

SYPRO Tangerine Protein Gel Stain



Greener by design™



Less hazardous: generates 88% less hazardous waste than Coomassie Blue staining and 92% less than silver staining

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Introduction

We are committed to designing our products with the environment in mind. This fact sheet provides the rationale behind the environmental claims that use of Invitrogen™ SYPRO™ Tangerine Protein Gel Stain reduces the need to purchase and use additional hazardous organic solvents or reagents and generates far less hazardous waste than conventional staining methods.

Product description

SYPRO Tangerine Protein Gel Stain provides fast, easy, and sensitive detection of proteins in gels (as low as 4 ng/band) without the need for fixatives. Staining is compatible with subsequent western blotting, zymography, electroelution, or mass spectrometry. Compared to Coomassie Brilliant Blue and silver stains, SYPRO Tangerine Gel Stain offers more consistent protein-to-protein staining and a much broader linear quantitation range (over three orders of magnitude). Stained proteins can be viewed with a standard UV or blue-light transilluminator or with a laser scanner.

Green feature

Less hazardous

Traditional staining protocols require the use of hazardous organic solvents and reagents such as:

- **Ethanol/methanol**—is highly flammable and causes systemic toxicity
- **Paraformaldehyde/formaldehyde**—may cause cancer and skin sensitization
- **Potassium dichromate**—causes severe burns and may cause cancer
- **Sodium thiosulfate**—may cause irritation to skin, eyes, and respiratory tract

The use of SYPRO Tangerine Protein Gel Stain does not require any of these hazardous solvents and reagents.

A comparison was made between the hazardous waste generated by use of SYPRO Tangerine Protein Gel Stain and by use of traditional silver staining or Coomassie Blue staining. Results showed 92% and 88% reduction in hazardous chemical waste, respectively, when using the SYPRO Tangerine protocol (Table 1).

Please see the SDSs for this line of products at thermofisher.com/documents.

Table 1. Comparison of the amounts of hazardous waste generated.

Procedure	SYPRO Tangerine protocol*	Silver stain protocol*	Coomassie Blue protocol*
Fix/oxidize	Not applicable	1 x 100 mL; 50% ethanol/ 10% acetic acid	1 x 50 mL; 50% methanol/ 10% acetic acid
Rinse	Not applicable	1 x 100 mL; 50% ethanol	Not applicable
Sensitize	Not applicable	1 x 100 mL; 0.02% sodium thiosulfate	Not applicable
Wash	Not applicable	1 x 100 mL; water**	Not applicable
Stain	1 x 50 mL; diluted SYPRO Tangerine staining solution (contains 7.5–10% acetic acid)	1 x 50 mL; 0.2% silver nitrate/0.076 formalin	1 x 50 mL; Coomassie Blue staining solution
Wash	1 x 100 mL; water**	1 x 100 mL; water**	Not applicable
Develop	Not applicable	2 x 100 mL; 6% sodium carbonate/0.05% formalin	Not applicable
Stop/destain	Not applicable	1 x 100 mL; 1% acetic acid	3 x 100 mL; 5% methanol/ 7.5% acetic acid
Wash	Not applicable	1 x 100 mL; water**	Not applicable
Total hazardous waste†	50 mL	650 mL	400 mL
Hazardous waste reduction		92%	88%

* Protocols are for mini-gels (up to 1.0 mm thick).

** Not counted as hazardous waste.

† Hazardous waste characterization/management options may differ among local, state, and national regulations.