6X GelRed® Prestain Loading Buffer with Orange Tracking Dye

6X GelRed® Prestain Loading Buffer is a DNA gel loading buffer containing GelRed® for one-step fluorescent staining and gel loading of DNA.

Product attributes

Tracking dye	Orange tracking dye
Assay type/options	DNA/RNA gel staining

Product Description

Note: 6X GelRed® Prestain Loading Buffer with Blue Tracking Dyes (Catalog No. 41009) has been discontinued. Our GelRed® Prestain Plus 6X DNA Loading Dye (Catalog No. 41011) is an improved version of this product which has been reformulated to increase brightness and minimize DNA migration shift.

This 6X DNA loading dye contains GelRed® fluorescent DNA/RNA dye for convenient one-step loading and staining. The loading dye contains an orange electrophoresis tracking dye that runs at approximately 50 bp in a 1% agarose gel.

- 6X loading dye includes GelRed® DNA stain
- One-step gel loading and DNA staining
- Includes an orange visible tracking dye
- Highly sensitive, non-mutagenic red fluorescent DNA dye

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

References

1. Journal of Hazardous Materials (2017) 333, 285-292. http://dx.doi.org/10.1016/j.jhazmat.2017.03.049
2. J Dairy Sci (2019) 102, 135–139. https://doi.org/10.3168/jds.2018-14733

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