

SORTING LANDFILL MINED GLASS & RESOURCE BANKING

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Abstract

In Southern Sweden there is around 420,000 m³ of contaminated (with e.g., Pb, As, Cd, and Sb) materials in direct connection to former glass factories. It is estimated there is around 3,100 tons of Pb in 22 of the larger sites. A large amount of this Pb is within crystal glass that was dumped at production sites. This presentation focuses sorting of excavated glass as part of a larger value chain being developed in an SGI financed “Tuffo” project focused on verifying new circular approaches for these sites.

Glass identified with geotechnical scanning was excavated from Strömbergshyttan, a glass dump, and taken to a Ragn-Sells facility. Pre-treatment was performed using a sieve and wind-shifter to categorize the material into five fractions: i) >100mm, ii) 25-100mm, iii) <25mm, iv) metal fraction, and v) a light fraction.

To test automated optical scanning potential, a small sample of the medium fraction was sent to PICVISA, a company with a specialized optical sorting for waste glass. Results from this first test small test showed that it was possible to detect and separate glass, but for an even more efficient sorting, the glass should be pre-treated. In the next step, 2 tons of pre-treated (surface cleaned and sized) glass was sent to the Picvisa test center. This test run showed positive results with a good separation of the glass from rest of the material (ceramics, wood, stones, etc.). From this second test, approximately 75% of the input material was sorted out as glass and 25% as residuals. The next step will be to test the material with additional sensors to sort out the leaded fraction (e.g., UV sensors).

The hope is to acquire a concentrated leaded glass fraction from these sites, that can be “banked” to create economies of scale for Pb and glass separation.

Keywords: Glass, Landfill Mining, Sorting