Product Data Sheet

DOWEX™ FPC23UPS H Ion Exchange Resin

Uniform Particle Size, High Capacity, Strong Acid Cation Exchange Resin

Description

DOWEX™ FPC23UPS H Ion Exchange Resin is a macroporous, uniform particle size, high capacity, strong acid cation resin designed for the deashing of organic acid and syrups in counter-current regeneration systems. (For co-flow regeneration systems, DOWEX MONOSPHERE™ 88 Ion Exchange Resin is recommended.)

Due to its optimal pore structure and high crosslinking level, DOWEX FPC23UPS H exhibits high operating capacity and excellent stability to compressive and osmotic stress.

Applications

- Organic acid deashing
- Syrup deashing

Typical Physical and Chemical Properties**

Matrix	Styrene-divinylbenzene, macroporous
Type	Strong acid cation
Functional Group	Sulfonic acid
Physical Form	Opaque, spherical beads
Ionic Form as Shipped	H^+ Form
Total Exchange Capacity	≥ 2.2 eq/L
Water Retention Capacity	45 – 51%
Particle Size	
Particle Diameter [b]	530 ± 50 µm
Uniformity Coefficient	≤ 1.1
< 425 µm	≤ 3%
Whole Uncracked Beads	≥ 95%
Bulk Density, as Shipped [c]	820 g/L

[b] For additional particle size information, please refer to the Particle Size Distribution Cross Reference Chart (Form No. 177-01775).
[c] As per the backwashed and settled density of the resin, determined by ASTM D-2187.

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Suggested Operating Conditions**

Maximum Operating Temperature	93°C (200°F)
pH Range	0 – 14
Bed Depth, min.	91 cm (3.0 ft)
Flowrates	
Service	1 – 3 BV*/h
Backwash	See Figure 1
Fast Rinse	2 – 4 BV at service flowrate
Contact Time	
Regeneration	30 – 45 minutes
Displacement Rinse	30 – 45 minutes
Total Rinse Requirement	2 – 5 BV
Regenerant	HCl
Concentration	7%
Level	86 – 120 kg/m^3 (5.5 – 7.5 lb/ft^3)
Temperature, max.	93°C (200°F)

* 1 BV (Bed Volume) = 1 m^3 solution per m^3 resin or 7.5 gal per ft^3 resin

Hydraulic Characteristics

Bed expansion of DOWEX™ FPC23UPS H Ion Exchange Resin as a function of backwash flowrate at 25°C (77°F) is shown in Figure 1. The flowrate necessary to achieve a desired bed expansion for other water temperatures can be calculated with the provided equations.

Pressure drop data for DOWEX FPC23UPS H as a function of service flowrate and viscosity is shown in Figure 2.

Figure 1: Backwash Expansion

Temperature = 25°C (77°F)

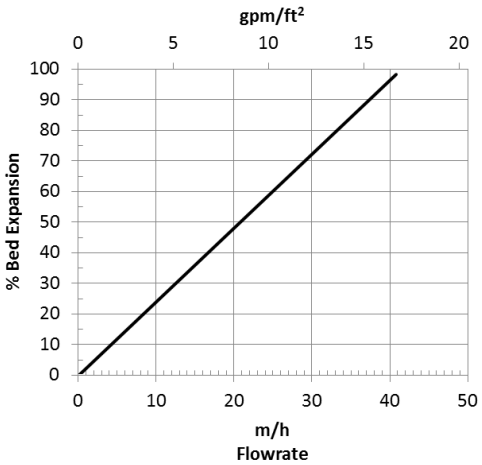
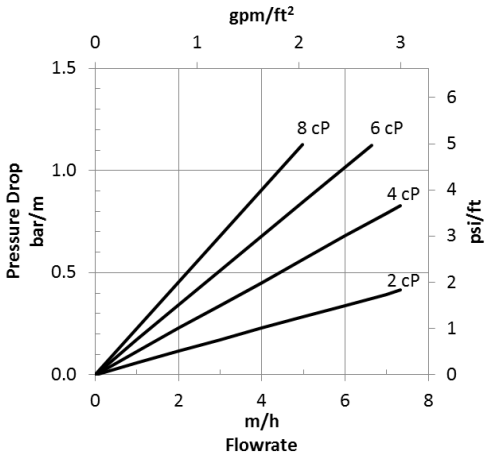


Figure 2: Pressure Drop

Using syrup @ 2 cP, 4 cP, 6 cP, 8 cP



For other temperatures use:

$F_T = F_{25°C} [1 + 0.008 (1.8T_{°C} - 45)]$, where F ≡ m/h

$F_T = F_{77°F} [1 + 0.008 (T_{°F} - 77)]$, where F ≡ gpm/ft²

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Start-up

All that is required at the time of commissioning is to perform a full regeneration cycle followed by a rinse with at least 20 bed volumes of water. This is valid only if the resin is stored at a temperature of less than 25°C and protected from UV radiation and if the storage time between the production date (printed on the packaging) and use does not exceed 24 months.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

For more information, contact our Customer Information Group:

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WARNING: Oxidizing agents such as nitric acid attack organic ion exchange resins under certain conditions. This could lead to anything from slight resin degradation to a violent exothermic reaction (explosion). Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

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