Gelite™ Safe DNA Gel Stain *10,000X Water Solution*

Catalog number: 17699, 17700, 17701, 17702, 17703
Unit size: 10 uL, 100 uL, 500 uL, 1 mL, 10 mL

Component	Storage	Amount (Cat No. 17699)	Amount (Cat No. 17700)	Amount (Cat No. 17701)	Amount (Cat No. 17702)	Amount (Cat No. 17703)
Gelite™ Safe DNA Gel Stain *10,000X Water Solution*	Freeze (< -15 °C), Minimize light exposure	50 µL	100 µL	500 µL	1 mL	10 mL

OVERVIEW

AAT Bioquest is committed to designing our products to be environment-friendly. It is part of how we enable our customers to make the world healthier, cleaner, and safer. Ethidium bromide (EtBr) has been commonly used as a DNA stain for many years. However, EtBr is harmful if swallowed and is very toxic if inhaled. EtBr has been shown to be mutagenic in various tests and is an aquatic toxin. SYBR® Safe was introduced as a safer alternative to EtBr and SYBR® Green, but unfortunately, it is much less sensitive than SYBR® Green. It only has sensitivity comparable to EtBr. Gelite™ Safe has been developed specifically to be less hazardous than EtBr for staining DNA in agarose and acrylamide gels with much higher sensitivity. Gelite™ Safe has greatly improved safety and uncompromised sensitivity. The exceptional sensitivity and strong DNA binding affinity of Gelite™ Safe allows DNA to be stained prior to or post electrophoresis without destaining. In addition to its superior binding properties, Gelite™ Safe is essentially non-fluorescent in the absence of nucleic acids showing very low background fluorescence. Upon binding to nucleic acids, Gelite™ Safe exhibits a considerable fluorescence enhancement by several orders of magnitude greater than that of EtBr. Gelite™ Safe was optimized to be compatible with various instruments, including UV and blue-light transiluminators, gel documentation systems, and laser scanners. It is the first single formulation that can be used in either the green or red channel at your preference. Unlike the membrane-permeant SYBR® Green, which is highly toxic to cells and the environment, the membrane-impermeant properties of Gelite™ Safe make it a much safer and noncytotoxic alternative. Furthermore, Ames testing has confirmed Gelite™ Safe to be significantly less mutagenic than EtBr and SYBR® Green, even at concentrations well above the working concentration used for gel staining. Ames mutagenicity test was performed in a dose-dependent manner for all test dyes pretreated with an S9 fraction from rat liver (SYBR® is a trademark of ThermoFisher).

KEY PARAMETERS

Gel Imager

Emission	SYBR® filter, GelStar® filter, GelGreen® filter, or GelRed® filter
Excitation	UV Transilluminator/Blue laser

PREPARATION OF WORKING SOLUTION

Gelite™ Safe working solution

1. Make 1X Gelite™ Safe working solution by diluting the 10,000X stock reagent with a buffer of your choice in a pH range of 7.5-8.5 (e.g., TAE, TBE, or TE, preferably pH 8.2).

   Note: Staining solutions prepared in water are less stable than those prepared in buffer and must be used within 2 hours to ensure maximal staining sensitivity.

SAMPLE EXPERIMENTAL PROTOCOL

The following protocols are recommended. However, some comparisons might be made to determine which one better meets your needs.

Post-staining protocol

1. Run gels according to your standard protocol.
2. Place the gel in a suitable polypropylene container. Gently add a sufficient amount of the 1X staining solution to submerge the gel.

   Note: Do not use a glass container, as it will adsorb much of the dye in the staining solution.
3. Agitate the gel gently at room temperature for ~30 to 60 minutes. Protect the staining container from light.

   Note: Destaining is not required. Image can be acquired without any wash steps.
4. Image the gel with a 300 nm/254 nm ultraviolet transilluminator or a laser-based gel scanner using a long path green filter such as a SYBR® filter, GelStar® filter, GelGreen® filter, or GelRed® filter.

Pre-staining protocol

1. Prepare agarose gel solution using your standard protocol.
2. Dilute the 10,000X Gelite™ Safe stock reagent into the gel solution at 1:25,000 just prior to pouring the gel and mix thoroughly.
3. Run gels according to your standard protocol.
4. Image the gel with a 300 nm/254 nm ultraviolet transilluminator or a laser-based gel scanner using a long path green filter such as a SYBR® filter, GelStar® filter, GelGreen® filter, or GelRed® filter.

EXAMPLE DATA ANALYSIS AND FIGURES

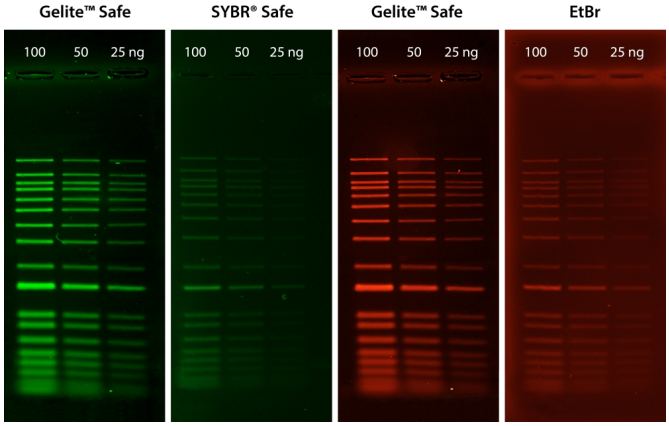

Figure 1. Comparison of DNA detection in 1% agarose gel in TBE buffer using Gelite™ Safe, EtBr, and SYBR® Safe. Two-fold serial dilutions of 1 kb DNA ladder were loaded in amounts of 100 ng, 50 ng, and 25 ng from left to right. Gels were stained for 60 minutes with Gelite™ Safe, EtBr, and SYBR® Safe according to the manufacturer's recommended concentrations and imaged using the ChemiDoc™ Imaging System (Bio-Rad®). Gels were illuminated using a 300 nm transilluminator fitted with a GelGreen filter.

DISCLAIMER

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