

CEMENT FORMULATOR CERATECH TACKLES CORROSION RESISTANCE

Billed as a next generation, high-performance cement with superior chemical resistance for petrochemical, industrial, and heavy commercial applications, Kemrok has joined a line of portland cement-free binders from Ceratech Inc., Alexandria, Va. Available in bulk or as a packaged repair mix, it yields what product developers contend is concrete exhibiting fast set times and curing cycles; corrosion resistance and durability; and, competitive installed cost.

Kemrok's formal launch follows the early-2011 introduction of ekkomaxx, promoted as a carbon-neutral cement system for precast and cast-in-place concrete. ekkomaxx leverages Class C fly ash and four liquid admixtures to produce agents matching the binding and performance properties of ASTM C150 Type I-V cements. Rounding out Ceratech brands are Firerok high-temperature concrete and GreatWhite rapid cement.

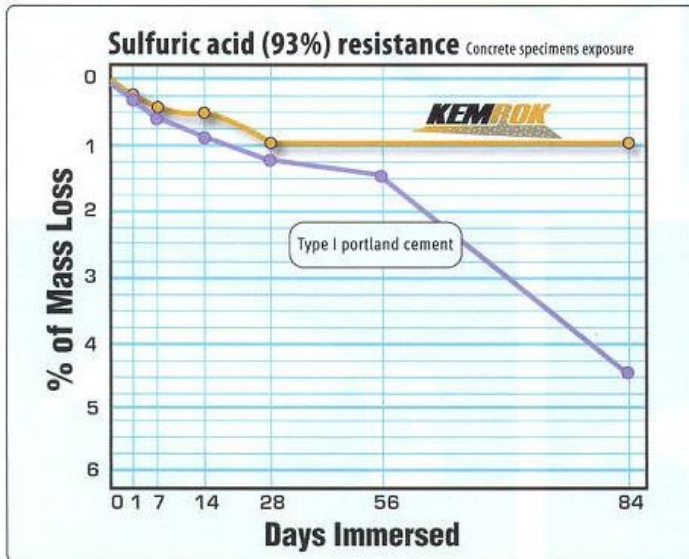
The ekkomaxx and Kemrok rollouts dovetail with a recent investment in Ceratech by Alpha Natural Resources, Abingdon, Va. A major coal player, it acquired a 10.3 percent position earlier this year, with an option to increase its stake to 28.3 percent under certain future terms. It becomes the second coal producer to invest in prospective concrete technology offsetting carbon dioxide emis-

sions from either portland cement production or fossil fuel-fired power generation. In April 2010, market leader Peabody Energy took a \$15 million interest in Calera Corp., whose calcium carbonate precipitation processes—applied to power plants' flue gas streams—are netting concrete-grade fine aggregate.

"We're looking for ways to encourage development of new technologies that will bring sustainable environmental benefits to our utility customers," says Alpha Natural Resources Chief Sustainability Officer Michael Peelish. "Conversion of waste fly ash into a green construction material represents an exceptional environmental use of coal combustion byproducts."

Ceratech announced ekkomaxx in late-January at The Precast Show in Charlotte, N.C. Billed as a "Carbon Neutral Cement System," the technology combines Class C ash with varying doses of five proprietary liquid or powder admixtures.

"Alpha's investment brings immediate benefit ...[and] will strengthen our ability to compete cost effectively against traditional cement companies," affirms Ceratech CEO Jon Hyman. The strategic support, he adds, given Alpha's excellent reputation, "is an endorsement we know will have great value in discussions with leading U.S. utilities."



Results from testing Kemrok and conventional concrete to aggressive chemical exposure demonstrate the durability potential of the new, portland cement-free binder. Ceratech subjected the specimens to a procedure described in ASTM C267-01 Standard Test Methods for Chemical Resistance of Mortars, Grouts, and Monolithic Surfacing and Polymer Concretes.

Early placements of Kemrok concrete have included a sulphur processing & distribution terminal in Texas. Specifications called for a pumpable, 5- to 7-in. slump mix with minimum 7-day strength of 4,000 psi. It served as an alternative to a Type V + silica fume mixture the facility previously used. Crews found the new mix handled like the one it replaced, but set faster due to its formulation for early strength gain.

The project required about 300 yd. of Kemrok mixes for molten sulphur trenches, which serve as transfer points for unit trains (74-plus cars). The concrete was produced in a portable Vince Hagan plant with 500-bbl silo and radial stacker-fed aggregate weigh hoppers. Kemrok cement liquid activator was introduced into mixers using a direct feed dispenser.