



United States  
Environmental Protection Agency

Office of Chemical Safety and  
Pollution Prevention

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# Final Risk Evaluation for 1-Bromopropane (n-Propyl Bromide)

**Systematic Review Supplemental File:**

**Data Quality Evaluation of an Environmental Hazard Study**

**CASRN: 106-94-5**



*August 2020*

# Table of Contents

<b>HERO ID</b>	Data Type	Reference	<b>1</b>
<b>32171</b>	Acute (0-96 hour); Aquatic; Fish	Geiger, D. L., Call, D. J., Brooke, L. T.. 1988. Acute toxicities of organic chemicals to fathead minnows ( <i>Pimephales promelas</i> ): Volume IV.	<b>1</b>

Study Citation:	Geiger, D. L., Call, D. J., Brooke, L. T.. 1988. Acute toxicities of organic chemicals to fathead minnows ( <i>Pimephales promelas</i> ): Volume IV.					
Data Type:	Acute (0-96 hour); Aquatic; Fish					
Hero ID:	32171					
Domain	Metric	Rating <sup>†</sup>	MWF*	Score	Comments <sup>††</sup>	
Domain 1: Test Substance						
	Metric 1: Test Substance Identity	High	× 2	2		
	Metric 2: Test Substance Source	High	× 1	1		
	Metric 3: Test Substance Purity	High	× 1	1		
Domain 2: Test Design						
	Metric 4: Negative Controls	Low	× 2	6	Negative control was used, but the specific conditions were not reported. No mortalities reported in the negative control, so this is not expected to impact the outcome of this study.	
	Metric 5: Negative Control Response	High	× 1	1	No mortalities reported in the negative control.	
	Metric 6: Randomized Allocation	High	× 1	1	Study Authors reported that, "at the start of a test, individuals were removed from the common pool of fish with a net and distributed at random among the exposure chambers."	
Domain 3: Exposure Characterization						
	Metric 7: Experimental System/Test Media Preparation	Medium	× 2	4	The experimental system and/or test media preparation methods were adequately reported but did not completely account for physical-chemical properties in that the volatilization was reported for the test material. However, the identified limitations are unlikely to have a substantial impact on results, as the authors analytically-verified the exposure concentrations during the experiment.	
	Metric 8: Consistency of Exposure Administration	High	× 1	1	Flow-through system used	
	Metric 9: Measurement of Test Substance Concentration	High	× 2	2	Gas-Liquid Chromatography used to analyze test concentrations.	
	Metric 10: Exposure Duration and Frequency	High	× 1	1	96-Hour exposure duration reported by the study authors	
<b>Continued on next page . . .</b>						

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Domain	Metric	Rating <sup>†</sup>	MWF*	Score	Comments <sup>††</sup>
	Metric 11: Number of Exposure Groups/Spacing of Exposure Levels	High	× 1	1	
	Metric 12: Testing at or Below Solubility Limit	High	× 1	1	
Domain 4: Test Organism					
	Metric 13: Test Organism Characteristics	High	× 2	2	Use of fathead minnows as a test species is consistent with EPA guideline-recommended practices for conducting acute toxicity testing with fish. The introduction of the study report describes specific details of the test organisms including age and life-stage as well as a description of the species. The source of the test organisms was described by the authors as, "Fathead minnows used in the tests were cultured at the U.S. EPA Environmental Research Laboratory-Duluth and the University of Wisconsin- Superior campus."
	Metric 14: Acclimitization and Pretreatment Conditions	High	× 1	1	
	Metric 15: Number of Organisms and Replicates per Group	High	× 1	1	
	Metric 16: Adequacy of Test Conditions	High	× 1	1	
Domain 5: Outcome Assessment					
	Metric 17: Outcome Assessment Methodology	High	× 2	2	
	Metric 18: Consistency of Outcome Assessment	High	× 1	1	
Domain 6: Confounding / Variable Control					
	Metric 19: Confounding Variables in Test Design and Procedures	High	× 2	2	
	Metric 20: Outcomes Unrelated to Exposure	High	× 1	1	
Domain 7: Data Presentation and Analysis					
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Hero ID:	32171				
Domain	Metric	Rating <sup>†</sup>	MWF*	Score	Comments <sup>††</sup>
	Metric 21: Statistical Methods	High	× 1	1	The estimated LC50 and EC50 with corresponding 95 percent confidence intervals were calculated using the corrected average of the analyzed tank concentrations and the Trimmed Spearman-Karber Method.
	Metric 22: Reporting of Data	High	× 2	2	
	Metric 23: Explanation of Unexpected Outcomes	High	× 1	1	
Overall Quality Determination <sup>‡</sup>		High		1.2	
Extracted		Yes			

\* MWF = Metric Weighting Factor

<sup>†</sup> High = 1; Medium = 2; Low = 3; Unacceptable = 4; N/A has no value.

<sup>‡</sup> The overall rating is calculated as necessary. EPA may not always provide a comment for a metric that has been categorized as High.

$$\text{Overall rating} = \begin{cases} 4 & \text{if any metric is Unacceptable} \\ \left\lfloor \frac{\sum_i (\text{Metric Score}_i \times \text{MWF}_i)}{\sum_j \text{MWF}_j} \right\rfloor_{0.1} & \text{(round to the nearest tenth) otherwise} \end{cases},$$

where High:  $\geq 1$  to  $< 1.7$ ; Medium:  $\geq 1.7$  to  $< 2.3$ ; Low:  $\geq 2.3$  to  $\leq 3$ . If the reviewer determines that the overall rating needs adjustment, the original rating is crossed out and an arrow points to the new rating.

<sup>††</sup> Metrics that are rated 'High' met the criteria for high confidence as expected for this type of study, and may not require additional comments.