GelGreen® DNA Stain (10,000x in water)

Technical Data Sheet

Catalogue	Pack Size*
GG-100	100 µL (up to 40 gels)
GG-500	500 µL (up to 200 gels)
GG-1000	1000 µL (up to 400 gels)

**Number of gels is based on use of 2.5µL per 25 mL 2% agarose minigel.*

Description

GelGreen® is an extremely sensitive, stable and safe green fluorescent nucleic acid dye specifically designed for gel staining, and is highly suitable for blue light transilluminators as used in Bento Lab. It works great as a sensitive, safer and convenient alternative to common nucleic acid stains, such as SYBR® Safe, EZ-Vision® RedSafe™, Midori Green, GreenSafe, SafeView™ Classic, and others.

Fluorescent nucleic acid dye stains are used to visualise DNA samples when run on electrophoresis gels. DNA stains bind to DNA present within the gel and visibly fluoresce when exposed to specific frequencies of blue or UV light, emitting light at a higher frequency wavelength (typically in green or red spectra with modern DNA stains). For blue light fluorescence, background blue light can be filtered out using an orange filter, to reveal only the green light emitted by bound DNA.

For research and educational use only.

Application Recommendations

Use in precast gel or as a post-stain

GelGreen® is great for DNA sample visualisation when doing routine gel electrophoresis. It can be added to molten agarose before pouring gels (precast gel staining), or diluted in a buffer to stain gels after they have been run (post gel staining).

Precast gel staining is recommended for routine use. It gives good resolution, takes less time, and allows visualisation during electrophoresis when using Bento Lab or other in-tank visualisation equipment.

Post-staining is recommended for highest resolution of DNA bands because it eliminates the possibility of dye interference with DNA migration. No destaining or special buffer is required, but DNA can only be visualised after running gel electrophoresis.

Compatible with standard instruments, including blue light illuminators and 254 nm UV transilluminators

GelGreen® has a strong absorption peak centred around 500 nM (blue light), and emission centred around 530 nM (green light). It is therefore ideal for blue light transilluminators such as is used in Bento Lab. It can also be used with UV transilluminators due to an

absorption peak around 250-300 nM.

An extremely safe stain for routine use and disposal

GelGreen® has been demonstrated to be impenetrable to both latex gloves and cell membranes. It has also been shown to be non-cytotoxic and non-mutagenic at concentrations well above working concentrations used in gel staining.

Not designed for qPCR applications

GelGreen® is not recommended for qPCR applications.

Reagent Composition

GelGreen® DNA Stain (10,000x concentration in water)

Storage & Stability

Store dry and at room temperature. At lower temperatures dye precipitation may occur, resulting in the appearance of reduced signal or the appearance of precipitate. If this occurs, heat the solution to 45 – 50 °C for two minutes and vortex to dissolve. GelGreen® DNA Stain is stable for at least one year from the date it is received.

Shipping conditions

Shipped at room temperature.

Safety warnings and precautions

This product and its components are not considered hazardous in their given concentrations. However, as with all scientific reagents this product should be handled and stored with care as standard practice. Wear gloves. Care should be taken to avoid contact with skin or eyes. In case of contact with skin or eyes, wash immediately with water.

Quick Start Protocol

Precast gels

1. Prepare a molten agarose gel by adding agarose (tablets or powder) to TBE buffer in a microwavable glass container (e.g. a beaker or flask). Recommended quantities for use with Bento Lab are shown in the table below. Appropriate volumes can be measured using the graduations on a 50 mL centrifuge tube or measuring cylinder.

2. Microwave in 10 second bursts until the agarose is molten, bubbling, and fully dissolved. Once bubbling, swirl to mix and check to make sure that the agarose is completely clear – undissolved agarose will give the solution a slightly grainy appearance. If not fully clear, microwave for further 10 second bursts. Handle the container by the top and with care

because it will be very hot at the bottom.

3. Allow to cool until the container is cool enough to hold without discomfort, Add GelGreen® at a volume of 1 µl per 10 mL of agarose, as shown in the table below. Swirl container to mix, taking care to avoid any bubbles.

4. Pour gel into gel mould, making sure the gel mould is level, and taking care to avoid introducing bubbles. Add a well comb/s with the desired number of wells. If any bubbles are present they will cause issues with DNA migration – they should be moved to the end of the gel (away from the comb) with a pipette tip until the gel is completely bubble-free.

5. Allow to set for 30 mins until fully set.

6. Add 5 µl of DNA sample to each well (mixing with loading dye if needed), and run according to the recommended electrophoresis settings.

Recommended volumes of GelGreen®, agarose, and TBE Buffer, for use with Bento Lab

Agarose gel concentration	0.5x TBE Buffer	Agarose*	GelGreen®
1x	50 mL	0.5 (1 tablet)	5 µl
1.5x	33 mL	0.5 (1 tablet)	3 µl
2x	25 mL	0.5 (1 tablet)	2.5 µl
3x	33 mL	1 g (2 tablets)	3 µl

**Agarose tablets of 0.5 g.*

Post-Staining Gels

1. Prepare gel and run the electrophoresis gel as for **Precast Gels** above, but omit the addition of GelGreen® DNA Stain.

2. Add enough distilled water to a small plastic or metal foil container to cover the gel (noting the water volume) and add enough GelGreen® DNA Stain to make a 3x solution. This will depend on the container size. An ideal volume would be 50 mL distilled water and 15 µl of GelGreen® DNA Stain.

3. Once the agarose gel has fully run, remove it from the electrophoresis tank (e.g. using a well comb to lever it out) into the container, and leave immersed for 30 minutes.

4. Transfer the agarose gel to the transilluminator and visualise.

5. After use, transfer the 3x solution of GelGreen® into a secure container as it can be reused up to three times.