

Emergency Ammonia Scrubber

Composite Applications	Tower Tower fan Sump tank
Manufacturing Process	Hand lay-up
Resin	Vipel® K022-C Fire retardant bisphenol A, epoxy vinyl ester
Tower Dimensions	4 feet (1.2 meters) in diameter 22 feet (6.7meters) high
Sump Tank Section	8 feet (2.4 meters) in diameter 5 feet (1.5 meters) high
Design Parameters	Resistance to acidic solution containing NH_3 -20 inches (-0.05 bar) water vacuum



Because it is made with Vipel® K022-C vinyl ester, this emergency scrubber is designed to resist the corrosive effects of ammonia if ever called into action.

An emergency system designed and manufactured by Heil® Process Equipment with the help of Vipel® technology from AOC is helping industry return to the use of ammonia as a refrigeration compound for production needs. The Heil scrubber system includes composite equipment that benefits from the corrosion-resistant and Fire-retardant properties of Vipel K022-C bisphenol A epoxy vinyl ester.

Ammonia (NH_3) and similar gases were liquefied under pressure and commonly used as refrigeration compounds

until the 1930s when chlorofluorocarbons, or CFCs, were introduced. However, CFCs' link to depletion of the Earth's ozone led to a government mandate against their use.

When a major pharmaceutical company saw the potential of returning to ammonia as an effective CFC alternative, there was concern over ammonia's toxicity, especially to marine life, in the event of an emergency. To address the issue,

Emergency Ammonia Scrubber, continued

Heil Process Equipment came up with a scrubber system that protects the environment if ammonia accidentally leaked from the refrigeration system into the production room.

Emergency fumes captured

During an unlikely release of ammonia, the Heil system's primary gas inlet would capture fumes into an 8-foot (2.4-meter) diameter cylindrical sump tank containing an acid-scrubbing solution. The tank's double-wall construction with moisture detector in the interstitial space eliminates the need for a more costly secondary containment system. Captured fumes would be directed through a perforated header into a 4-foot diameter by 22-foot high (1.2- by 6.7-meter) tower which holds a packed column of more acid-scrubbing solution.

Major components of the Heil system must withstand the corrosive effects of acidic, ammonia-rich gases being conveyed under -20 inches water vacuum (-0.05 bar). For added safety at the work site, system components must also be fire-retardant.

For the system's double-walled sump tank, tower and fan, Heil meets performance requirements with fiberglass-reinforced composite molded via the hand lay-up process with Vipel K022-C resin. "In addition to providing good handling characteristics, Vipel vinyl esters are backed with the helpful technical support of the AOC Corrosion Team when needed," says Bob Hahn, general manager for Heil Process Equipment.

About Heil Process Equipment

Heil Process Equipment, Avon, OH, USA, is a premier designer and manufacturer of comprehensive systems for handling corrosive fluids, mists and vapors. In addition to the composite components, the Heil emergency ammonia scrubbing system designed for the pharmaceutical manufacturer includes redundant recirculation pumps, control panel, pH monitor, level indicator and moisture detector between the sump walls. For more information, contact Bob Hahn by phoning (440) 327-6051, ext. 224, faxing (440) 327-7088, or e-mailing info@heilprocessequipment.com.

About AOC

AOC is a leading global supplier of resins, gel coats, colorants, additives and synergistic systems for composites and cast polymers. AOC products are manufactured in facilities strategically located in North America, Europe and Asia. AOC is dedicated to serving customers with the most innovative technology and the industry's most knowledgeable technical support. For more on corrosion-resistant Vipel® resins and the AOC Corrosion Team, e-mail Ben Bogner at bbogner@aoc-resins.com, phone him at (630) 665-2675, or visit www.corrosionresins.com, the Internet's most user-friendly resource about corrosion-resistant composites.

