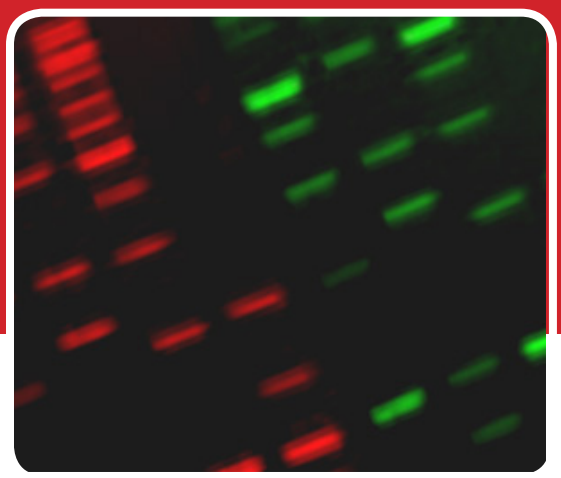


GelRed™ and GelGreen™

Safe and sensitive nucleic acid gel stains

The most safe and sensitive nucleic acid gel stains

GelRed™ and GelGreen™ are safe (cell membrane impermeable) nucleic acid gel stains designed to replace highly toxic ethidium bromide (EtBr) and other so-called safe gel stains. Ames tests have confirmed that GelRed™ and GelGreen™ are nonmutagenic at concentrations well above the concentrations used for gel staining. Furthermore, environmental safety tests showed that GelRed™ and GelGreen™ are non-toxic to aquatic life, permitting disposal down the drain or in regular trash.

For more information and references, download our white paper, Comparison of Nucleic Acid Gel Stains: Cell Permeability, Safety, and Sensitivity and the complete Safety Report of GelRed™ and GelGreen™ at www.biotium.com.

Dye Advantages

- Safer than EtBr and other so-called safe gel stain
- Easy disposal
- Superior sensitivity
- Extremely stable
- Simple to use
- Compatible with downstream applications (cloning, etc)

Figure 1. GelRed™ and GelGreen™ gel stains are safer because they cannot penetrate cell membranes to bind DNA in living cells. HeLa cells were incubated with 1X SYBR® Safe, GelGreen™ or GelRed™, respectively. Images were taken following incubation with dye for 30 min using FITC filter set for SYBR® Safe and GelGreen™, and Cy®3 filter set for GelRed™. SYBR® Safe rapidly entered cells and stained nuclei. GelRed™ and GelGreen™ were unable to cross cell membranes, demonstrated by the absence of fluorescence staining.

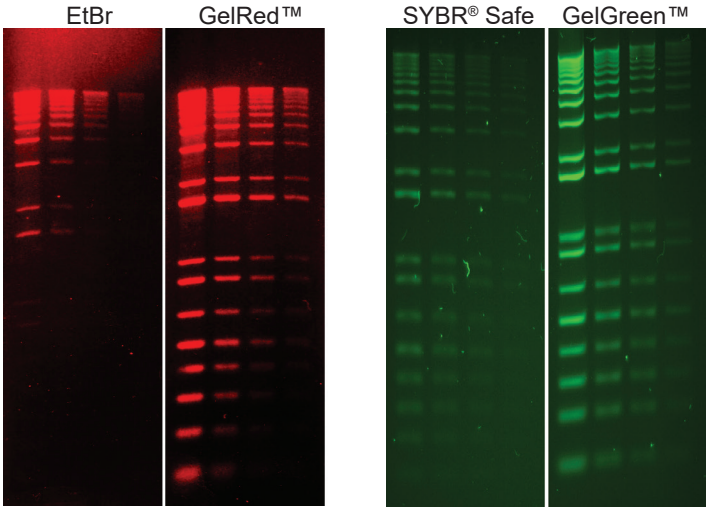


Figure 2. GelRed™ and GelGreen™ are more sensitive than EtBr and SYBR® Safe. Left: Comparison of GelRed™ and ethidium bromide (EtBr) in precast gel staining using 1% agarose gel in TBE buffer. Right: Comparison of GelGreen™ and SYBR® Safe in post gel staining using 1% agarose gel in TBE buffer.

Ordering Information

Cat. #	Product Name
41003-T	GelRed™ Nucleic Acid Gel Stain; 10,000X in water, 0.1 mL
41003	GelRed™ Nucleic Acid Gel Stain; 10,000X in water, 0.5 mL
41003-1	GelRed™ Nucleic Acid Gel Stain; 10,000X in water, 10 mL
41002	GelRed™ Nucleic Acid Gel Stain; 10,000X in DMSO, 0.5 mL
41002-1	GelRed™ Nucleic Acid Gel Stain; 10,000X in DMSO, 10 mL
41001	GelRed™ Nucleic Acid Gel Stain; 3X in water, 4 L
41005-T	GelGreen™ Nucleic Acid Gel Stain; 10,000X in water, 0.1 mL
41005	GelGreen™ Nucleic Acid Gel Stain; 10,000X in water, 0.5 mL
41005-1	GelGreen™ Nucleic Acid Gel Stain; 10,000X in water, 10 mL
41004	GelGreen™ Nucleic Acid Gel Stain; 10,000X in DMSO, 0.5 mL

Biotium

PAGE GelRed™

Nucleic acid gel stain for polyacrylamide gels

The safety and sensitivity of GelRed™ now for PAGE gels

A fundamental approach for making a gel stain safe is to minimize the chance for the dye to interact with genomic DNA in living cells. In the design of the original GelRed™ and GelGreen™ dyes, we achieved the dyes' membrane impermeability mainly by making the dyes physically large. While this produced exceptional gel staining sensitivity for agarose gels, the relatively large sizes of GelRed™ and GelGreen™ make the dyes difficult to penetrate into the more densely packed polyacrylamide gels, rendering the dyes less optimal for PAGE gel staining. In designing PAGE GelRed™ dye, we used a novel approach to make the dye membrane impermeable without making the dye large. Importantly, the new design strategy still ensures that the PAGE GelRed™ dye possess essential properties for gel staining, including good sensitivity, stability and compatibility with existing instruments and downstream sample analysis.

PAGE GelRed™

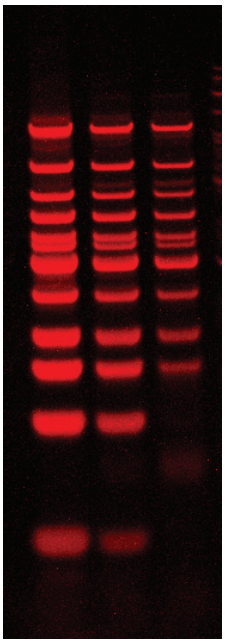
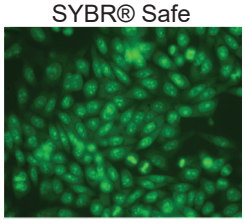


Figure 1. NEB low molecular weight ladder was separated on a 10% acylamide TBE gel and stained with 1X PAGE GelRed™ in water for 30 minutes.

Safer gel stain designed for use in polyacrylamide gels

- Formulated in water and impermeable to latex and nitrile gloves
- Non-toxic and non-mutagenic in AMES test
- Non-toxic to aquatic life, okay for drain disposal by EPA Title 22 hazardous waste test

SYBR® Safe



PAGE GelRed™

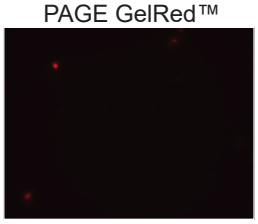


Figure 2. PAGE GelRed™ gel stain is safer because it cannot penetrate cell membranes to bind DNA in living cells. HeLa cells were incubated with 1X SYBR Safe or 1X PAGE GelRed™. SYBR® Safe rapidly penetrated cell membranes as evident from the bright green staining of nuclei and cytoplasm. However, PAGE GelRed™ was unable to cross cell membranes, as shown by the absence of fluorescence staining in healthy cells.

Ordering Information

Cat. #	Product Name
41008-T	PAGE GelRed™ Nucleic Acid Gel Stain; 10,000X in water, 0.1 mL
41008-500uL	PAGE GelRed™ Nucleic Acid Gel Stain; 10,000X in water, 0.5 mL
41014	PAGE GelRed™ Nucleic Acid Gel Stain; 1X in water, 4 L

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