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HI-GEL MATRIX KIT - Addtive for Agarose Gels
Includes **BIOTOOLS MB AGAROSE**

STORE AT ROOM TEMPERATURE (25 ºC

DESCRIPTION

Hi-Gel matrix is a novel gelling agent that dramatically improves the electrophoretic discrimination power of agarose. It consists of a modified polymer that, when combined with conventional agarose, enables accurate separation among DNA or RNA fragments less than 500 base pairs (bp) in length differing by as little as 6 bp. In practical terms, resolution of gels containing a mixture of 50% Hi-Gel and 0.7% agarose in TBE or TAE buffer is comparable to that rendered by high-resolution agarose 3% gels. Furthermore, Hi-Gel cost is considerably less than high-resolution agarose; therefore, replacement of this agarose yields a 2-fold saving.

The appearance of this kind of mixed agarose/Hi-Gel gels is more elastic and transparent than conventional agarose gels.

KIT CONTENTS

Each kit contains enough Hi-Gel reagent and BIOTOOLS MB Agarose to perform 50 horizontal 40 ml gels (Cat. No. 20.041) or 100 (Cat. No. 20.042) see attached Table.

Cat. No.	Hi-Gel reagent	BIOTOOLS MB Agarose
20.041	1 L	15 g
20.042	2 L	30 g

EXPERIMENTAL PROCEDURE for 40 ml-horizontal gels.

Mixed agarose/Hi-Gel gels are very easily constituted by combining a defined volume of the Hi-Gel along with agarose powder and TBE or TAE buffer following the procedure detailed hereafter.

Before starting! Stir Hi-Gel Solution for at least 15 min for thorough homogenisation

1.- Weigh 0.28 g BIOTOOLS MB agarose powder and add 20 ml TBE/TAE buffer at 2-fold final concentration desired (e.g. should 0.5X be final concentration desired, use 1X buffer to cast the gel). Boil until completely dissolved.

2.- Stir the Erlenmeyer flask containing the melted agarose on a magnetic stirrer at moderate speed. Slowly add 20 ml Hi-Gel reagent and let thoroughly mix until the mixture gets completely clear (approximately 2 min).

3.- Add 2 μl Ethidium Bromide (10 mg/ml) and stir 30 sec longer.

4.- Decant the mixture on the gel tray. Incubate 20-30 min at room temperature on the bench.

5.- Submerge the polymerised gel into the buffer chamber, then carefully remove the well-comb from the gel. Remove the bubbles inside the wells with the aid of a pipette tip. Use a syringe to rinse out the wells several times with electrophoresis buffer.

6.- Load the samples and perform electrophoresis exactly the same way as in conventional agarose gels.

NOTES ON THE USE OF THE HI-GEL MATRIX KIT

- For optimal profit of the sieving capacity of these gels, migrate samples until loading buffer nearly reaches the opposite edge.
- Wash out the well bottoms **immediately** after comb removal. Otherwise, traces of the Hi-Gel reagent will polymerise in the wells, giving rise to irregular surfaces that will yield distorted DNA bands.
- **This protocol is not suitable for gel trays larger than 10 cm in length,** as gels become increasingly fragile as electrophoresis proceeds, making more difficult its handling.
- A maximum voltage of 0.9 V/cm should preferably be used.

APPLICATION TIPS

The Hi-Gel matrix kit offers a wide variety of advantages over more traditional sieving systems, among them:

1.- High resolution electrophoresis of DNA fragments in the interval 40-700 bp using standard agarose.

2.- Enables the substitution of the more tedious and difficult to cast polyacrylamide gels for applications dealing with closely spaced DNA fragments.

3.- Recovery of DNA bands from the matrix using standardised protocols for conventional agarose.

FOR RESEARCH USE ONLY

Cat. No.	Product
20.041	Hi-Gel matrix kit (1 L)
20.042	Hi-Gel matrix kit (2 L)

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