	100	60
1xTBE	XC	1 500	600	200	120
	BPB	100	60	50	<50
K297 High Resolution		2 %	3 %	4 %	5 %
1xTAE	XC	600	300	160	100
	BPB	100	80	40	25
1xTBE	XC	400	150	80	50
	BPB	<50	<50	<20	<20
6351 Low Melt		1 %	1,5 %	2 %	2,5 %
1xTAE	XC	2 800	1 350	720	410
	BPB	425	225	120	75
1xTBE	XC	1 600	800	400	200
	BPB	200	80	40	20
HP31 LM / PCR		2 %	3 %	4 %	5 %
1xTAE	XC	600	300	120	60
	BPB	100	80	40	20
1xTBE	XC	400	150	60	40
	BPB	50	40	20	10-20
HP45 Super LM		1 %	1,5 %	2 %	2,5 %
1xTAE	XC	2 800	1 350	720	410
	BPB	425	225	120	75
1xTBE	XC	1 600	800	400	200
	BPB	200	80	40	20

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