

## Sybr Safe DNA Gel Stain (10000X in DMSO)

**FS-33102**

### Introduction

Sybr Safe DNA gel stain has been specifically developed for reduced mutagenicity, making it safer than ethidium bromide for staining DNA in agarose or acrylamide gels. Sybr Safe stain comes either as a concentrate or as a ready-to-use solution that can be used like an ethidium bromide solution, and the detection sensitivity with Sybr Safe stain is comparable to that obtained with ethidium bromide. DNA bands stained with Sybr Safe DNA gel stain can be detected using a standard UV transilluminator, a visible-light transilluminator, or a laser-based scanner. The stain is also suitable for staining RNA in gels. Bound to nucleic acids, Sybr Safe stain has fluorescence excitation maxima at 280 and 502 nm, and an emission maximum at 530 nm.

Table 1 Contents and storage

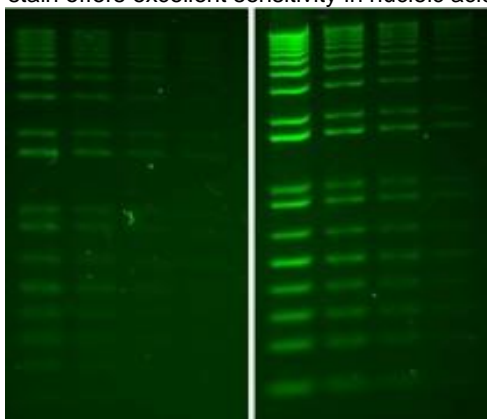
Description	Cat. No.	Amount	Concentration	Storage	Stability
<b>Sybr Safe</b> (10,000X in DMSO)	<b>FS-33102</b>	<b>400 µL</b>	10,000X	2-25°	12 months
	<b>FS-33102-5</b>	<b>5 x 400 µL</b>			
Approximate fluorescence excitation and emission maxima: 280, 502/530 nm, bound to DNA					

- Reduce your exposure to highly mutagenic ethidium bromide and harmful UV light
- Increase your sensitivity by reducing non-specific background fluorescence
- Use in place of ethidium bromide for all staining applications, including RNA staining
- Safer than ethidium bromide
- A better DNA stain
- Not mutagenic

An independent laboratory showed reduced mutagenicity of Sybr Safe compared to ethidium bromide using the Ames test (see figure). You can further decrease your exposure risk by using visible blue-light illumination with Sybr Safe stain rather than UV illumination.

- **Excellent sensitivity**

**Sybr Safe** stain offers excellent sensitivity in nucleic acid visualization



Comparison of **Q supplier** and **Sybr Safe (Fisher Molecular Biology)** post gel staining using 1% agarose gel in TBE buffer. Two-fold serial dilutions of 1 kb Plus DNA Ladder were loaded onto each gel in 4 lanes in the amounts of 200 ng, 100 ng and 50 ng, respectively, from left to right. Gels were imaged using 254-nm transillumination and photographed with a SYBR filter and Polaroid 667 black-and-white print films.

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## 1. Pre-cast Protocol

- 2.1 Prepare agarose gel solution using your standard protocol.
- 2.2 Dilute the Sybr Safe 10,000X stock reagent into the agarose gel solution at 1:10,000 and mix thoroughly. Sybr Safe can be added while the gel solution is still warm (50-60°C). For example if you run TBE gels and require 30 mL of molten agarose for your tray, add 3 µL of 10,000X SYBR Safe stain concentrate to 30 mL of 1X TBE..
- 2.3 Cast the gel and allow it to solidify. Any leftover gel solution may be stored and reheated later for additional gel casting. Sybr Safe precast gels may be stored at 4° C for later use.
- 2.4 Load samples and run the gels using your standard protocol.
- 2.5 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.
- 2.6 Stained gels can be viewed using a standard 300 nm transilluminator, a 254 nm epi- or transilluminator, or a blue-light transilluminator.  
Note: The pre-cast protocol is not recommended for polyacrylamide gels.

## 2. Post-staining Protocol

- 1.1 Run gels as usual according to your standard protocol.
- 1.2 Dilute the Sybr Safe 10,000X stock reagent~3,300 fold to make a 3X staining solution in H<sub>2</sub>O. Note: including 0.1M NaCl in the staining solution enhances sensitivity, but may promote dye precipitation if the gel stain is reused.
- 1.3 Carefully place the gel in a suitable polypropylene container. Gently add a sufficient amount of the 3X staining solution to submerge the gel.
- 1.4 Agitate the gel gently at room temperature for~30 minutes.
- 1.5 Image the stained gel with a 254nm 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 Gel Star filter.
- 1.6 Staining solution can be reused at least 2~3times. Store staining solution at room temperature protected from light.
- 1.7 Stained gels can be viewed using a standard 300 nm transilluminator, a 254 nm epi- or transilluminator, or a blue-light transilluminator

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