



Mammalian Toxicity ¹



The Forest Service has adopted several standard Environmental Protection Agency (EPA) tests to assess mammalian toxicity and irritation to skin and eyes.

The product concentrate and the most concentrated mixed product, based on approved mix ratios, are tested for acute oral and acute dermal toxicity. The results of these tests are reported as an LD₅₀ value or as greater than an LD₅₀ if the product is less toxic, higher value, than is required by the specification.

It is important to remember when comparing LD₅₀ values, that the lower the LD₅₀ value, the greater the toxicity.

Standard EPA skin and eye irritation tests are also performed on the product concentrate and the most concentrated mixed product. The results of these tests provide information needed to specify reasonable personal protective equipment necessary when handling the product.

When comparing values for eye or skin irritation scores, the lower the value, the lower the irritation.

Because of individual differences, a product that has acceptable performance on these tests may still cause irritation, allergic reaction, or other sensitizations for some individuals. If this occurs, the supervisor should be notified as more stringent hygiene practices or additional protective gear may be helpful. In more extreme instances, changes in duties may be required to minimize exposure to irritants.

» Product Performance Data on next page »

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Standard Test Procedure 1.3 gives instructions for the mammalian toxicity tests. STP-1.3 is available at http://www.fs.fed.us/rm/fire/wfcs/tests/stp01_3.htm



Mammalian Toxicity ^{1,2} Long-Term Retardants



Product ²	Concentration	Acute Oral ³	Acute Dermal ³	Eye Irritation		Skin Irritation
		LD ₅₀ (mg/Kg)	LD ₅₀ (mg/Kg)	Non-Washed Eyes	Washed Eyes	Primary Irritation Index
Phos-Chek MVP-Fx	Concentrate	>5050	>2020	Minimally Irritating	Minimally Irritating	0.0 (Non-Irritating)
	0.96 lb/gal	>5050	>2020	Non-Irritating	Non-Irritating	0.0 (Non-Irritating)
Phos-Chek MVP-F	Concentrate	>5050	>2020	Practically Non-Irritating	Practically Non-Irritating	0.0 (Non-Irritating)
	0.95 lb/gal	>5050	>2020	Minimally Irritating	Non-Irritating	0.0 (Non-Irritating)
Phos-Chek 259-Fx	Concentrate	>5050	>2020	Minimally Irritating	Minimally Irritating	0.0 (Non-Irritating)
	1.01 lb/gal	>5050	>2020	Non-Irritating	Non-Irritating	0.0 (Non-Irritating)
Phos-Chek 259-F	Concentrate	>5050	>2020	Moderately Irritating	Minimally Irritating	0.2 (Slight Irritant)
	1.14 lb/gal	>5050	>2020	Practically Non-Irritating	Non-Irritating	0.5 (Slight Irritant)
Phos-Chek LC95A	Concentrate	>5050	>2020	Minimally Irritating	Minimally Irritating	0.1 (Slight Irritant)
	5.5:1 (V/V)	>5050	>2020	Non-Irritating	Non-Irritating	0.0 (Non-Irritating)
Phos-Chek LC95A-Fx	Concentrate	>5050	>2020	Minimally Irritating	Non-Irritating	0.0 (Non-Irritating)
	5.5:1 (V/V)	>5050	>2020	Practically Non-Irritating	Practically Non-Irritating	0.0 (Non-Irritating)
Phos-Chek LC95A-F	Concentrate	>5050	>2020	Minimally Irritating	Minimally Irritating	0.0 (Non-Irritating)
	5.5:1 (V/V)	>5050	>2020	Non-Irritating	Non-Irritating	0.0 (Non-Irritating)
Phos-Chek LC95W	Concentrate	>5050	>2020	Minimally Irritating	Minimally Irritating	0.0 (Non-Irritating)
	5.5:1 (V/V)	>5050	>2020	Minimally Irritating	Minimally Irritating	0.0 (Non-Irritating)
Phos-Chek LCE20-Fx	Concentrate	>5050	>2020	NA ⁴	Non-Irritating	0.0 (Non-Irritating)
	5.2:1 (V/V)	>5050	>2020	NA ⁴	Non-Irritating	0.0 (Non-Irritating)

1 Standard Test Procedure 1.3, available at http://www.fs.fed.us/rm/fire/wfcs/tests/stp-1_3.htm gives information for the mammalian toxicity tests.

2 When there is more than one variant of the formula, the test result with the greatest toxicity or irritation rating is reported.

3 Lower values for LD₅₀ indicate greater toxicity

4 Changes to standard EPA method reporting at contract lab have removed the evaluation of non-washed eyes to conform to the base method; revised December 14, 2017.



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Product ²	Concentration	Acute Oral ³	Acute Dermal ³	Eye Irritation		Skin Irritation
		LD ₅₀ (mg/Kg)	LD ₅₀ (mg/Kg)	Non-Washed Eyes	Washed Eyes	Primary Irritation Index
Phos-Chek Fortify	Concentrate	>5050	>2020	NA ⁴	Minimally Irritating	0.5 (Slight Irritant)
	5.0:1 (V/V)	>5050	>2020	NA ⁴	Non-Irritating	0.6 (Slight Irritant)
Phos-Chek LCE20W	Concentrate	>5050	>2020	NA ⁴	Practically Non-Irritating	0.0 (Non-Irritating)
	5.4:1 (V/V)	>5050	>2020	NA ⁴	Non-irritating	0.5 (Slight Irritant)
Komodo	Concentrate	>5050	>2020	NA ⁴	Minimally Irritating	0.0 (Non-Irritating)
	3.5:1 (V/V)	>5050	>2020	NA ⁴	Practically Non-Irritating	0.0 (Non-Irritating)
Kaiterra 100-FC-F	Concentrate	>5000	>5000	NA ⁴	Non-irritating	0.0 (Non-Irritating)
	5.0:1 (V/V)	>2020	>2020	NA ⁴	Practically Non-Irritating	0.0 (Non-Irritating)
FSI Defend	Concentrate	>5000	>5000	NA ⁴	Non-irritating	0.0 (Non-Irritating)
	1.04 lb/gal	>2020	>2020	NA ⁴	Non-irritating	0.0 (Non-Irritating)
1	Standard Test Procedure 1.3, available at http://www.fs.fed.us/rm/fire/wfcs/tests/stp-1_3.htm gives information for the mammalian toxicity tests.					
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