



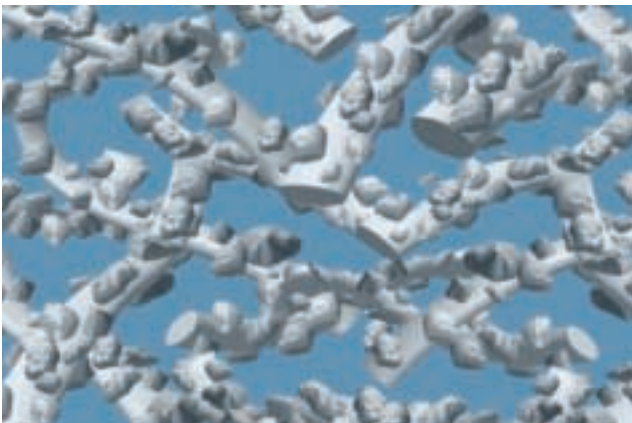
Graver Technologies

ECOSORB® MULTI-FUNCTIONAL PURIFICATION MEDIA

ECOSORB® Products for Wastewater Treatment

ECOSORB offers important advantages in treating radwaste and polishing metal finishing effluents.

- Reduces TOC to < 0.1 ppm
- Removes soluble and insoluble heavy metals
- Clean, dust-free, easy to use
- Works with existing filtration equipment



ECOSORB products are precoated onto industrial filters that allow for the formation of a filter cake, or they may be operated in columns.

Overview

ECOSORB is a patented industrial filtration/adsorbent medium that combines low pressure drop and rapid adsorption rates. This versatile family of process-friendly media presents new opportunities for more efficient and economical treatment of wastewater from nuclear boiling reactors, metal finishing operations and other processes that discharge contaminated water.

ECOSORB products are based on the patented technology that immobilizes a powdered adsorbent onto a filter aid to produce a medium with superior adsorption and filtration capacity. The chemically bonded ECOSORB media are formulated from process-proven activated powdered carbon(s), ion exchange resins, clays, zeolites, and other materials to meet the specific process needs of wastewater treatment applications. The illustration above depicts the highly open and accessible form provided by immobilizing the adsorbent in an ECOSORB product.

ECOSORB for radwaste water

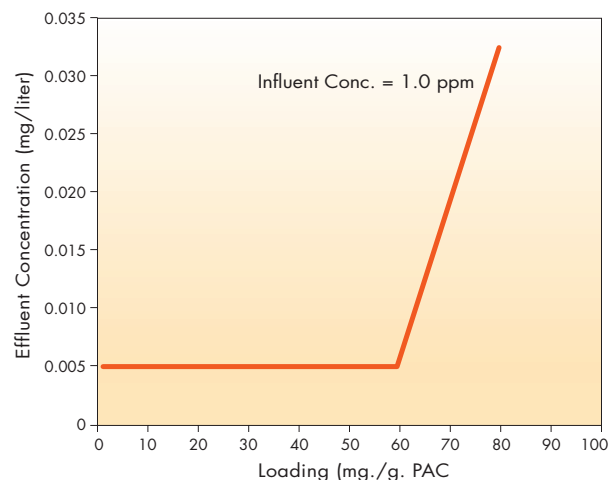
In the operation of nuclear boiling water reactors, water collected from the demineralizer backwash and from floor and equipment drains (radwaste water) must be recycled to maintain a closed loop. This wastewater is usually contaminated with various organics and debris which must be thoroughly removed before the water can be recycled back through the resin demineralizers. A high degree of purification is necessary to avoid fouling of the ion exchange resins and to guard against equipment corrosion. Reduction of organic contamination is particularly critical to this process, and purification must typically achieve levels below 0.1 to 0.5 ppm TOC.

ECOSORB W-709 is well suited for reducing the organics and particulates in radwaste water to the levels required for recycling. The high efficiency of ECOSORB W-709 in removing organics is demonstrated by the test results in Figure 1.

Organics removal with ECOSORB W-709 creates a minimum amount of solid waste due to the high efficiency inherent in the precoat operation. ECOSORB W-709 also is easily backflushed and settles rapidly for disposal.

FIGURE 1

O-CHLOROPHENOL LOADING ON ECOSORB S-502



Area Flow Rate = 4.9 meters/hr
ECOSORB S-502 dose = 977g./sq. meter

Ecosorb for polishing heavy metal wastewater

Precipitation wastewater treatment systems used in metal finishing operations sometimes become overloaded and exceed EPA and/or local discharge limits for metals. There are three probable sources contributing either singly or in combination to this upset condition: measurable amounts of metal remaining soluble under precipitation conditions; difficult to settle and filter colloidal particles of precipitated metals; chelated metal complexes.

ECOSORB products are designed to effectively remove soluble, colloidal, and chelated metals from wastewater by incorporating filtration and adsorption capacity into one medium.

ECOSORB W-761, a zeolite-based ECOSORB product, was developed to remove both soluble and insoluble heavy metal contaminants. The zeolite adsorbent exchanges harmless sodium cation preferentially for divalent heavy metal cations while providing a filtration medium for the removal of fine unsettled metal particulates.

ECOSORB W-714, a carbon-based ECOSORB product, is used to remove chelated metal complexes and toxic organic compounds from wastewater effluents. It too provides fine filtration for the removal of particulates that can add to the effluent discharge levels. ECOSORB W-714 has been especially effective in the removal of chelated copper.

ECOSORB W-791 is a product formulated for mixed wastes. It contains adsorbents designed to remove metal cyanides, free metals, chromates, and organics, and chelated metals. Its broad spectrum activity makes it ideal for polishing wastewater after conventional or advanced chemical treatment.

Custom formulations

Graver Technologies has developed numerous custom formulations of ECOSORB to meet the needs of specialized pretreatment and wastewater polishing applications. ECOSORB products can be tailored to provide specific performance characteristics of adsorption, filtration and settling using a variety of active surfaces.

Additional ECOSORB Literature

- GD-101 ECOSORB Products for Pharmaceutical Processing
- GD-103 ECOSORB Products for Wastewater Treatment
- GD-105 ECOSORB Product Selection Guide - Aqueous Applications
- GD-106 ECOSORB W-714 Adsorbents
- GD-107 ECOSORB Metal Finishing Wastewater Case Study
- GTX-133 ECOSORB Sugar Bulletin
- GTX-134 ECOSORB Laboratory Evaluation Guide

For more information

To request a standard or custom sample or to discuss your application with a technical representative, please contact Graver Technologies at

1-800-249-1990 or e-mail us at info@gravertech.com
our website: www.gravertech.com

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