

## PCB-TOX: Water Toxicity Testing Application Guide

### 1. Choosing the right test protocol

Application		Tested Water Source	Frequency of Testing		Reference Water Control Source <sup>1</sup>	Dilute Sample Before Testing	Requires Baseline Setting <sup>2</sup>	Recommended Test Protocol <sup>2</sup>	
			Routine	Emergency				Qualitative (Go-No Go)	Semi-quantitative (degree of toxicity)
Drinking water	Raw	Low to mild pollution: <i>River, lake, stream, well</i>	+		Clean river; local mineral	NO	YES	Protocol 3	Protocol 1
				+	Clean river; local mineral	NO	NO	Protocol 2 or SPOT	–
		Mild to heavy pollution: <i>River, lake, stream, well</i>	+		Double distilled	YES	YES	Protocol 3	Protocol 1
				+	Double distilled	YES <sup>3</sup>	NO	Protocol 2 or SPOT	–
	Treated/ Finished	<i>Reservoir, tank, pipe, tap</i>	+		Local mineral	NO	YES	Protocol 3	Protocol 1
				+	Local mineral	NO	NO	Protocol 2 or SPOT	–

1 - if none of these options is possible, use double-distilled water

2 - Consult user guides for details

3 - Run preliminary testing before emergency event to determine degree of dilution using Protocol 1

Application	Tested Water Source	Frequency of Testing		Reference Water Control Source <sup>1</sup>	Dilute Sample Before Testing	Requires Baseline Setting <sup>2</sup>	Recommended Test Protocol <sup>2</sup>	
		Routine	Emergency				Qualitative (Go-No Go)	Semi-quantitative (degree of toxicity)
Environmental monitoring	Low to mild pollution: <i>River, lake, stream, well</i>	+		Clean river; local mineral	NO	YES	Protocol 3	Protocol 1
			+	Clean river; local mineral	NO	NO	Protocol 2 or SPOT	—
	Mild to heavy pollution: <i>River, lake, stream, well</i>	+		Double distilled water	YES	YES	Protocol 3	Protocol 1
			+	Double distilled water	YES <sup>3</sup>	NO	Protocol 2 or SPOT	—

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Application	Tested Water Source	Frequency of Testing		Reference Water Control Source <sup>1</sup>	Dilute Sample Before Testing	Requires Baseline Setting <sup>2</sup>	Recommended Test Protocol <sup>2</sup>	
		Routine	Emergency				Qualitative (Go-No Go)	Semi-quantitative (degree of toxicity)
Other	Waste water	+		Double distilled water	YES	YES	Protocol 3	Protocol 1
			+	Double distilled water	YES <sup>3</sup>	NO	Protocol 2 or SPOT	–
	Industrial/ process water	+		Local mineral	YES <sup>3</sup>	YES	Protocol 3	Protocol 1
			+	Local mineral	NO	NO	Protocol 2 or SPOT	–

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## 2. How to handle potential interferences

Optimal Working Conditions		Corrective Measures
pH range	6.0 - 8.5	If the toxic effect of the pH is not wanted, adjust pH of the sample before testing with 0.5N HCl (to decrease pH) or 0.5N NaOH (to increase pH).
Turbidity (NTU)	0 - 50	If the toxic effect of turbidity is not wanted, highly turbid samples (>50NTU) need to be centrifuged (in the lab) or filtered (on site) before testing. Do not use PVDF, cellulose acetate or cellulose nitrate filters.
Color	none	Highly colored samples ( black, red, brown) will absorb light and effect the results. If the toxic effect of the color is not wanted, sample should be diluted before testing.
Chlorine	<0.1 ppm	Up to 4 ppm residual chlorine can be neutralized with 2 ppm sodium thiosulfate. In PCB-TOX-SPOT there is an option to order assay buffers that already contain thiosulfate.