



**High Volume  
Beneficial Use Technology  
For Waste Ash**



# Introduction

CERATECH, the Leader in GREEN sustainable construction materials, has pioneered a high performance, highly durable cement technology that's comprised of 95% waste fly ash from coal-fired power plants.

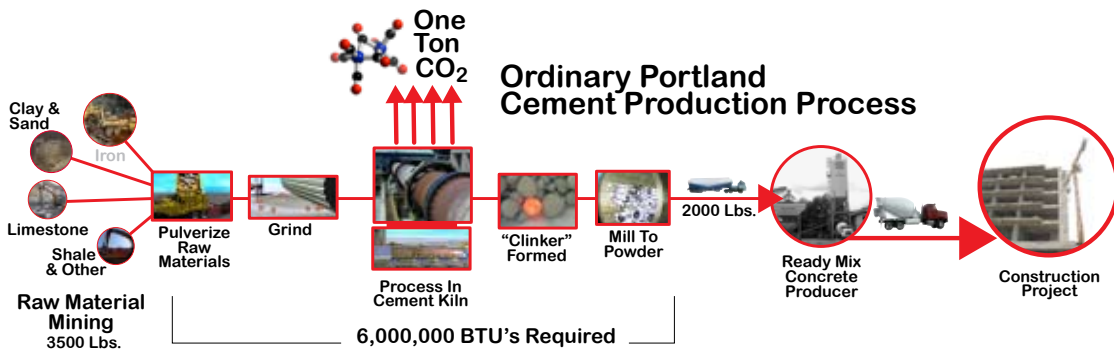
CERATECH offers utilities a solution to their growing flyash management costs by allowing utilities to transform their existing problematic use of fly ash into a commercially and environmentally superior product.

# Benefits To The Utility:

- Immediate reduction in ash disposal operating expenses
- Access to carbon offsets generated through the displacement of portland cement
- Establishes environmental leadership through conversion of a problematic waste stream into a recycled, commercially viable product
- Minimize exposure to landfill related liabilities
- Opportunity to eliminate flyash landfilling

## Sustainable Concrete Production!

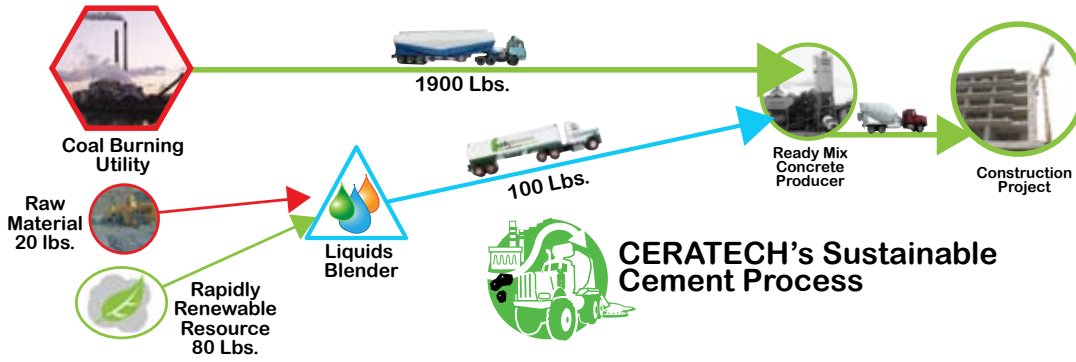




# Manufacturing Process & Requirements Comparison To Produce One Ton of Cement

CERATECH's ekkomaxx™ cement is not manufactured in the traditional sense.

Coal combustion solids, or "flyash" are chemically manipulated with CERATECH's liquid activators to produce a high performance hydraulic cement that can mirror the respective performance characteristics of all portland cement types.

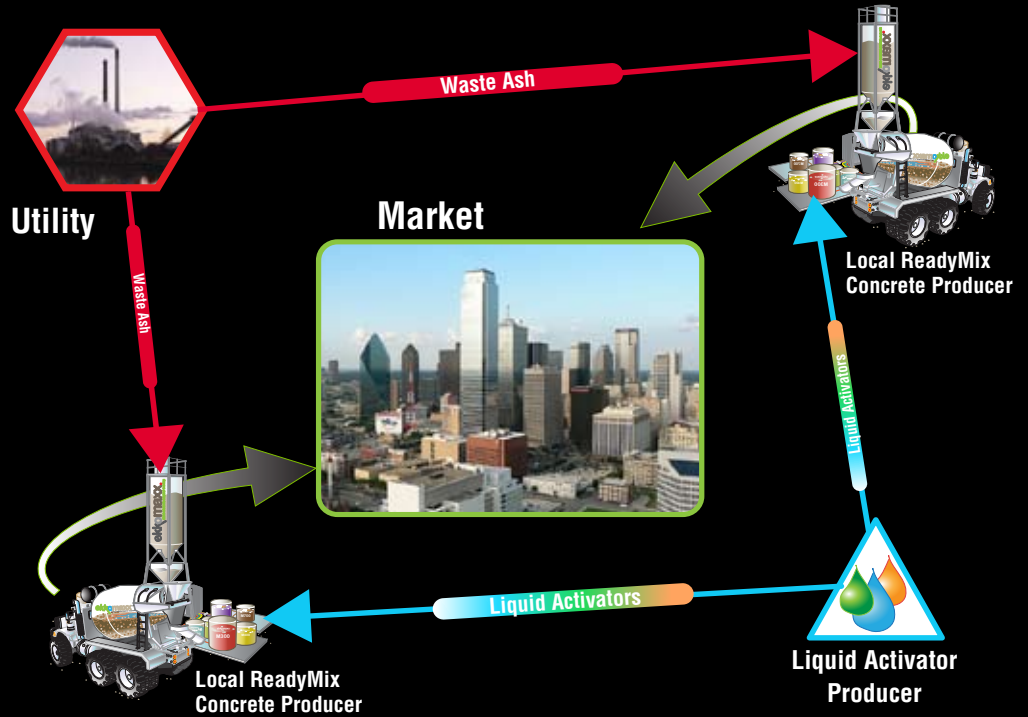


## ekkomaxx. Typical Distribution Model

CARBON NEUTRAL CEMENT SYSTEM

CERATECH's ekkomaxx™ cement system pulls ash from regional utilities that are in close proximity to major markets. The ash is shipped directly from a utility to various existing ready mix concrete producers in the same manner that portland cement would be transported from a cement kiln.

CERATECH liquid activators are supplied to the ready mix producers where they combine with raw coal ash to produce a high performance hydraulic cement.



### Near 100% Waste Ash Construction

CERATECH's ekkomaxx™ cement technology will consume waste ash at a rate 320% greater than is currently used within portland cement concrete as an SCM alone.



# Ash Usage Verses Traditional Use As An SCM ( Supplemental Cementitious Material )



## Materials Usage



One Ton of Cement



One Cubic Yard of Concrete  
(Based on 1/3 ton of cement)

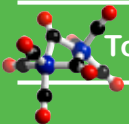
Portland Cement



Portland Cement



Virgin Resources	3500 lbs.	20 lbs.	667 lbs.	6.7 lbs.
Renewable Resources	0 lbs.	80 lbs.	0 lbs.	26.7 lbs.
Pre-Consumer Waste (Coal Ash)	None	1900 lbs.	200 lbs.	602 lbs.
Landfill Relief (Coal Ash)	None	1900 lbs.	200 lbs.	602 lbs.
Recycled Coarse aggregate (Crushed OPC concrete )	NA	NA	Cannot Use	50%
Recycled Fine Aggregate (Pulverized consumer waste glass )	NA	NA	Cannot Use	50%
Post Consumer Waste (Crushed glass as an aggregate )	NA	NA	Cannot Use	Yes
Crude Oil	55 gallons	0 gallons	0 gallons	0 gallons
Total Energy Req'd.	6 M BTUs	0 BTUs	1.7 M BTUs	0 BTUs
Total CO <sub>2</sub> Production	2000 lbs.	12 lbs.	667 lbs.	84 lbs.



Call us at 800-581-8397  
For more information on  
CERATECH's High Volume  
Waste Ash Cement Technology

[www.ekkomaxx.com](http://www.ekkomaxx.com)