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CASE HISTORY

Potable Water Treatment

Market Segments:	Scrubbers Water/Wastewater
Composite Application:	Four towers for scrubbers
Resin:	Vipel K022-C bisphenol A epoxy vinyl ester
Manufacturing Process:	Filament Winding
Height:	30 feet (9.1 meters)
Diameter:	10 feet (3 meters)
Installed:	2003
Location:	Baldwin Park, CA

When the San Gabriel Valley Water District (SGVWD) discovered solvent-contaminated water in the Baldwin Park-Covina area of Southern California, officials turned to U.S. Filter/Westates Carbon, of Santa Fe Springs, CA. to supply all the equipment for the stage 1 treatment system. U.S. Filter/Westates Carbon in turn came to Air Chem Systems to supply all the equipment prior to installation of the carbon units.

Air Chem's solution is a sophisticated stripper system that uses four composite towers, composite fans with sound enclosures, heaters and interconnecting duct dampers and stacks. The resin used to manufacture the composite towers is Vipel K022-C, a flame-retardant bisphenol A epoxy vinyl ester from AOC.

Because of the resin's excellent resistance to solvents, it is also used for the ductwork, stacks, and fan blades of the water cleansing system at Congressman David Dreier Water Treatment Facility in Baldwin Park. In addition, the



Air Chem Systems used Vipel® K022-C FR vinyl ester from AOC to manufacture four vertical scrubbers at a water treatment facility in Baldwin Park, California.

resin meets critical specifications calling for a Class 1 flame and smoke rating per ASTM E 84. The rating is achieved with 1.5% antimony trioxide synergist.

“Composite made with Vipel K022-C resin offers excellent corrosion resistance and will easily outlast aluminum, which SGVWD was previously specifying for this type of application,” says Bob Leisz, Sales Manager for Air Chem Systems. “The composite is also a much lower thermal conductor than aluminum, so it is easier to control the process.”

Leisz adds, “With Vipel K022-C, we get very good processing characteristics for both filament winding and open molding operations. When we need technical support, the AOC Corrosion Team is very helpful and responsive.”

1,1-DCE, 1,2-DCE benzene, toluene and other solvents in the region’s water supplies are attributed to waste discarded by aerospace companies before more stringent environmental standards were established.

Funding for the clean-up is provided by the U.S. Environmental Protection Agency’s Superfund for reclaiming sites affected by hazardous waste.

The treatment process starts when 7,500 gallons (28,390 liters) of water per minute are recovered from six wells. Water coming into the main header is split into four streams, one for each of the four scrubbers. As the influent water is injected into the towers, a high speed, high capacity fan pulls fresh filtered air through the towers to strip out the solvents from the influent water. The contaminated fumes are then pushed into and through the carbon filters supplied by US Filter/Westates Carbon.

The solvent fumes are adsorbed by the carbon units and remaining contaminants in the effluent water are removed in a process that involves hydrogen peroxide and UV light. At the end of the system is potable water with no detectable amounts of contamination.

Running at 100 horsepower (75 kilowatts), the fans for the system emanate high levels of noise. Because the treatment plant is located in a residential area, sound-deadening covers over the fans take noise levels down to below 50 decibels, about the level of a normal conversation. The result for neighboring residents is an acceptable “white noise” effect.

Superior Vipel Corrosion Resistance

The cylindrical structure for each tower was filament wound of glass fiber roving impregnated with the Vipel K022-C vinyl ester. Each tower is approximately 30 feet (9.1 meters) tall and 10 feet (1 meter) in diameter.

To ensure superior corrosion resistance throughout the system, Vipel K022-C was used with fiber glass mat to open mold tower end caps, air movement ductwork and fan blades. “This San Gabriel Valley Water District plant is a showcase of how composites can help improve people’s lives,” comments Emilio Oramas, “To ensure the performance of these showcase projects, Vipel K022-C has become the new-generation ‘work horse’ material for equipment that must resist highly corrosive conditions and require a Class 1 flame rating,”

Air Chem Systems, Inc.

Founded in 1976 and located in Huntington Beach, California, Air Chem Systems, Inc., manufactures and designs standard and custom composite air pollution control equipment for the electronic, metal finishing, plating, sewage treatment and other industries that generate nonflammable corrosive fumes and odors. Applications include scrubbers, air strippers, carbon vessels, fans, hoods, ducts, fittings and storage tanks. For more information, phone Bob Leisz or Micky Johnson at (714) 897-1017, e-mail sales@airchemsystems.com, or go to www.airchemsystems.com.

About AOC

AOC is a leading global supplier of resins, gel coats, colorants, additives and synergistic material systems for composites and cast polymers. For more information on AOC technology, quality and service, e-mail corrosion-resins@aoc-resins.com, phone (866) 319-8827, or go to AOC-RESINS.com.



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