

Overview of DNA Gel stains: GelRed, GelGreen, SYBR Safe and Ethidium Bromide (EtBr) in Nucleic Acid Gel staining

	GelRed	GelGreen	SYBR Safe	EtBr	Note
Sensitivity	+++++	+++++	++	+++	See comparison of GelGreen vs. SYBR Safe done by Clare Chemical Research who makes the visible light transilluminator http://www.clarechemical.com/gelgreen.htm
Photostability	+++++	+++++	+++	++++	
Mutagenicity (Ames Test)	Non-mutagenic	Non-mutagenic	Non-mutagenic (diluted)	Highly mutagenic!	
Speed to enter cells	Does not enter cells	Does not enter cells	Enters into cells rapidly	Can enter cells	
Cytotoxicity	No	No	Yes	Yes	
Waste disposal in drain	Not tested	Not tested	Yes	No! Needs to be collected for special disposal	
Compatibility with UV excitation	Yes	Yes	Yes	Yes	GelRed and EtBr are spectrally very similar.
Compatibility with 488nm Ar laser excitation or Dark Reader	Not optimal	Yes	Yes	Not optimal	
Compatibility with EtBr filter	Yes	No. A green filter is needed	No. A green filter is needed	Yes	GelRed and EtBr are spectrally very similar.
Detection of ds-DNA, ss-DNA, RNA in agarose gel	Yes	Yes	Yes	Yes	
Detection of ds-DNA, ss-DNA, RNA in polyacrylamide gel	Yes	No	Yes	Yes	
Compatibility with heating by microwaving	Yes. Can be done repeatedly	Yes	maybe, only briefly	Yes. Can be done repeatedly	GelRed is nearly as stable as EtBr
Dye removal by ethanol precipitation	Yes	Yes	Yes	Yes	
Compatibility with cloning	Yes	Yes	Yes	Yes	
Need for adding dye to running buffer for maximal sensitivity	No	No	Yes	Yes	GelRed and GelGreen do not run significantly in the direction opposite migrating DNA while SYBR Safe and EtBr both do.
Need for protection from light during gel staining	Not necessary	Recommended	Recommended	Not necessary	
Storage temperature	Room temperature	Room temperature	Room temperature	Room temperature	
Cost	Economical	Economical	Economic (1X) to inexpensive (10000X)	Inexpensive to buy but expensive to dispose	GelRed and GelGreen offer the best performance/price ratio

For any information, please ask : FluoProbes® / Interchim; Hotline : +33(0)4 70 03 73 06

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