

ECODEX® • ECOCOTE®

High Performance Water Treatment for Power Generation

Ecodex® and Ecocote® Products

Ecodex® precoat products are homogeneous mixtures that combine inert microfine fibers with two powdered ion exchange resins: strongly acidic Powdex® cation and strongly basic Powdex anion resins. A patented process permanently bonds Powdex resins with fibers to form durable flocced agglomerates.

Ecodex products offer a high suspended solids loading capacity with excellent permeability, resulting in long run lengths and reduced waste. Similar to Powdex products, the fine particles and floc structure provide a large surface area that efficiently filters suspended solids. The electrokinetic nature of the Ecodex precoat attracts and adsorbs colloids and color bodies. The fibrous component maintains precoat integrity and prevents cracking that may otherwise occur as suspended solids loading increases.

Ecodex products are precoated in a single step. They are added to a slurry tank and precoated on septa such as Aegis® Wound and Aegis DualGuard® septa. Excellent hydraulic properties deliver much higher flux rates compared to similarly sized media. The precoat depth is typically 1/4" to 3/8"



(~ 6 to 9 mm) though thinner layers achieve some high-purity deionization. Floc modifiers are unnecessary.

Ecodex products are available with either hydrogen or ammonium form cation exchange resin. The Ecodex 200 series are hydrogen form products designed for neutral pH systems. The Ecodex 300 series are ammonium form products designed for high pH systems. Ecocote is a fiber only product with flocced fibers that impart the same characteristics as Ecodex products. Used alone or in combination with Powdex precoats, Ecocote is an economical filtration method.

APPLICATIONS

Condensate Polishing

Ecodex products were originally designed for high flow rate condensate polishing applications. Ecodex 200 series products polish neutral pH condensates like those found in boiling water reactors. Ecodex 300 series products suit high pH systems found in many fossil plants and pressurized water reactors.

Reactor Water Cleanup and Spent Fuel Pool

Ecodex P-205-H efficiently removes dissolved solids from reactor water. Continuous cleaning and filtration with Ecodex P-201-H or P-202-H maintains fuel pool parameters.

Radwaste

Ecodex 200 series products remove ionic species such as iodine, cobalt and silica while also reducing organics.

Ecodex delivers revolutionary features and benefits in easy-to-use formulations

FEATURES

- > High integrity flocced agglomerate
- > Powdex resin-fiber interaction
- > Fiber filter aid
- > Electrokinetic precoat properties
- > Mixed bed precoat product

BENEFITS

- > High flux rate
- > Long run length, excellent filtration
- > Precoat integrity – no cracking
- > Adsorption of colloids and organics
- > Simple, one-step precoat application

Ecodex and Ecocote Products

Ecodex and Ecocote Product Descriptions

Product Name	Ionic Form	Fiber: Resin	Cation: Anion
Ecodex P-201-H	H/OH	1:1	1:1 Weight
Ecodex P-202-H	H/OH	1:2	1:1 Capacity
Ecodex P-205-H	H/OH	1:9	1:1 Capacity
Ecodex P-303-N	NH ₄ /OH	1:2	1:1 Capacity
Ecodex P-305-N	NH ₄ /OH	1:9	1:1 Capacity
Ecodex E-100	Inert	100% Fiber	N/A

Typical Operating Conditions

Service Flow Rate	2.5 – 10 m/hr (1 – 4 gpm/ft ²)
Recommended Precoat Dosage	0.5 – 1 dry kg/m ² (0.1 – 0.2 dry lb/ft ²)
Min/Max Precoat Dosage	0.4 / 1.5 dry kg/m ² (0.08 – 0.3 dry lb/ft ²)
Typical Precoat Thickness	6 mm (1/4 inch) @ 1 dry kg/m ² (0.2 dry lb/ft ²)
Temperature	27°– 49°C (80°– 120°F) Max 116°C (240°F)



Graver Technologies Worldwide Locations



Superior Products and Global Reach

Graver Technologies designs, develops and manufactures ion exchange technology and products that enable and enhance separation, purification, process filtration and analysis. A Marmon Water/Berkshire Hathaway Company, Graver has a long history of strong corporate support, ion exchange innovation, industry commitment, global reach and world-class capabilities.

Whether you are around the corner or across the globe, Graver Technologies supports customers with superior products and services. Customers worldwide trust our products over competitive offerings; we export about a third of our manufacturing output. Backed by more than half a century of innovation, our ion exchange products treat over 6.5 billion gallons of water daily in more than 38 countries.

In the United States, over 90 percent of nuclear power facilities choose Graver's ion exchange systems, services and products to meet stringent water purity requirements.



Graver Technologies

All information and recommendations appearing in this bulletin concerning the use of products described herein are based on tests believed to be reliable. However, it is the user's responsibility to determine the suitability for his own use of such products. Since the actual use by others is beyond our control, no guarantee, expressed or implied, is made by Graver Technologies as to the effects of such use or the results to be obtained. Graver Technologies assumes no liability arising out of the use by others of such products. Nor is the information herein to be construed as absolutely complete, since additional information may be necessary or desirable when particular exceptional conditions or circumstances exist or because of applicable laws or governing regulations. Aegis, Aegis DualGuard, Ecocote, Ecodex and Powdex are registered trademarks of Graver Technologies.

© 2019 Graver Technologies, LLC. All rights reserved.

Graver Technologies, LLC

200 Lake Drive, Glasgow, DE 19702

T 800.533.6623

T 302.731.1700

F 302.731.1707

info@gravertech.com

gravertech.com

China

RM 16D, Building B

No.1118, Changshou Road

Shanghai, China 200042

T +(86) 21.5238.6576

F +(86) 21.5238.6579

Europe

Koenigstrasse, 10c. D-70173

Stuttgart, Germany

T +33 (6) 1933.1110

India

T +(91) 9212.722.691

United States

IX Manufacturing



ISO 9001
FM 592082

Nuclear QA and ISO Certified

72 Lockwood Street, Newark, NJ 07105

T 800.533.6623

Nuclear Quality Assurance Program
10CFR50, Appendix B



A Marmon Water/Berkshire Hathaway Company