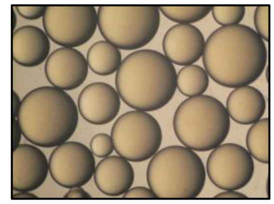
Product Data Sheet

AMBERLITE™ SCAV1 Ion Exchange Resin

Gaussian, Acrylic, Gel, Organic Scavenging Resin for Industrial Demineralization Applications

Description

AMBERLITE™ SCAV1 Ion Exchange Resin is an exceptional scavenger used as an integrated part of the demineralization system to effectively remove natural organic matter (NOM) from waters under different operational circumstances, bringing water quality and operational stability back under control.



Compared to conventional scavengers, AMBERLITE SCAV1 can save up to 85% on chemical costs when applied in Dow's patent-pending organic scavenging process in which the scavenger is positioned between the cation and anion columns. This process can also reduce water use, and waste discharge volume/TDS, thus demonstrating that a process can be both environmentally and economically beneficial. AMBERLITE SCAV1 has the extraordinary flexibility to operate with two performance profiles depending on the regenerant used. The highest capacity for TOC removal can be achieved when regenerating this resin with hydrochloric acid. To achieve the lowest possible TOC leakage, it is recommended to regenerate with caustic.

Compared to conventional strong base anion scavenger resins, the chemical properties of AMBERLITE SCAV1 provide outstanding adsorption capacity of undesired NOM species during service, and easy release of these compounds upon very mild (stoichiometric) regeneration conditions, making the use of (alkaline) brine no longer necessary.

Because of its extra high capacity for sulfate, AMBERLITE SCAV1 TOC scavenging resin is the best product to use when throughput is expected to be limited by sulfate rather than TOC, as when the ratio of TOC (ppm C) to sulfate (meq/L SO_4) is less than 3.

Applications

- Organic scavenging
  - to reduce TOC in the product water
  - to protect the strong base anion resin from fouling

System Designs

- Co-current

Form No. 177-03815, Rev. 0
May 2018

Typical Physical and Chemical Properties**

Physical Properties	
Copolymer	Crosslinked acrylic
Matrix	Gel
Type	Organic scavenger
Physical Form	Clear to white, translucent, spherical beads
Chemical Properties	
Ionic Form as Shipped	Free base (FB)
Total Exchange Capacity	≥ 1.3 eq/L (Cl form)
Water Retention Capacity	55.0 – 68.0% (FB form)
Particle Size	
Particle Diameter §	475 – 725 µm
< 300 µm	≤ 1.0%
> 1180 µm	≤ 5.0%
Stability	
Whole Uncracked Beads	≥ 95%
Swelling	FB → HCl : 25%
Density	
Particle Density	1.07 g/mL
Shipping Weight	650 g/L

§ For additional particle size information, please refer to the Particle Size Distribution Cross Reference Chart (Form No. 177-01775).

Suggested Operating Conditions**

Temperature Range (Cl^- form)	5 – 60°C (41 – 140°F)
pH Range	
Service Cycle	1 – 6
Stable	0 – 14

For additional information regarding recommended minimum bed depth, operating conditions, and regeneration conditions for scavenger resins (Form No. 177-03929) in water treatment, please refer to our Tech Fact.

Hydraulic Characteristics

Estimated bed expansion of AMBERLITE™ SCAV1 Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Estimated pressure drop for AMBERLITE SCAV1 as a function of service flowrate and temperature is shown in Figure 2. These pressure drop expectations are valid at the start of the service run with clean water and a well-classified bed.

Figure 1: Backwash Expansion

Temperature = 10 – 60°C (50 – 140°F)

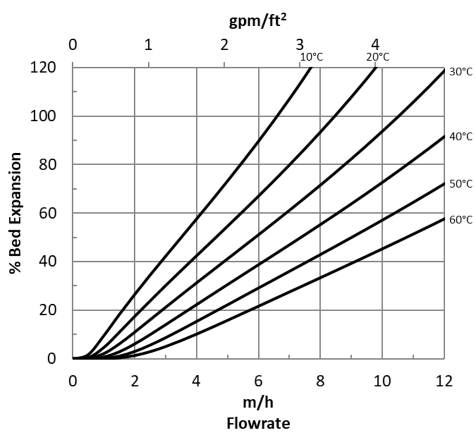
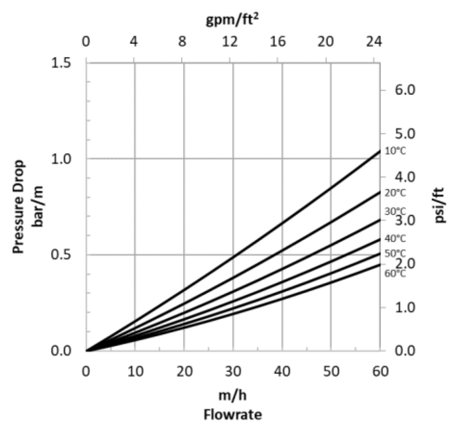


Figure 2: Pressure Drop

Temperature = 10 – 60°C (50 – 140°F)



Form No. 177-03815, Rev. 0
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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.

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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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