

SolarGelRed Nucleic Acid Gel Stain (10000×)

Cat No.: G5560

Package: 0.5 ml

Storage: SolarGelRed is stable for at least one year when protected from light, at room temperature. Dye precipitation may occur at lower temperatures, resulting in lower signal or the appearance of precipitate on the surface of the gel. If this occurs, heat the solution to 45-50°C for two minutes and vortex.

Product Description:

SolarGelRed is a sensitive, stable and environmentally safe fluorescent nucleic acid dye designed to replace the highly toxic ethidium bromide (EB) for staining dsDNA, ssDNA or RNA in agarose gels or polyacrylamide gels. It is far more sensitive than EB.

SolarGelRed is impenetrable to both latex gloves and cell membranes. The dye is noncytotoxic and nonmutagenic at concentrations well above the working concentrations used in gel staining. Although SolarGelRed has undergone extensive safety testing, we recommend following universal safety precautions when working in the laboratory.

Protocols:

Because high affinity nucleic acid binding dyes can affect DNA migration during electrophoresis, post-staining of gels is highly recommended. Post-staining with SolarGelRed results in superior sensitivity and eliminates the possibility of dye interference with DNA migration. Agarose gels can be precast with SolarGelRed, however, SolarGelRed may affect the migration or resolution of some DNA samples in precast gels. The precast protocol is not recommended for polyacrylamide gels.

SolarGelRed can be used to stain dsDNA, ssDNA or RNA, however SolarGelRed is twice as sensitive for dsDNA than ssDNA or RNA. Gel staining with SolarGelRed is compatible with downstream applications such as sequencing and cloning. SolarGelRed is efficiently removed from DNA by phenol/chloroform extraction and ethanol precipitation.

Post-staining

- 1) Run gels according to your standard protocol.
- 2) Dilute SolarGelRed 10000× stock solution 3300 fold to make a 3× staining solution in H₂O. Generally 50 mL staining solution is an adequate volume for one minigel. Note: including 0.1 M NaCl in the staining solution enhances sensitivity, but may promote dye precipitation if the gel stain is reused.
- 3) Place the gel in a suitable container such as a polypropylene staining tray. Add a sufficient amount of the 3× staining solution to submerge the gel.
- 4) Agitate the gel gently at room temperature for 30 minutes. Note: Optimal staining time may vary somewhat depending on the thickness of the gel and the percentage of agarose. For

polyacrylamide gels containing 3.5-10% acrylamide, typical staining time is 30 minutes to 1 hour with gels of higher acrylamide content requiring longer staining time.

- 5) Destaining is not required, but the gel can be washed in water to reduce background if necessary.
- 6) View the stained gel with a standard transilluminator (302 or 312 nm) and image the gel using an ethidium bromide filter. SYBR or GelStar filters also may be used for gel imaging with equally good results.
- 7) Staining solution can be reused at least 2-3 times. Store staining solution at room temperature protected from light.

Pre-cast protocol

- 1) Prepare molten agarose gel solution using your standard protocol. Note: the precast protocol is not recommended for polyacrylamide gels. Polyacrylamide gels can be stained using the post-stain protocol.
- 2) Dilute the SolarGelRed 10000× stock reagent into the molten agarose gel solution at 1:10000 and mix thoroughly. SolarGelRed can be added while the gel solution is still hot.
- 3) Cast the gel and allow it to solidify.
- 4) Load samples and run the gels using your standard protocol.
- 5) View the stained gel using a standard transilluminator (302 or 312 nm) and image the gel using an ethidium bromide filter. SYBR or GelStar filters also can be used for gel imaging with equally good results.
- 6) Unused agarose containing SolarGelRed can be remelted to cast more gels, but it may be necessary to add more dye for optimal signal. We do not recommend storing agarose containing SolarGelRed in molten form (i.e., at 50°C) for more than a few days. Precast gels containing SolarGelRed can be stored at 4°C for future use.