Agarose Blenders™

Code	Description	Size
K669-100G	**Agarose I / TBE Blend 0.8%**	100 grams
K677-100G	**Agarose I / TBE Blend 1.5%**	100 grams
K678-100G	**Agarose I /TBE Blend 2.0%**	100 grams
K679-100G	**Agarose I / TAE Blend 0.8%**	100 grams
K680-100G	**Agarose I / TAE Blend 1.0%**	100 grams
K681-100G	**Agarose I / TAE Blend 1.5%**	100 grams

General Information

Agarose Blenders™ are convenient, premixed powders containing the all-purpose, high purity Agarose I™ and either TAE or TBE buffer. The powders are available for the preparation of the most common percentages of agarose, with the buffer at a final concentration of 1X. Gels are prepared by simply suspending the selected Agarose Blender™ in water, heating and then pouring the gel. These unique products are not only easy to use, but also provide excellent clarity and low background for optimal electrophoresis results.

Storage/Stability

Store at room temperature (18 – 26°C).

Product Use Limitations

For research use only. Not for therapeutic or diagnostic use.

Required Materials Not Supplied

1X running buffer (TAE or TBE)
Agarose gel apparatus
Gel comb
Weigh balance
Microwave, hot plate or autoclave
Beaker or flask

Protocol/Procedure

Code	Description	Agarose Blender™ (grams)	Volume Deionized Water (mL)
K669-100G	**Agarose I / TBE Blend 0.8%**	2.503	100
K677-100G	**Agarose I / TBE Blend 1.5%**	3.203	100
K678-100G	**Agarose I /TBE Blend 2.0%**	3.703	100
K679-100G	**Agarose I / TAE Blend 0.8%**	1.432	100
K680-100G	**Agarose I / TAE Blend 1.0%**	1.632	100
K681-100G	**Agarose I / TAE Blend 1.5%**	2.132	100

Agarose gel preparation

1. Weigh the Agarose Blender™ powder according to appropriate code in the table above and place into a microwavable beaker or flask.
2. Add 100 mL deionized water and mix to suspend to the powder.
3. Heat the mixture according to a standard agarose gel preparation method of choice until it is clear (i.e. microwave, hot plate, autoclave).
4. Pour the gel into a gel casting tray and insert the comb for the sample wells.
5. Allow the gel to solidify, then submerge it in the appropriate1X running buffer (TAE or TBE).
6. Perform electrophoresis according to standard procedures.

Frequently Asked Questions

Problem	Cause	Solution
Why are there clumps in the gel?	Insufficient dispersion of agarose	Increase agitation while slowly adding agarose to the buffer at room temperature.
		Increase dispersion time by keeping the solution at room temperature for 1 – 5 minutes before heating.
		Keep agarose dispersed during initial heating in the microwave. After 30 seconds of microwave heating, remove flask and swirl to resuspend crystals. Repeat this step before bringing the solution to a boil.
Why are there bubbles in the gel?	Air bubbles trapped in molten agarose	After the boiled agarose solution cools to 50 – 55°C, gently swirl the solution before pouring into the gel casting stand.
Why does the gel overheat or melt during electrophoresis?	Excessive buffer depth	Do not exceed a buffer overlay of 3 – 5 mm.
	Buffer depletion	TBE has greater buffering capacity at the initial neutral pH, since the pK_a of borate is closer to the initial pH than that of acetate.
		Mini-electrophoresis chambers experience buffer depletion within 10 – 13 Watt hours.
		Standard electrophoresis chambers (1.5 – 2 liter capacity) experience buffer depletion in 40 – 50 Watt hours. Consult the chamber manufacturer for specific instructions.
		If the run is performed for extended periods in TAE, it may be necessary to recirculate the buffer to prevent development of a pH gradient. Monitor the pH in anode and cathode chambers during electrophoresis to ensure that depletion is not occurring.

Why are the bands faint or invisible?	Insufficient sample loaded	Increase sample amount loaded. For DNA, sharp bands are obtained by loading no more than 50 – 100 ng per DNA band. For RNA, load a maximum of 30 µg total RNA per lane.
	Degraded sample	Use nuclease-free reagents during sample preparation.
	Samples migrated off the gel	Increase the gel concentration.
		Reduce electrophoresis time.
		Lower the voltage.
		Closely monitor tracking dyes included in the sample loading buffer.
Why are the bands smearing, smiling or distorted?	Sample loading volume is too large	Reduce the sample volume.
	Voltage too high	Voltage should not exceed 20 V/cm and temperature should remain < 30°C.
	Overloaded DNA	50 – 100 ng/band is generally the maximum amount that can generate sharp bands.
	Excessive buffer depth Buffer depletion Degraded sample	See above
	Excess salt in sample	Remove excess salt by ethanol precipitation.
	Protein contamination	Remove protein contamination by phenol extraction.
	Very large DNA fragments	Run gel at low field strength (1 – 2 V/cm)
		Use Agarose LF™ with TAE Buffer.
	Low molecular weight band diffusion	Increase the gel concentration.
		Use TBE buffer for analytical applications.
		Run gel at 4 – 10 V/cm.
		Switch to Agarose 3:1 HRB™ or Agarose SFR™.
	Sample creeps up side of wells prior to applying current	Use a loading buffer containing Ficoll® as a density agent instead of glycerol.

	Uneven gel pores	Allow agarose solution to cool at room temperature to ~50 – 55°C before pouring to obtain a more uniform pore size.

For Technical Support

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