

EVALUATING THE EFFECTS OF WATER CHEMISTRY VARIATION ON THE MetPLATE™ ENZYME BIOASSAY, WHEN USED TO SCREEN FOR METALS CONTAMINATION IN MINING IMPACTED SOILS AND WATERS¹

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Abstract: Mine tailings piles and abandoned mine soils, or mining impacted soils (MIS), are often contaminated by a suite of toxic metals wasted in the mining process. Enzymatic bioassays may provide an easier, less costly, and more time-effective toxicity screening procedure for MIS and MIS leachates than traditional tests (TCLP, *C. dubia*). This study evaluated the effects of variations in water chemistry parameters (hardness, alkalinity, DOC) on the commercially available enzymatic toxicity assay, MetPLATE™. MetPLATE™ is a metal specific assay, which uses a modified strain of the *Escherichia coli* bacteria as the test organism to measure inhibition of β -galactosidase enzyme activity.

Additional Key Words: mine waste, contaminated soils, toxicity testing

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