Safety Report for One-Step Protein Gel Stains

Environmental safety test results from an independent laboratory for the protein gel stains One-Step Blue®, One-Step Lumitein™, and One-Step Lumitein™ UV.

DOMINIQUE DUTSCHER SAS

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Biotium

Aquatic Toxicity Test

Performed by Nautilus Environmental,
San Diego, CA

Purpose

This test assesses the acute toxicity to aquatic life of One-Step Blue®, One-Step Lumitein™, and One-Step Lumitein™ UV Protein Gel Stains after pH neutralization for disposal. The results of the test are used to determine whether the products can be directly released into the environment for disposal after neutralization according to the instructions provided in the product information sheet.

Test Specifications

Test start date and time: 2/24/2016, 12:25
Test end date and time: 2/28/2016, 10:40

Test organism: Juvenile *Pimephales promelas* (Fathead minnow)
Organism mean length/weight: 33.5 mm / 0.394 g

Test concentration: 750, 500, and 250 mg/L sample (One-Step Blue® pH ~7, One-Step Lumitein™ pH ~7, or One-Step Lumitein™ UV pH ~7); plus Lab Control

Number of replicates and fish: 2 replicates with 10 fish each (20 fish total per concentration)

Method used: California Department of Fish & Game, 1988 Acute Procedures

Regulatory guidelines: CCR Title 22 Hazardous Waste Characterization (section 66261.24)

Passing requirements: Sample must result in greater than 50% survival at a concentration of 500 mg/L (LC_{50} > 500 mg/L with 95% confidence) to pass and be classified as "not hazardous".

Results

The results are summarized in the table below. There were no significant effects observed with any of the three gel stain samples tested, and therefore the median lethal concentration (LC_{50} value) is greater than 750 mg/L for each of these products.

Conclusion

One-Step Blue®, One-Step Lumitein™, and One-Step Lumitein™ UV Protein Gel Stains are classified as nonhazardous to aquatic life, under CCR Title 22 regulation. Thus, these products can be safely released into the environment after pH neutralization according to the instructions provided in the product information sheet.

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Table 1. Summary of Aquatic Toxicity Test Results for One-Step protein Gel Stains After pH Neutralization for Disposal

Sample Concentration (mg/L)	One-Step Blue® pH ~7 Mean Survival (%)	One-Step Lumitein™ pH ~7 Mean Survival (%)	One-Step Lumitein™ UV pH ~7 Mean Survival (%)
Lab Control	90	95	95
250	95	95	90
500	85	85	75
750	95	75	95
Test Result:	NOEC = 750 mg/L LC_{50} = 750 mg/L Result = PASS	NOEC = 750 mg/L LC_{50} = 750 mg/L Result = PASS	NOEC = 750 mg/L LC_{50} = 750 mg/L Result = PASS