SZABO SCANDIC

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Produktinformation

- Forschungsprodukte & Biochemikalien
- Zellkultur & Verbrauchsmaterial
- Diagnostik & molekulare Diagnostik
- Laborgeräte & Service

Weitere Information auf den folgenden Seiten!
See the following pages for more information!

Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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Product Information

Precast GelRed® Agarose Gels, 1% Agarose/TAE

Gel Specifications

Cat. No.	# Wells	Gel Dimensions (L x W)	Well Dimensions (L x W)	Unit Size	Load Volume
41041	8	60 x 56 mm	4.4 x 1 mm	10 gels	22 uL per well
41042	18	60 x 116 mm			

Storage and Handling

Store at 4°C. Product is stable for at least 12 months from date of receipt when stored as recommended. Do not freeze. Handle with universal laboratory safety precautions.

Spectral Properties

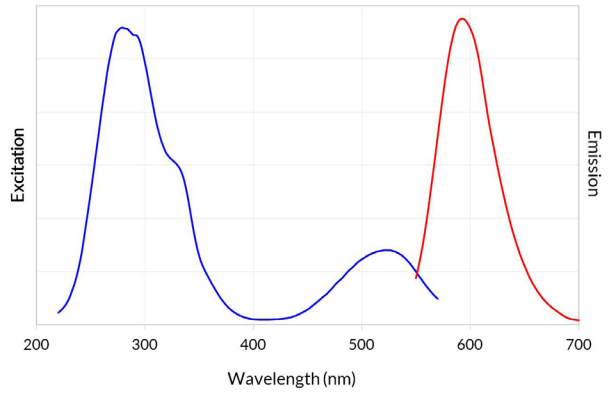

Figure 1. Excitation (left) and emission (right) spectra of GelRed® bound to dsDNA in TBE.

Product Description

Precast GelRed® Agarose Gels are ready-to-use gels intended for DNA gel electrophoresis. The 1% agarose gels were cast in TAE buffer and contain highly sensitive GelRed® Nucleic Acid Gel Stain, saving a significant amount of time by eliminating the need for casting gels. The gels are suitable for visualizing 250-12,000 bp DNA fragments.

GelRed® and ethidium bromide (EtBr) have very similar excitation and emission wavelengths, so you can directly replace EtBr with GelRed® without changing your existing imaging system. In addition, GelRed® is far more sensitive than EtBr. Staining nucleic acids with GelRed® is compatible with downstream applications such as sequencing and cloning. GelRed® can be removed from DNA using a gel extraction kit, or by phenol/chloroform extraction followed by ethanol precipitation.

GelRed® 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. The dye is non-cytotoxic and non-mutagenic at concentrations well above the working concentrations used in gel staining. GelRed® successfully passed environmental safety tests in compliance with CCR Title 22 Hazardous Waste Characterization, under which GelRed® is classified as non-hazardous waste. A complete safety report is available at www.biotium.com.

Biotium offers 1X TAE (1 L) Buffer Powder Packets (Cat. No. 22031) that are suitable for use with Precast GelRed® Agarose TAE Gels. See Related Products for our full line of GelRed® formats.

Guidelines for Gel Loading and Imaging

- Precast GelRed® Agarose Gels may be used with any gel electrophoresis system that accommodates the size of the gels. See Gel Specifications table for gel dimensions.

  Note: Precast GelRed® TAE Agarose Gels contain 1X TAE and must be run in TAE running buffer.
- For Precast GelRed® Agarose 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.
- GelRed® can be used to stain dsDNA, ssDNA, or RNA. However, GelRed® is twice as sensitive for double-stranded than single-stranded nucleic acids.
- Precast GelRed® Agarose Gels can be used with any commonly used loading buffer. Biotium also offers 6X DNA Loading Buffers containing blue or orange tracking dyes (see Related Products). SDS in loading buffer may contribute to band smearing in precast GelRed® gels. If band smearing occurs, we recommend using a loading buffer without SDS.
- For improved signal and band resolution, we recommend loading samples using GelRed® Prestain Plus 6X DNA Loading Dye (Cat. No. 41011). The loading buffer contains additional GelRed® DNA stain and is optimally formulated for minimal migration shift of DNA bands.
- GelRed® can be imaged with the Gel-Bright™ Laser Diode Gel Illuminator (Cat. No. E90005), or a UV transilluminator with EtBr filter. We do not recommend imaging GelRed® with blue LED imagers.

- While some facilities have approved the disposal of GelRed® as non-hazardous waste, please contact your safety office for local disposal guidelines. GelRed® in used electrophoresis buffer can be adsorbed to activated charcoal (see Related Products) for disposal as chemical waste.

Experimental Protocol

Materials required but not provided

- Agarose gel electrophoresis system
- 1X TAE Buffer Packet (Cat. No. 22031) (or 1X TAE buffer from other source)
- Loading dye (see Related Products)
- DNA ladder (see Related Products)

Procedure

1. If using TAE Buffer Packets (Cat. No. 22031), prepare 1X TAE buffer by dissolving the contents of the buffer packet in 1 L of dH_2O.

   Note: 1X TAE buffer from any source may be used.

2. Fill the electrophoresis chamber with 1X TAE, using the volume recommended by the chamber manufacturer.
3. Remove the Precast GelRed® Agarose Gel from the kit box and take off the plastic seal.
4. Transfer the precast gel from the plastic packaging tray to the electrophoresis chamber by inverting the tray so the gel contacts the buffer. Gently press the center of the tray with your thumbs to push the gel out into the buffer. After the gel is transferred, the well openings will be facing upwards. Make sure the wells are near the anode side of the electrophoresis chamber so the samples will run from anode to cathode.

   Notes:

   a. You must remove the gel from the plastic tray before running.

   b. If your electrophoresis chamber is larger than the gel, make sure the gel is lined up vertically with one edge of the chamber so the lanes run straight.

5. Add DNA loading dye to your samples at a final concentration of 1X and mix well.
6. Load your samples on the gel. See recommended loading volume and loading amounts in the Gel Specifications table and “Guidelines for Gel Loading and Imaging”.

   Note: For improved band resolution, we recommend loading samples using GelRed® Prestain Plus 6X DNA Loading Dye (Cat. No. 41011).

7. Run the gel at 5-8 V/cm where cm is the distance between the electrodes on the gel box, not the gel length (typically 80-120 V for mini-gel boxes). Run the gel for 30-60 minutes or until tracking dyes have migrated 1/2 to 3/4 the length of the gel.
8. Image the gel. See “Guidelines for Gel Loading and Imaging”.

Frequently Asked Questions	Answers
Can GelRed® be used to stain ssDNA or RNA?	GelRed® can be used to stain ssDNA and RNA, but it is twice as sensitive for dsDNA than for ssDNA or RNA.
Is GelRed® compatible with downstream applications such as cloning, ligation and sequencing?	Yes. Biotium’s DNA Gel Extraction Kit (see Related Products), other gel extraction kits, or phenol-chloroform extraction can be used to remove the dye from DNA. Some users have reported performing PCR on DNA in the presence of GelRed® with no purification step, for example by incubating GelRed®-stained gel slices in TE buffer to extract DNA by passive diffusion for use in PCR, or by using a few microliters of molten agarose from GelRed®-stained gel slices containing DNA for PCR.
What emission filters are suitable for use with GelRed®?	Use the ethidium bromide filter for GelRed®. Alternatively, a long-pass yellow filter can be used with GelRed®. Please review the emission spectra for GelRed® for specific wavelengths.
Can I reuse a GelRed® precast gel after electrophoresis?	We do not recommend reusing GelRed® precast gels as signal decreases with subsequent electrophoresis.
What is the lower detection limit of GelRed®?	Some users have reported being able to detect bands containing less than 0.1 ng DNA. However, the limit of detection will depend on instrument capability and exposure settings.
What is the chemical structure of GelRed®?	The chemical structure of GelRed® is proprietary.
Does GelRed® migrate during electrophoresis?	GelRed® does not migrate through the gel as easily as EtBr. It is not necessary to add dye to the running buffer, and the gel will be stained more homogeneously with GelRed® than with EtBr.

Visit www.biotium.com for more FAQs and Tech Tips.

Troubleshooting

Problem	Suggestion
Smeared DNA bands in precast gel	1. Reduce the amount of DNA loaded by 1/2 to 1/3. GelRed® is much more sensitive than EtBr. Blown out or smeared bands can be caused by overloading. This is frequently observed with DNA ladders. Biotium offers a 1 kb ladder that has been optimized for use with GelRed® (see Related Products). 2. Loading buffers containing SDS may contribute to band smearing. If smearing occurs, we recommend using a loading buffer without SDS. 3. For improved signal and band resolution, we recommend loading samples using GelRed® Prestain Plus 6X DNA Loading Dye (Cat. No. 41011).
Discrepant DNA migration in pre-cast gel	GelRed® is designed to be larger than other dyes to prevent it from entering cells, thus rendering the dye safer. The migration of DNA may be affected depending on the dye:DNA ratio. 1. Reduce the amount of DNA loaded by 1/2 to 1/3. 2. Cast your own agarose gel and post-stain with GelRed® to avoid any interference the dye may have on migration during electrophoresis.

Related Products

Cat. No.	Product
22031	1X TAE (1L) Buffer Powder Packets
41011	GelRed® Prestain Plus 6X DNA Loading Dye
E90005	Gel-Bright™ Laser Diode Gel Illuminator
31030	DNA Gel Extraction Kit
22007	Activated Charcoal Decontamination Bags
31084	1 kb DNA Ladder, Ready-to-Load
31085	100 bp DNA Ladder, Ready-to-Load
99962-1	6X DNA Loading Buffer (Blue)
99859-1	6X DNA Loading Buffer (Orange)
31041	Forget-Me-Not™ EvaGreen® qPCR Master Mix (2-Color Tracking)
31000-T	EvaGreen® Dye, 20X in water (trial size)
31077-T	EvaGreen® Plus Dye, 20X in water (trial size)
31028	AccuClear® Ultra High Sensitivity dsDNA Quantitation Kit
41005	GelGreen® Nucleic Acid Gel Stain, 10,000X in Water
41030	GelGreen® Agarose LE
41020	DNAzure® Blue Nucleic Acid Gel Stain
41003	GelRed® Nucleic Acid Gel Stain, 10,000X in Water
41001	GelRed® Nucleic Acid Gel Stain, 3X in Water
41029	GelRed® Agarose LE
41008-T	PAGE GelRed® Nucleic Acid Gel Stain
41028	Agarose LE, Ultrapure Molecular Biology Grade
41039	Go-Go™ Fast DNA Gel Running Buffer, 50X
41006	TBE Buffer, 5X (4L Cubitainer®)
41024-4L	Water, Ultrapure Molecular Biology Grade (4L Cubitainer®)

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.