Product Information

GelGreen® Agarose LE

Catalog number	Unit Size
41030-5G	5 g
41030-50G	50 g

Storage and Handling
Store at room temperature. Shake bottle before each use. GelGreen® agarose is stable for at least one year from date of receipt when stored as recommended. If stored outside the original bottle, GelGreen® agarose should be protected from light.

Product Description
GelGreen® Agarose LE is our ultra-pure molecular biology grade LE agarose pre-coated with GelGreen® Nucleic Acid Gel Stain. With GelGreen® Agarose, there is no need to handle concentrated fluorescent dye while preparing your gel, for greater convenience and safety. Simply dissolve GelGreen® Agarose in your favorite electrophoresis buffer, heat, and cast your gel. GelGreen® Agarose LE has low electroendosmosis (EEO) for high electrophoretic mobility. This agarose has excellent performance for analytical or preparative nucleic acid electrophoresis and blotting. It is suitable for preparing 0.8%-2% gels in TAE or TBE buffer. In a 1% GelGreen® Agarose gel, the final GelGreen® concentration is 1X, just like in our standard precast protocol. GelGreen® Agarose also gives excellent results at percentages between 0.8% (0.8X GelGreen®) up to 2% (2X GelGreen®).

GelGreen® is a sensitive, stable and environmentally safe green fluorescent nucleic acid dye specifically designed for gel staining. GelGreen® is far more sensitive than SYBR® Safe. Unlike SYBR® dyes, which are known to be unstable, GelGreen® is very stable, both hydrolytically and thermally.

GelGreen® has UV absorption between 250 nm and 300 nm and a strong absorption peak centered around 500 nm. Thus, GelGreen® is compatible with UV transilluminators or blue light illuminators (like the Dark Reader®), which eliminate exposure of the user and DNA to UV irradiation.

Gel staining with GelGreen® is compatible with downstream applications such as sequencing and cloning. GelGreen® can be removed from DNA using a gel extraction kit, or by phenol/chloroform extraction followed by ethanol precipitation.

GelGreen® was subjected to a series of tests at Biotium and by three independent testing services to assess the dye's safety for routine handling and disposal. Test results confirm that the dye is impenetrable to both latex gloves and cell membranes. Unlike the highly mutagenic EtBr and the reportedly mutation-enhancing SYBR® Green I (1), GelGreen® is noncytotoxic and nonmutagenic at concentrations well above the working concentrations used in gel staining, because of the dye's inability to cross cell membranes. GelGreen® successfully passed environmental safety tests in compliance with CCR Title 22 Hazardous Waste Characterization, under which GelGreen® is classified as non-hazardous waste. A complete safety report is available at www.biotium.com.

Although GelGreen® has undergone extensive safety testing, Biotium recommends following universal safety precautions when working in the laboratory.

References
1. Ohta et al. (2001) Mutation Research 492, 91.

Instructions for gel casting
1. Shake the closed bottle to thoroughly mix the agarose.
2. Weigh out GelGreen® Agarose for the desired gel percentage as shown below. The following DNA size ranges are to be used as a general guide only, optimal separation may vary depending on DNA sample or buffer used.

DNA fragment size	Gel percentage	Agarose per 50 mL
800-12,000 bp	0.8%	0.4 g
500-10,000 bp	1%	0.5 g
400-7000 bp	1.2%	0.6 g
200-3000 bp	1.5%	0.75 g
50-2000 bp	2%	1 g

Note: The final concentration of GelGreen® in a 1% gel is 1X. The GelGreen® concentration will vary with higher and lower agarose percentages, but gels from 0.8% and 2% give excellent results. Biotium's unlabeled Agarose LE (catalog no. 41028) could be mixed with GelGreen® LE Agarose to generate different percentage gels with a controlled GelGreen® concentration.

3. Add the agarose to 1X TAE or 1X TBE buffer in an Erlenmeyer flask that is large enough to allow the solution to boil (for example, use a 125 mL or larger flask to make 50 mL agarose).
4. Microwave for 1 minute, swirl to mix, and microwave for an additional minute.

   Caution! Handle heated solutions of agarose with care to avoid boiling over and the risk of burns.
5. Swirl to mix and make sure agarose is completely dissolved.
6. Allow the solution to cool for ~1 minute.
7. Pour the gel and insert the comb.
8. Allow the gel to set and cool completely before removing the comb.
9. Run the gel in the same type of buffer used for casting.
10. Image the stained gel with a 254 nm transilluminator, a Dark Reader® or a similar transilluminator, or a laser-based gel scanner using a long path green filter such as a SYBR® filter or GelStar® filter.

Storing GelGreen® agarose gels:
Unused agarose containing GelGreen® can be remelted to cast more gels, we recommend storing the solidified agarose protected from light. We do not recommend storing agarose containing GelGreen® in molten form (i.e., at 50°C) for more than a few days. Precast gels containing GelGreen® can be stored for future use for up to a month at room temperature in the dark. Storage of GelGreen® precast gels at 4°C can cause dye precipitation and poor performance.

Guidelines for gel loading:
For GelGreen® precast gels, we recommend running 50-200 ng DNA per lane. If you do not know the amount of DNA in your sample, we recommend loading 1/2 to 1/3 the amount you would usually load on an ethidium bromide gel. Overloading of DNA can lead to band smiling or smearing.

See the next page for answers to GelGreen® Frequently Asked Questions (FAQs).

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Frequently Asked Questions

Question	Answer
Can GelGreen® be used to stain ssDNA or RNA?	GelGreen® can be used to stain ssDNA and RNA, but we recommend GelRed for this application because it is five times more sensitive for single stranded nucleic acids than GelGreen®.
Is GelGreen® compatible with downstream applications such as cloning, ligation and sequencing?	Yes. Biotium's DNA Gel Extraction Kit (see Related Products), gel extraction kits from Qiagen or Zymo, or phenol-chloroform extraction can be used to remove the dye from DNA.
Is GelGreen® compatible with Southern or northern blotting?	GelGreen® has not been validated in blotting applications.
Can I reuse a GelGreen® precast gel after electrophoresis?	We do not recommend reusing GelGreen® precast gels as signal decreases with subsequent electrophoresis.
How should I dispose of GelGreen®?	GelGreen® has passed the EPA regulated Title 22 test. Some facilities have approved the disposal of GelGreen® directly down the drain. However, because regulations vary, please contact your safety office for local disposal guidelines. GelGreen® can be adsorbed to activated carbon (also known as activated charcoal) for disposal as chemical waste.
What is the lower detection limit of GelGreen®?	Some users have reported being able to detect less than 0.1 ng DNA. However, the limit of detection will depend on instrument capability and exposure settings.
Does GelGreen® need to be used in the dark?	You can use the dye in room light, however we recommend storing agarose containing GelGreen® and precast GelGreen® gels in the dark.

Related Products

Catalog number	Product
41028	Agarose LE, Ultrapure Molecular Biology Grade
41029	GelRed® Agarose LE
41006	TBE Buffer, 5X (4L Cubitainer®)
99962-1	6X DNA Loading Buffer (Blue)
31022	Ready-to-Use 1 kb DNA Ladder
31032	Ready-to-Use 100 bp DNA Ladder
22007	Activated Charcoal Decontamination Bags
31030	DNA Gel Extraction Kit
41001	GelRed® Nucleic Acid Gel Stain, 3X in Water
41003	GelRed® Nucleic Acid Gel Stain, 10,000X in Water
41005	GelGreen® Nucleic Acid Gel Stain, 10,000X in Water
41020	DNAzure® Blue Nucleic Acid Gel Stain
41009	6X GelRed® Prestain Loading Buffer with Blue Tracking Dyes
41010	6X GelRed® Prestain Loading Buffer with Orange Tracking Dye
41024-4L	Water, Ultrapure Molecular Biology Grade (4L Cubitainer®)
31066	AccuGreen™ High Sensitivity dsDNA Quantitation Kit for Qubit®
31069	AccuGreen™ Broad Range dsDNA Quantitation Kit for Qubit®
31028	AccuClear® Ultra High Sensitivity dsDNA Quantitation Kit
31041	Forget-Me-Not™ EvaGreen® qPCR Master Mix (2-Color Tracking)
31043	Forget-Me-Not™ Universal Probe qPCR Master Mix
E90003	Gel-Bright™ LED Gel Illuminator

Please visit our website at www.biotium.com for information on our life science research products, including environmentally friendly EvaGreen® qPCR master mixes, fluorescent CF® dye antibody conjugates and reactive dyes, apoptosis reagents, fluorescent probes, and kits for cell biology research.

Materials from Biotium are sold for research use only, and are not intended for food, drug, household, or cosmetic use.