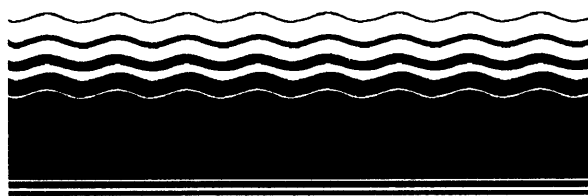




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Emerging Technology Bulletin

Ambersorb® 563 Adsorbent

Rohm and Haas Company

Technology Description: The Ambersorb® adsorbent is a regenerable adsorbent that treats groundwater contaminated with hazardous organics (see figure below). Ambersorb 563 adsorbent has 5 to 10 times the capacity of granular activated carbon (GAC) for low concentrations of volatile organic compounds (VOCs). Ambersorb Adsorbents were developed by Rohm and Haas.

Current GAC adsorption techniques are well established for groundwater remediation, but require either disposal or thermal regeneration of the spent carbon. In these cases, the GAC must be removed from the site and shipped as a hazardous material to the disposal or regeneration facility.

Ambersorb 563 adsorbent has unique properties that result in several key performance benefits:

- Ambersorb 563 adsorbent can be regenerated on site using steam, thus eliminating the liability and cost of off-site regeneration or disposal associated with GAC treatment. Condensed contaminants are recovered through phase separation.
- Because Ambersorb 563 adsorbent has a much higher capacity for volatile organics than GAC (at low concentrations), the process can operate for significantly longer service cycle times before regeneration is required.
- Ambersorb 563 adsorbent can operate at higher flow rate loadings compared with GAC, which translates into a smaller, more compact system.
- Ambersorb 563 adsorbents are hard, nondusting, spherical beads with excellent physical integrity, eliminating handling problems and attrition losses typically associated with GAC.
- Ambersorb 563 adsorbent is not prone to bacterial fouling.
- Ambersorb 563 adsorbents have extremely low ash levels.

In addition, the Ambersorb 563 carbonaceous adsorbent-based remediation process could eliminate the need to dispose of by-products. Organics can be recovered in a form potentially suitable for immediate reuse. For example, removed organics could be burned for energy in a power plant. Reclamation of waste organics is an important benefit, as recovered materials could be used as resources instead of disposed of as wastes.

This combination of benefits may result in a more cost-effective alternative to currently available treatment technologies for low-level VOC-contaminated groundwater.

Waste Applicability: Ambersorb 563 adsorbent is applicable to any water stream containing contaminants that can be treated with GAC, such as 1,2-dichloroethene, 1,1,1-trichloroethane, tetrachloroethene, vinyl chloride, xylene, toluene, and other VOCs.

Pilot Plant Test Results: The Ambersorb technology demonstration was conducted by Roy F. Weston, Inc. at the former Pease Air Force Base, Newington, NH. The groundwater contained vinyl chloride, 1,1-dichloroethene, and trichloroethene. The field study was conducted over a 12 week period. The tests included four service cycles and three steam regenerations. The effluent from the Ambersorb adsorbent system consistently met Drinking Water Standards. Onsite steam regeneration demonstrated that the adsorption capacity of the Ambersorb system remained essentially unchanged following regeneration and multiple service cycles.

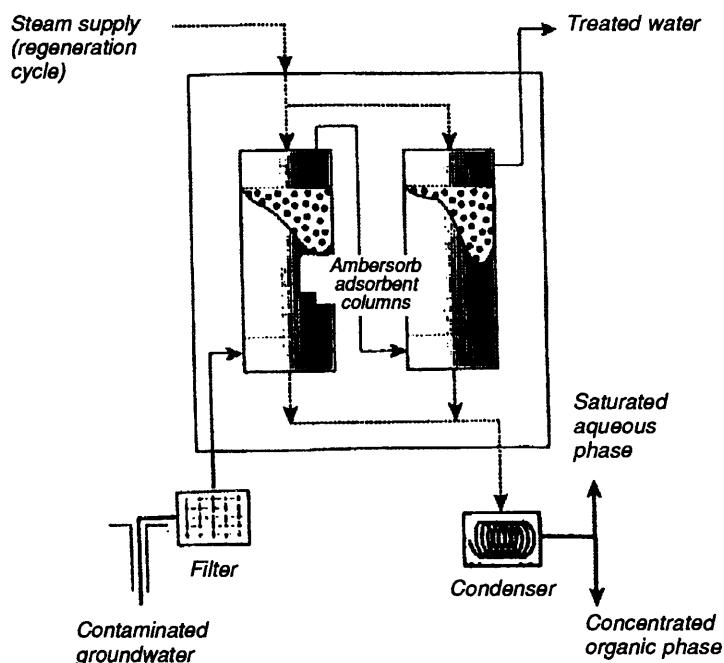


Figure 1. Ambersorb® 563 adsorbent.



A project summary and complete report have been submitted and will be available in the near future.

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