



Pozzotive® Screening LCA – Pre-Production

Beacon Falls, CT Production
Facility

Laurel McEwen VP EPD Services

5/11/2020

Executive Summary

Urban Mining Northeast (UMNE) is a licensed regional producer of Pozzotive®, a high performance postconsumer pozzolan and functional industrial filler. Using patented technology, UMNE is able to use any type of post-consumer glass, and turn it into a fine powder like substance, Pozzotive®. Pozzotive® is used in a multitude of applications including concrete products, paints, coatings, adhesives, polymers, elastomers and many others. The goal of this study is the quantify the GHG reduction potential of incorporating Pozzotive® into a concrete mix designs' environmental product declaration (EPD). This is the first phase of a three-part project which culminates with a product-specific, Type III Environmental Product Declaration (EPD) for Pozzotive® using 12 months of actual production data.

Urban Mining is nearing completion of a new production facility to manufacture Pozzotive® in Beacon Falls, CT. Utilizing engineering estimates of material, energy and waste flows, this study calculates twenty five environmental impacts that are required to be reported on concrete EPDs (see Table 3). The GWP impacts of one metric tonne of Pozzotive® is 56 kg CO₂e. This compares to the US industry average GWP for Portland cement of 1,040 kg CO₂e. Pozzotive® has 95% less impacts than the industry average Portland cement.

Utilizing these pre-production screening LCA results, this study also calculated the GWP of a concrete mix design produced by US Concrete/Eastern Concrete at their Broadway plant located in Jersey City, NJ. This analysis used the Climate Earth EPD Generator, part of the CarbonClarity suite of applications for the concrete materials industry, to calculate the mix's EPD values with Broadway's actual verified data. Results show a 42.2% reduction in GWP for the 9,000 PSI mix with a 56-day set that replaces 50% of the cement with Pozzotive®.

Two items to bear in mind as you utilize these results are:

- Most manufacture specific cement EPD's are less than the industry average. We are seeing GWP numbers around 800 kg CO₂e.
- The results of this study are based on engineering estimates of material, waste, and energy flows. Actual production flows will change the results.

While this study is intended for business-to-business (B-to-B) audiences evaluating the use of Pozzotive® in concrete mix designs, we have also included some additional study results to help Urban Mining understand the details of their GWP value. See Figure 3 and Tables 5-6. This information will help focus investments in equipment and processes to reduce your final EPD's GWP impacts.