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GelRed® Prestain Plus 6X DNA Loading Dye

6X DNA loading buffer that includes ultra-sensitive, non-toxic GelRed® dye.

Product attributes

Assay type/options	DNA/RNA gel staining

Product Description

This 6X DNA loading dye contains GelRed® fluorescent DNA/RNA dye for convenient one-step loading and staining. It is an improved prestain formulation optimized for minimal migration shift of DNA bands.

- 6X loading dye includes GelRed® DNA stain
- One-step gel loading and DNA staining
- Improved formulation to minimize DNA migration issues
- Two visible blue tracking dyes that run at ~1.5 kb and ~200 bp in 1% agarose
- Highly sensitive, non-mutagenic red fluorescent DNA dye

Convenient Staining, Consistent Results

GelRed® Prestain Plus 6X DNA Loading Dye contains density agents, tracking dyes, and GelRed® dye. The 6X prestain loading dye is added to samples in place of gel loading buffer, and eliminates the need to add fluorescent DNA dye to the agarose gel during casting or after electrophoresis. The loading dye contains two blue electrophoresis tracking dyes that run at approximately 1.5 kb and 200 bp in a 1% agarose gel.

This product is an improved version of our original 6X GelRed® Prestain Loading Buffer (catalog number 41009) with brighter signal and more consistent DNA migration. When DNA is bound to GelRed® before electrophoresis, the ratio of dye to DNA can cause variable shifts in DNA migration, making it difficult to compare DNA fragment sizes between samples. GelRed® Prestain Plus 6X DNA Loading Dye is formulated to minimize this DNA migration shift, for greater consistency. GelRed® prestaining is simple and can avoid migration issues seen with GelRed® precast gels.

A Superior & Safer Alternative to EtBr

GelRed® is a sensitive, stable and environmentally safe fluorescent nucleic acid dye designed to replace the highly toxic ethidium bromide (EtBr). GelRed® and EtBr have virtually the same spectra, so you can directly replace EtBr with GelRed® without changing your existing imaging system. In addition, GelRed® is far more sensitive than EtBr, which cannot be used in DNA loading buffer to prestain DNA. GelRed® is compatible with downstream applications such as sequencing and cloning. It is efficiently removed from DNA by gel extraction kits or by phenol/chloroform extraction and ethanol precipitation.

GelRed® was subjected to a series of tests at Biotium and by three independent testing services to assess the dye's safety for routine handling and disposal. Test results confirm that the dye is impenetrable to both latex gloves and cell membranes. The dye is noncytotoxic, nonmutagenic, and classified as non-hazardous for disposal under CCR Title 22 Hazardous Waste Characterization. See the GelRed® and GelGreen® Safety Report. To learn more, see our GelRed® Technology Page and GelRed® FAQs.

How Safe is Your Gel Stain?

Many so-called "safe" DNA dyes like SYBR® Safe, Midori Green, GreenSafe, SafeView™, and RedSafe™ not only have low sensitivity, but also readily penetrate living cells to bind DNA, and some are cytotoxic. Unlike these dyes, GelRed® is cell membrane-impermeant, so it cannot enter living cells to interact with their DNA. See our Gel Stains Comparison Flyer or Gel Stains Comparison White Paper for details.

Choose the Right Stain for Your Application

Product / Method	Procedure	Advantages	Disadvantages	Recommended for
DNA staining with EMBER™ Ultra DNA Gel Kit	Agarose is supplied pre-coated with EMBER™ Ultra Dye, just dissolve, heat, and pour.	• Safer and more convenient, no need to handle concentrated dye • Superior sensitivity, detect as little as ≤1 ng DNA • No need for post-electrophoresis staining • Optimal for blue LED gel imagers	• Not suitable for PAGE, DGGE, EMSA, or PFGE gels • Dye may cause band migration issues when loading larger amounts of DNA (more than ~200 ng/band), or for some restriction digests	• Routine agarose gels

Product / Method	Procedure	Advantages	Disadvantages	Recommended for
RNA staining with EMBER™ Ultra RNA Gel Kit	Agarose is supplied pre-coated with EMBER™ Ultra Dye, just dissolve, heat, and pour.	• Safer and more convenient stain for RNA, no need to handle concentrated dye • Superior sensitivity, detect as little as ≤5 ng RNA • No need for post-electrophoresis staining • Included loading dye contains formamide for denaturing • Optimal for blue LED gel imagers	• Will stain DNA as well as RNA • Dye may cause band migration issues when loading larger amounts of RNA (more than ~200 ng/band)	• Routine RNA gel electrophoresis • Evaluate total RNA integrity and DNA contamination
DNA prestaining with GelRed® Prestain Plus 6X DNA Loading Dye	GelRed® loading buffer is added directly to the DNA sample before loading	• Fast & simple: one-step sample loading & DNA staining • Less concentrated dye for safer handling • Can re-run a gel to use empty lanes	• Not recommended for PAGE, DGGE, EMSA, or PFGE gels • Dye may cause band migration issues when loading larger amounts of DNA (more than ~100 ng/band), or for some restriction digests	• Routine agarose gels • Recommended loading 50-200 ng ladder or 2-5 uL PCR product (~100 ng/band or less)
Precast staining with GelRed® 10,000X in water or GelGreen® 10,000X in water	GelRed® or GelGreen® is mixed with molten agarose before gel casting	Familiar protocol, rapid results		
Precast staining with GelRed® Agarose LE or GelGreen® Agarose LE	Agarose is supplied pre-coated with GelRed® or GelGreen®, just dissolve, heat, and pour	Safer & more convenient, no need to handle concentrated dye		
Post-electrophoresis staining with GelRed® 10,000X in water or GelGreen® 10,000X in water - or - GelRed® 3X in water	No fluorescent dye is added to the gel, it is stained in 3X GelRed® or 3X GelGreen® solution after electrophoresis	• Most accurate sizing/sharpest bands • Staining solution can be re-used • Enhance sensitivity by adding NaCl	Extra staining step (up to 30 minutes) after electrophoresis (some customers report good results after only 5 minutes if dye is not reused)	• Highly accurate band sizing • Gels with more than ~100 ng DNA per band • Analyzing restriction digests
Post-electrophoresis staining of PAGE gels using PAGE GelRed® 10,000X or 1X in water	No fluorescent dye is added to the gel, it is stained in 1X PAGE GelRed® solution after electrophoresis	• Formulated for efficient penetration and staining of polyacrylamide gels • Like the classic GelRed®, it is safe and environmentally friendly	Extra staining step of approx. 30 minutes after electrophoresis	Staining of nucleic acids in PAGE gels

Also see GelGreen® Nucleic Acid Gel Stain, a safer replacement for SYBR® gel stains, which is compatible with visible light excitation. Biotium also offers the Gel-Bright™ Laser Diode Gel Illuminator, a unique laser-diode-based illuminator that offers sensitive staining for both red and green dyes. Also learn about our Go-Go™ Fast DNA Gel Running Buffer for running gels 3X faster than with TAE or TBE buffer.

References

Download a list of selected References for GelRed® and GelGreen®.

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Product link: https://biotium.com/product/gelred-prestain-plus-6x-dna-loading-dye/