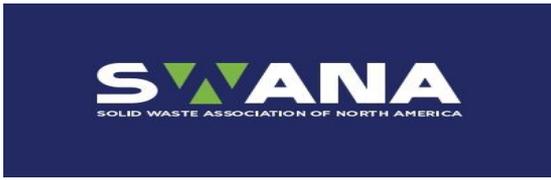




Urban Mining Industries (UMI)

Presentation to



Regarding Pozzotive[®], a Ground Glass Pozzolan (GGP)

September 29th, 2021

What is a Pozzolan?



- Simply said, a pozzolan is a fine powder that when mixed in hydrated portland cement, becomes cementitious. **Pozzolans are essential to making stronger and more durable high-performance concrete.**
- Although pioneered by the ancient Greeks, it was the Romans that, over 2,000 years ago, more fully developed pozzolans as binders in Roman concrete used for aqueducts and buildings that still stand today.



Pozzotive® Solutions for Today's Challenges



Pozzotive® creates stronger and longer-lasting low carbon concrete, providing ground-breaking solutions for three industries:

- Glass Recycling
- Cement/Concrete
- Pozzolan

The first full-scale production facility of its kind worldwide opened in CT in January 2021.

The new ASTM glass standard now in place makes specifying ground glass pozzolans much easier.



Industry Problems and Solutions

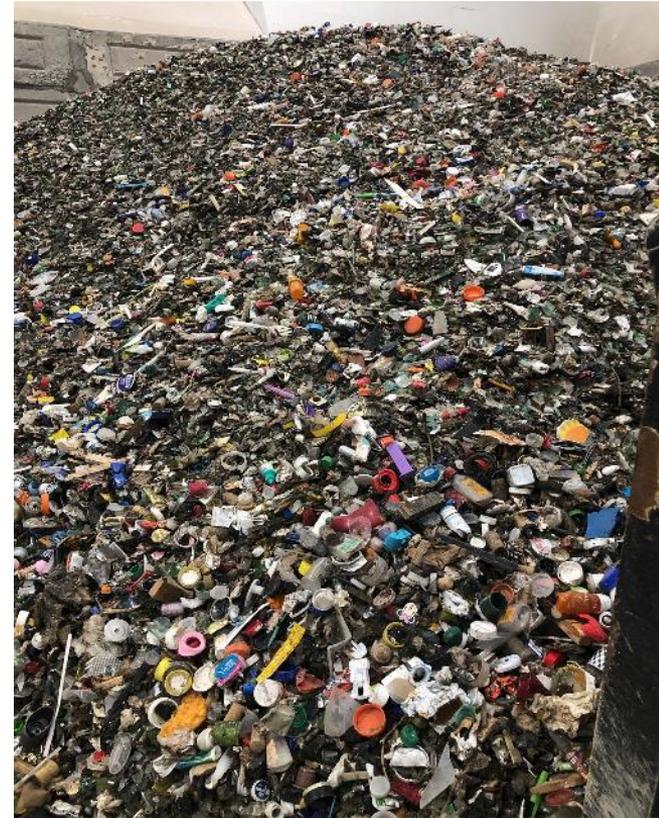


Recycling Industry:

The economics for recycling glass are challenging. Manufacturers require color segregation, ceramic and pyroceram removal, and a minimum size of $\frac{3}{8}$ ". The green glass market is limited, and the CRT panel glass market is nonexistent. Most glass is still land-filled.

Solution: Pozzotive[®] can use any size and color of glass, ceramics and pyrocerams, increasing both the value and utilization of all glass in the region.

UMI also has innovative solutions for recycled CRT panel glass, plate glass and demolition glass.



Industry Problems and Solutions



Cement Industry:

Making one ton of cement generates about a ton of CO₂.

Solution: Pozzotive[®] replaces up to 50% of cement in concrete, reducing cement related CO₂ on nearly a ton-for-ton basis.



Pozzolan Industry:

A pozzolan is an important component in making high performance concrete. The most common pozzolan has been fly ash from coal burning power plants. Shutdowns and conversions of those plants have significantly reduced the supply of fly ash.

Solution: Pozzotive[®] helps fill these growing supply voids and does it with a better performing alternative.



The Dual Benefits of Pozzotive® in Concrete



- **Environmental Benefits:**

- Dramatic reduction in the carbon footprint of concrete
- All glass and ceramics can be used - none to landfill
- Yields a white material that increases reflectivity and reduces “heat island” effect
- Made and used regionally from regionally harvested post-consumer glass, minimizing long-haul transport

- **Performance Benefits:**

- Better performing and longer lasting concrete
- Prevents efflorescence
- Reduces water demand yielding stronger concrete
- Resistance to chloride penetration and reduced moisture penetration means a longer life for concrete and major long-term savings in infrastructure costs



A Solution to the CO₂ Problem

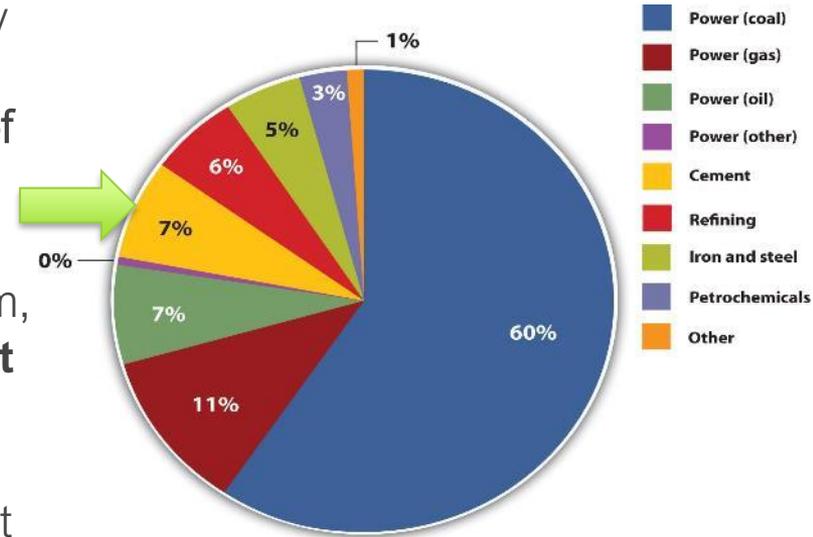


It is estimated that **7%** of the CO₂ produced globally is from the manufacture of cement. The Global Warming Potential (GWP) for cement is over a ton of CO₂ emissions for every ton of cement made.

In stark contrast, Climate Earth, an independent firm, recently found that the **GWP of Pozzotive® is just 5% of the portland cement it replaces!**

The carbon impact of our CT plant will be equivalent to taking about 8,000 cars off the road a year.

Biggest CO₂ impact: Bottles-to-Concrete over bottles-to-bottles or bottles-to-fiberglass.



Strong Market Acceptance

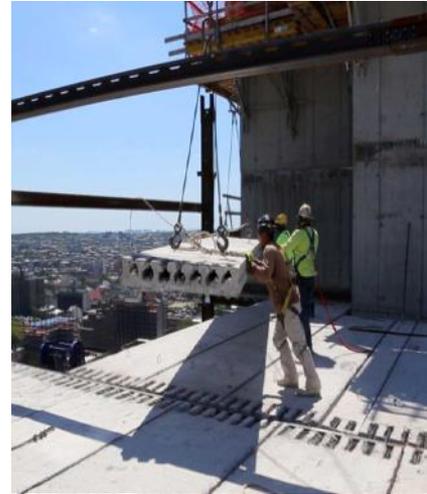


Successful third-party lab testing completed by:

McInnis, US Concrete, CEMEX, O&G Industries, Unilock Pavers, CCNY, Rensselaer Polytechnic Institute, Clarkson University, NYCDDC/DOT, BASF, 3M, FL and CT DOT

Representative projects using Pozzotive:

- Sidewalks: NYC (DDC) and Mountain View, CA (Google)
- About 10 million concrete blocks: 2nd Ave subway, NYPD Academy, Yankee Stadium, 855 Sixth Ave, US Navel Drone Facility, NYU, Columbia, Sloan Kettering, Univ. of West Virginia, UCONN, ESPN HQ, Marine Gateway (Vancouver)
- Over 500,000 SF of pre-stressed concrete slabs: Various residential developments in the NY metro area
- Permeable Pavers: The United Nations Plaza, Whole Foods, Brooklyn, NYCSCA Net Zero School
- Structural High-Rise Pour: Halletts Point, NYC



Strong Market Acceptance

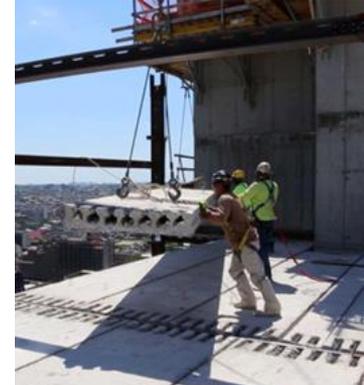


Pozzotive® can also transform demolition waste glass into a new building product: 60 tons of UN window glass were recovered, crushed and milled into Pozzotive® and then used to make Sustainable High-Performance Concrete pavers now at the entrance to the U.N.

Clockwise from top left:
United Nations Plaza
A&E firms already specifying Pozzotive®
City Point
El Jardin de Selene
Via Verde



SPECIFIED BY:



Industry Turning Point:



Halletts Point in NYC was the first structural high-rise pour nationally to use a glass pozzolan.



In Use In New England



a **sustainable** future is here.

www.pozzotive.com

Recognition for Solutions Found



BuildingGreen selects new building products that significantly reduce energy consumption and carbon emissions and improve product life cycles. We have now won this national award twice!

Pozzotive® also earned the United States EPA's Environmental Quality Award in Region 2, the highest award given to the public by the USEPA.

The Northeast Recycling Council (NERC), a non-profit consortium of 11 states united for environmentally sustainable materials management, awarded Pozzotive® its 2020 Environmental Sustainability Leadership Award.



**Pozzotive Ground Glass
Pozzolan**



Pozzotive® CT Plant



a **sustainable** future is here.

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Benefits to our Communities



Pozzotive[®] provides our communities with a:

- Cost-effective large-scale solution for glass
- Real alternative to costly and diminishing landfill options
- Commercially viable low carbon solution for concrete that is better performing and longer lasting
- *Great environmental and community outreach story to tell - Feedstock is sourced regionally, and the finished product is manufactured and used regionally*
- Significant capital investment and new local job creation



Questions?



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