

# New category of vinyl ester coatings

## Critical corrosion protection for FGD systems

One of the main problems with the flue-gas desulfurization (FGD) systems used to minimize SO<sub>2</sub> emissions at petroleum refineries is corrosion. Severe corrosion is caused when condensates of acids are formed, which accelerate pitting and crevice corrosion, particularly in scrubbers with high sulfate solutions. Scrubbers lined with 2205 duplex stainless are among the most vulnerable, failing frequently due to pit or crevice corrosion from both chlorides and fluorides.

Texas-based KCC Corrosion Control is now offering a new category of vinyl ester coating specifically for the harsh environments of FGD systems. According to Thomas Priest, CEO of KCC, permeation resistance is the single greatest determinant of life expectancy of a polymer lining system.

"Although we talk about chemicals and abrasives in a FGD system, what the industry should fear most is water vapour transmission," explains Priest. "Water vapour transmission permeates through a polymer lining on steel or concrete substrates due to interior tank temperatures being higher than exterior tank temperatures. This creates a pressure or 'driving force' to move water vapour through the lining, causing osmotic blisters on steel surfaces and star cracks on concrete surfaces."

To combat corrosion, Ultimate Corrosion Control, a Michigan-based coating contractor, utilizes KCC Corrosion Control's VE 62 and VE 62-AR vinyl ester products, which the company says are known for permeation and abrasion resistance, and supported by testing from independent labs.

"Given the aggressive corrosive conditions in FGD systems – dew point, acidity, high temperature, concentrations of chlorides and fluorides, wet-dry cycles and gas velocity – what is needed is a protective coating with a combination of chemical, abrasion



and permeation resistance," says Art Rak, CEO of Ultimate Corrosion Control.

Bryan Louque, PE, of the Pipeline & Hazardous Materials Safety Administration, concurs that the KCC vinyl esters exhibit excellent abrasion and chemical resistance for a spray-applied product.

"The KCC VE 62 / VE 62 AR were used to coat test panels that were installed in an FGD ductwork section ahead of a part of a Chiyoda CT-121 FGD system," says Loque. "Other coatings tested included trowelled on, two thick film vinyl esters, a spray epoxy and vulcanized rubber. After six months of operation, the three VE 62 test coupons showed no visible signs of abrasion or delamination. DFT measurements obtained after six months of operation were essentially unchanged from the date of installation."

### KCC Corrosion Control

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