Biotium

Supplier of fluorescent and related biochemical reagents for life science research and drug discovery
Glowing Products for Science™

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PRODUCT AND SAFETY DATA SHEET

PRODUCT NAME: **GelRed™ Nucleic Acid Gel Stain, 10,000X in DMF**

CATALOG NUMBER: **41000**

PACKAGING SIZE: 0.5 mL

STORAGE AND HANDLING: GelRed™ 10,000X in DMF can be stored at room temperature, 4 °C or at –20 °C. Exposure to light should be avoided during long-term storage. However, the dye can be safely handled under ambient light during a normal staining experiment. The shelf life of the material is at least six months at room temperature and at least one year at or below 4 °C from the time the material is received.

APPLICATION: GelRed™ is a red fluorescent nucleic acid dye with properties ideally suited for gel staining. In general, both the performance and user-friendliness of GelRed™ are superior over those of the SYBR® dyes or ethidium bromide (EB). Among others, the most notable properties of GelRed™ are its high sensitivity and remarkable stability under a variety of conditions. For more details on the comparison of GelRed™ with other commercial gel stains, please see the GelRed™ flyer downloadable from Biotium website (www.biotium.com).

GelRed™ Nucleic Acid Gel Stain, 10,000X in DMF is a concentrated GelRed™ solution that can be diluted **10,000** times for use in precast gel staining or ~**3,300** times for use in post gel staining according to the procedures described below.

Staining Protocols

Staining DNA by Precasting GelRed™ Gels

1.1 Prepare agarose gel solution using your standard protocol.

1.2 Dilute the GelRed™ 10,000X stock reagent into the agarose gel solution at 1:10,000 (e.g., 5 µL of the GelRed™ 10,000X stock reagent added to 50 mL of the gel solution). Since GelRed™ is generally thermally stable, the 10,000X stock reagent can be added while the gel solution is still hot—no need to wait for the gel solution to cool down prior to dye addition. Make sure that the dye is thoroughly mixed with the gel solution by swirling, stirring, or inversion.

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Alternatively, the GelRed™ stock reagent may be pre-combined with agarose powder and a buffer of your choice followed by microwaving or other heating procedure commonly used for preparing agarose gels. GelRed™ is compatible with all commonly used electrophoresis buffers.

1.3 Cast the gels and allow it to solidify. Any leftover gel solution may be stored and re-heated later for additional gel casting. Since GelRed™ is hydrolytically stable (See Figure 1), GelRed™ precast gels may be prepared in large quantities and stored for later use. To avoid

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mold formation, we recommend that the precast gels be stored refrigerated.

1.4 Load samples and run the gels using your standard protocol.

1.5 Visualize the nucleic acid staining using a standard transilluminator (302 nm) and photograph the staining using Polaroid 667 films and an ethidium bromide filter. Since the fluorescence is in the red wavelength region, a SYBR® or GelStar® filter can also be used for the photographing with equally good result (See figure 2 for GelRed™ excitation and emission spectra).

Staining DNA by Post Gel Staining

2.1 Run gels as usual according to your standard protocol.

2.2 Dilute the GelRed™ 10,000X stock reagent ~3,300 fold to make a 3X staining solution in H_2O or an electrophoresis buffer (e.g., 15 µL of GelRed 10,000X stock reagent added to 50 mL H_2O or a buffer). GelRed™ 1X staining solution can also be used for post gel staining, but the sensitivity is generally less than that with 3X staining solution.

2.3 Carefully place the gel in a suitable container such as a petri dish, the lid of a pipet-tip box or a polypropylene container. Gently add sufficient amount of the 3X staining solution to submerge the gel.

2.4 Agitate the gel gently at room temperature for ~30 minutes. Optimal staining time may vary somewhat depending on the thickness of the gel and the percentage of agarose or polyacrylamide. The staining solution can be reused at least 2-3 times. The used staining solution is recommended to be stored in a refrigerator if not for immediate use.

2.5 View the stained gel with a standard transilluminator (302 nm) and photograph the staining using Polaroid 667 films and an ethidium bromide filter. Similarly, a SYBR® or GelStar® filter may also be used for the photographing with equally good result.

Related Products:

GelRed™ Nucleic Acid Gel Stain, 3X in H_2O (Cat# 41001): ready-to-use solution for post gel staining, or for precast gel staining after a 3-times dilution

GelRed™ Precast Gels (coming soon)

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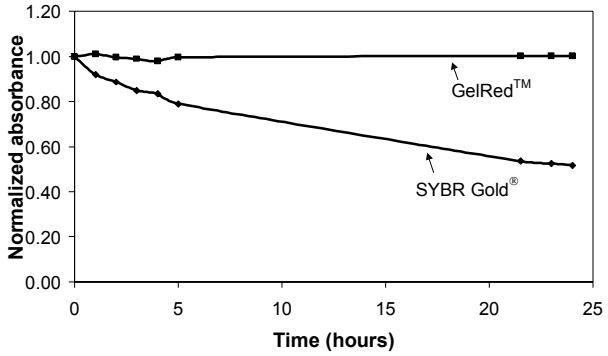

Figure 1. Stability comparison between GelRed and SYBR Gold®. Normalized absorbances of GelRed and SYBR Gold 1xTBE gel-staining solution at 500 and 488 nm respectively overtime at room temperature. The starting absorbance values for GelRed and SYBR® Gold were 0.029 and 0.051, respectively.

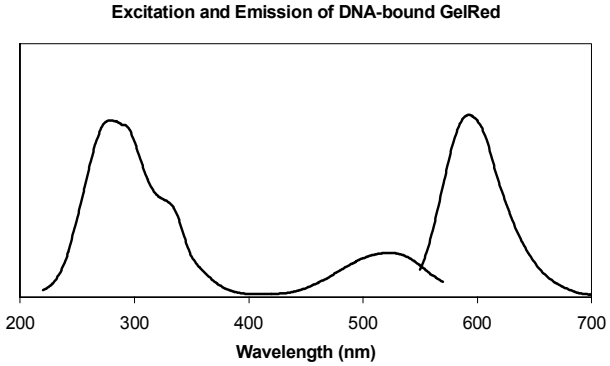

Figure 2. Excitation (left) and emission (right) spectra of GelRed™ bound to dsDNA in TBE buffer.

* GelRed™ and its uses are covered by pending US and international patents.
** SYBR is a registered trademark of Molecular Probes, Inc. and GelStar is a registered trademark of FMC.

TOXICITY:

In our initial mutagenicity test of GelRed™ using a commercial mutagenicity test kit, GelRed™ showed much weaker mutagenic effect than ethidium bromide in the frameshift indicator bacterium strain TA98 in the absence or presence of rat liver extracts. Further safety tests need to be conducted to obtain a more comprehensive safety profile of GelRed™. As with any chemical, particularly nucleic acid-binding chemicals, we recommend that you use precaution when handling GelRed™.

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DISPOSAL

As with all nucleic acid-binding chemicals, GelRed™ solution should be filtered through a pad of activated charcoal before disposal. The charcoal is then treated as solid waste for incineration.

FIRST AID:

Potentially harmful. Avoid prolonged or repeated exposure. Avoid getting in eyes, on skin, or on clothing. Wash thoroughly after handling. If eye or skin contact occurs, wash affected areas with plenty of water for 15 minutes and seek medical advice. In case of inhaling or swallowing, move individual to fresh air and seek medical advice immediately.