

CaseHistory

Odor Control System

Applications:	Vessel Isolation dampers Ducting
Resin:	Vipel® K022-C bisphenol A epoxy vinyl ester (ASTM E84 Class 1 fire rating)
Manufacturing Processes:	Hand lay-up & filament winding
Vessel:	10 feet by 36 feet by 9 feet (2.7 meters by 3 meters by 11 meters)
Ducting in diameter:	16 inches (40.6 centimeters)
Location:	Austin, Texas, USA
Installed:	2008

Because of its extensive, diverse and award-winning park system, Austin, Texas, often refers to itself as “A city within a park!”

When foul smells at one park challenged that reputation, engineers found a capital solution in a biological system from odor control specialist Bay Products. The system’s technology is based on proprietary aggregate media that are housed in a fiber-reinforced polymer (FRP) composite structure made with corrosion-resistant Vipel® vinyl ester resin from AOC.

The green space and playgrounds of the 7.6-acre Montopolis Park and Recreation Area are popular draws for local residents and students of the nearby Austin Community College-Riverside. The park is in a low-lying, riverside area that by chance includes an



Vipel® technology helps the composite components resist the highly acidic nature of the odor control system by Bay Products, Inc.

underground wastewater conveyance tunnel. Sewer gases inside the tunnel emitted noxious odors that were a major nuisance for park-goers, college students and local residents alike.

“Bay Products was contracted to develop a cost-effective odor-control solution that would stay within the city’s constrained budget,” said Jeff Jones, Engineering Manager, Bay Products. “By offering several different odor-control technologies, we can tailor a solution based on the cause and magnitude of the problem.”

Analysis of the Montopolis Park situation led to the use of a dual-stage biological system utilizing two different types of odor-eating bacteria. Sewer gas odors are absorbed as the system moves 3,000 cubic feet of air a minute from a sewer lift station through the media.

Bay Products was responsible for supplying a complete system which included various components manufactured using AOC resins. These components included the vessel, ductwork and isolation dampers tested to protocols established by the American Composites Manufacturers Association.

Odor Control System, continued

Superior Vipel® resistance

The anti-odor process creates a highly acidic internal operating environment where pH levels can get as low as 2. As a result, Bay Products manufactured the system's composite components using a Vipel K022-C bisphenol A epoxy vinyl ester resin from AOC. In addition to its exceptional corrosion resistance, the Vipel resin with minimal synergist addition meets the site's critical requirement for an ASTM E84 Class 1 fire rating.

Jones explained how the Vipel resin included helpful technical service. "It was imperative that the large panels in the system stay flat and uniform through our manufacturing process," he said. "If the exotherm heat in a vinyl ester cure cycle is too high or spikes too quickly, a large panel may exhibit unwanted warpage," he said. "For this application, Eric Stuck of AOC helped us develop a resin formulation that ensured the panels would be extremely flat and uniform."

The flat composite panels were assembled into a shell that was 10 feet (3 meters) wide by 36 feet (11 meters) long by 9 feet (2.7 meters) high. The panels and composite damper components were made by hand lay-up of alternating layers of resin-impregnated fiberglass chopped strand mat and fiberglass woven roving.

The 16-inch (40.6-centimeter) diameter cylindrical ductwork components for moving air were filament wound of continuous fiberglass roving wet-out with the Vipel vinyl ester. "The resin processed perfectly for both our open molding and filament winding operations," Jones stated.

Surfaces that are directly exposed to the odor-scrubbing process were manufactured with a layer of synthetic surfacing veil. This technique resulted in a resin-intensive layer that provides maximum corrosion protection of the reinforcing fibers encapsulated within the composite.

About Bay Products

With corporate headquarters located in Stateline, Nevada, Bay Products, Inc., specializes in the design, manufacture and sales of equipment for the air and water industry.

The Bay Products / ECS manufacturing location is a 100,000 square foot (9,290 square meter) facility located in central Texas. The company's main focus is on municipal applications with special emphasis on municipal odor control. Bay Products is the largest odor control supplier in North America. Product offerings include a full line of odor control systems, such as carbon adsorbers, chemical scrubbers, several different biological systems, ductwork, dampers, chemical storage tanks and odor control covers. Manufacturing capabilities include filament wound vessels to 16 feet (5 meters) in diameter, ductwork and dampers to 144 inches (366 centimeters) in diameter, and large odor control covers. For more information, e-mail MartinCrawford@bayprod.com, or go to www.bayprod.com.

About AOC

AOC is a leading global supplier of resins, gel coats, colorants, additives and synergist systems for composites and cast polymers. Offering a wide range of Vipel resin technologies, AOC is the leading producer of corrosion-resistant resins in North America. AOC knows technology, lives quality and delivers service better than any other supplier. For more information, e-mail Ben Bogner, P.E., C. Eng., at BBogner@aac-resins.com, phone him at (630) 665-2675, or go to www.corrosionresins.com.

