

EPA STUDY RE-AFFIRMS LONG-TERM STABILITY OF BLASTOX® BLENDED ABRASIVES

In 1997, the US EPA National Risk Management Research Laboratory contracted with a research laboratory in Ohio to perform various tests on Blastox® blended abrasives. The study, titled “Stabilization of Lead-Based Paint Waste” was released in May 2000. The primary focus of this effort was evaluation of the long-term stability of Blastox® blended abrasives, particularly when the alkalinity of Blastox® is eliminated.

Spent Blastox® blended abrasive wastes were subjected to the Toxicity Characteristic Leaching Procedure (TCLP, EPA Method 1311) and the Multiple Extraction Procedure (MEP, EPA Method 1320) to determine at what levels lead would leach. The TCLP test is a single extraction of waste tumbling in an acetic acid extract for 18 +/- 2 hrs. The extract is filtered, digested and analyzed to establish lead leachability. If the lead value is equal to or greater than 5.0 mg/l, the waste is hazardous for lead and must be managed in accordance with RCRA regulations. The MEP test was designed by EPA to evaluate the long-term stability of a waste. It consists of a single TCLP extraction followed by 9 extractions on the same sample with a nitric/sulfuric acid extract, having a pH of 3. For this study, the MEP was used as a method to neutralize the buffering effect of Blastox® in order to determine if pH alone was the mechanism by which Blastox® immobilizes lead. If lead was found to be immobile after the final MEP extraction, the conclusion would be that Blastox® wastes are stable and are immobilized by additional mechanisms than just pH control.

46 separate Blastox® samples containing either red-lead or white-lead based paint waste were tested via the TCLP test. In all 46 samples, the lead leaching value was well below the regulatory limit of 5.0 mg/l for Blastox® containing samples, whereas untreated samples leached from a range of 3.0 mg/l to 105.0 mg/l. A MEP was performed on both red-lead and white-lead based paint waste containing Blastox®. For the red-lead based waste, the MEP reduced the pH value on the final two extractions to approximately 5.5 and 4.9 standard units, respectively. These acidic conditions would allow lead to leach at considerable amounts, assuming no other immobilization mechanism existed. However, the lead during these extractions was only slightly above 1 mg/l. For the white-lead based paint waste with Blastox®, the extraction fluid’s pH on the final extraction was at an extremely acidic condition at 2 standard units. The lead leachability was only slightly above 2 mg/l, indicating the relatively permanent immobility of the lead.

All of this data show that Blastox® creates a long-term stable waste. The report concluded that “..the immobilization of Blastox® stabilized lead in both red and white LBP blasting wastes was not impacted by the pH of the leaching extract as evidenced by MEP testing.” This reinforces the fact that Blastox® reactions operate on more than just pH control. They further commented that “MEP and TCLP test results strongly indicate that stabilization of LBP with Blastox® and the addition of water will provide long-term immobilization and durability.”