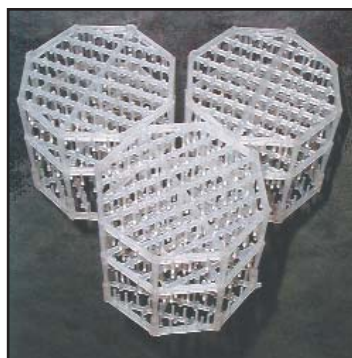
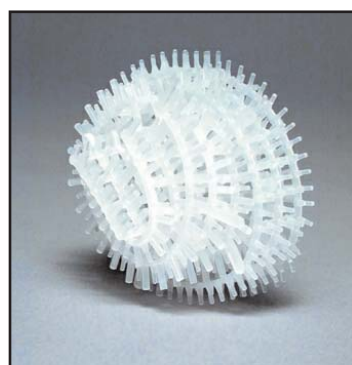


Ammonia Removal - Water Purification in Packed Bed Air Stripper



Q-PAC®
USA Patent #5,458,817



#2 NUPAC®
USA Patent #5,498,376

Q-PAC® and #2 NUPAC® Yield High Velocity and Efficiency with Low Pressure Drop

Introduction

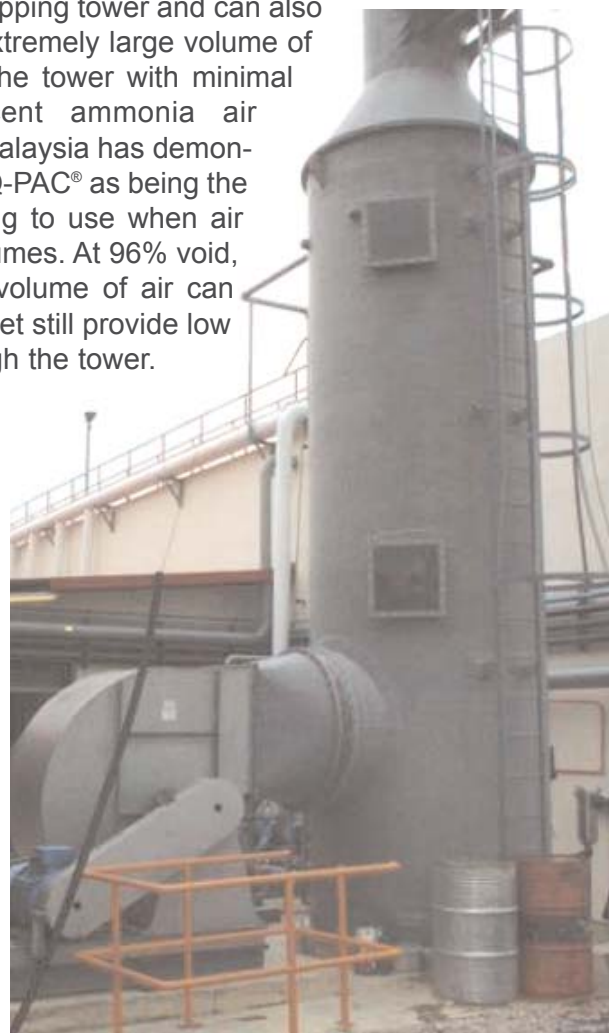
Air stripping to remove ammonia (NH₃) from water is possible. But the high solubility of ammonia in water means that a very high air/water ratio must be used. In other words, for each volume of water treated, a thousand plus volumes of air must be contacted with the water to move the ammonia from solution into the passing gas phase. In the past this has had the consequence that ammonia air stripping towers must be sized very large due to the large volume of air that must pass the tower and allow for a reasonable pressure drop across the packing.

Air Stripping With Q-PAC®

This problem has been solved with the introduction of Q-PAC® by Lantec Products. With 96%+ void space, all rounded surfaces and many needles, Q-PAC® supports extremely efficient contact between water / gas in the stripping tower and can also accommodate the extremely large volume of air that must pass the tower with minimal head loss. A recent ammonia air stripping project in Malaysia has demonstrated the utility of Q-PAC® as being the best possible packing to use when air stripping ammonia fumes. At 96% void, an extremely large volume of air can pass the tower and yet still provide low pressure drop through the tower.

Project Parameters

Water flow = 22.5 m³/hr (100 gpm)
 Water temperature = 35° C (95° F)
 Water pH = 10
 Air temperature = 35° C (95° F)
 NH₃ concentration = 1600 mg/L
 Needed stripping efficiency = 90%
 Mist capture = 2μ and larger droplets



Ammonia Air Stripping Tower, Kuala Lumpur, Malaysia

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Q-PAC® NH₃ Air Stripping Tower

Tower Diameter = 2000 mm (6.6 ft)
 Air / Water = 2100 m³/m³ (ft³/ft³)
 Air Flow = 47,698 m³/hr (28,074 cfm)
 Packed Bed = 3050 mm (10 ft) **Q-PAC®**
 Mist Capture = 610 mm (2 ft) **#2 NUPAC®**

Q-PAC® / #2 NUPAC® Tower Performance

Total Pressure Drop < 10 mbar (4 in WC)
 Stripping Efficiency > 90%
 Mist Capture 99% of 2μ and larger droplets
 Superficial Gas Velocity = 4.2 mps (820 fpm)

Traditional NH₃ Air Stripping Tower

Tower Diameter = 3000 mm (9.8 ft)
 Air / Water = 1200
 Air Flow = 2700 m³/hr (15,891 cfm)
 Packed Bed = 4572 mm (15 ft)
 Mist capture = 6 in (152 mm) mesh pad

Operating Data and Photos Supplied Courtesy of

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