Nitto
Innovation for Customers

HYDRANAUTICS

HYDRACoRe®

Nanofiltration Solutions for Color Removal, Dye Concentration and De-salting

Hydranautics' HYDRACoRe® (Hydranautics Color Removal) membranes are sulfonated polyethersulfone-based spiral-wound, crossflow elements that can be used for potable water as well as industrial applications in which color reduction with minimal removal of dissolved salts is desired. The key advantage of the HYDRACoRe® technology is the membranes' superior chlorine-tolerance. For example, HYDRACoRe® membranes tolerate up to 100 ppm chlorine during short term cleansing.

HYDRACoRe® crossflow element systems can provide a cost-effective and environmentally friendly alternative to activated carbon-based color adjustment systems in a variety of applications. The membranes reject high molecular-weight organic compounds such as colorants and pass sugars, minerals and flavor components into the finished product. They can also be used by colorant manufacturers to concentrate color and polish color from wastewater streams.

HYDRACoRe® Product Offerings:

Hydranautics' HYDRACoRe® nanofiltration membranes are offered with the following rejection profiles

	Average NaCl Rejection	MWCO (Dalton)
HYDRACoRe10	20%	~3000 Daltons
HYDRACoRe50	55%	~1000 Daltons
HYDRACoRe70pHT	87%	~700 Daltons

Notice: rejection efficiencies are dependent upon feed pressures, the greater the feed pressures typically yielding higher rejections. In addition to the studies done above on coffee, grape juice, soy sauce, red wine and tea, additional studies have been completed on the rejection efficiencies of propylene glycol, glucose, sucrose and dyesspecific end uses

Available Sizes and Configurations:

Fiberglass-wrapped elements

- 4040 with 30 mil spacer
- 8040 with 30 mil spacer

Full-fit, net-wrapped elements

- 3838 with 30 or 46 mil spacer
- 8038 with 30 or 46 mil spacer

Advantages of using HYDRACoRe® vs. Activated Carbon (AC) Adsorption:

- Elimination of the AC as a waste stream
- Elimination of "trap filtration" to remove AC dust in the process stream
- Elimination of the need to receive, ship, change out and ship AC, as well as capture its dust in the atmosphere
- Elimination of AC performance-variability as the carbon reaches adsorption capacity

Key Benefits:

- Removes and adjusts color
- Tolerates pH variation well
- High temperature compatibility up to 70 ˚C for HYDRACoRe70pHT
- Rejects low molecular weight organics while passing salts, sugars and water
- High and stable permeate flux
- Prevents scaling due to low salt rejection
- Reduces antiscalant costs
- Eliminates permeate remineralization costs
- Tolerates chlorine well for increased cleaning efficiency
- Green technology



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Food and Beverage Applications:

- Color removal / adjustment for alcoholic beverages such as vodka, whiskey, brandy, rum, wine, port, sherry
- Concentration/ de-colorization of amino acids and sugars
- De-colorizing of corn syrup, glucose and dextrose-type syrups
- De-colorizing of lactose and removal of color from microfiltration permeate in pre-cheese milk concentration applications
- De-colorizing and concentrating of fish, meat and vegetable extracts for seasoning manufacturing (done by Nitto) for use in food-blending applications
- Removal of color in flavorings and extracts such as vanilla and almond for use in food blending applications
- Color removal/adjustment of clear juices, fruit juices and vegetable juices
- Color removal from liquid sugar, spices, and vegetable oils
- Concentration of oligosaccharides (done by Nitto)
- De-coloring of tabasco, worcestershire, fish extracts and soy sauces
- Color adjustment or removal from corn syrup, maple syrup, molasses, liquid coffee, tea, vinegar, wine vinegars

BioPharm Applications:

- Removal of color units in biopharmaceuticals manufacturing (the application is to replace powdered activated carbon (PAC) for de-colorizing and removal of trace impurities)

Drinking Water Applications:

- Color removal in municipal drinking water and ground water

Chemical Manufacturing Applications:

- De-colorizing in different types of fixed bed processes in chemical production
- Removal of color in fine chemicals
- De-colorizing of industrial acids such as phosphoric H_3PO_4 in phosphate rock mining/production. A high-quality green acid is utilized which is de-colored to produce white phosphoric acid

Industrial Applications:

- Color removal from kraft pulp mill water and paper waste streams, wastewaters in textile dyeing operations, tannery wastewater effluent, electroplating operations, cosmetics and fragrances
- Removal of unwanted color compounds from glycerine, dyes and colors from wastewater
- Flexigraphic ink concentration and reclamation from wastewater

Solutions You Need.

Technologies You Trust!

Hydranautics Corporate office

Americas
401 Jones Road,
Oceanside,

Europe and Africa
Calle Constitucion 3,
3° 5ª Sant Just
Desvern,
08960 Barcelona,
Spain

Middle East
UAE

Saudi Arabia

Indian Subcontinent
516 'C' Wing - 215
Atrium, Andheri Kurla

Mumbai 400059,
India

China
15-16F, The Place Tower

Changning District,
Shanghai 200051,
P.R. China

SEA & Oceania

#19-01/04,
Alexandra Point,
Singapore 119958

Japan
26F, Shinagawa
Season Terrace,
1-2-70, Konan,
Minato-ku, 108-0075,
Tokyo, Japan

Consultas y ventas: AQUAREP · www.aquarep.com.ar · info@aquarep.com.ar · WhatsApp +54 9 11 6091-0087