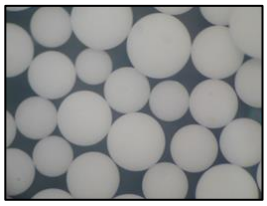
Product Data Sheet

AMBERLITE™ SCAV2 Ion Exchange Resin

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

Description



AMBERLITE™ SCAV2 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 SCAV2 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 SCAV2 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 SCAV2 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 loading capacity for organics, AMBERLITE SCAV2 TOC scavenging resin is the best product to use when throughput is expected to be limited by TOC rather than sulfate, as when the ratio of TOC (ppm C) to sulfate (meq/L SO_4) is greater than 3.

Applications

- Organic scavenging
  - to reduce TOC in the product water
  - to protect the strong base anion resin from fouling
  - in high-temperature applications like process condensate treatment

System Designs

- Co-current

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Typical Physical and Chemical Properties**

Physical Properties	
Copolymer	Crosslinked acrylic
Matrix	Macroporous
Type	Organic scavenger
Physical Form	White, opaque, spherical beads
Chemical Properties	
Ionic Form as Shipped	Free base (FB)
Total Exchange Capacity	≥ 0.9 eq/L (Cl form)
Water Retention Capacity	66.0 – 76.0% (FB form)
Particle Size	
Particle Diameter §	600 – 800 µm
< 300 µm	≤ 1.0%
> 1180 µm	≤ 5.0%
Stability	
Whole Uncracked Beads	≥ 95%
Swelling	FB → HCl : 25%
Density	
Particle Density	1.06 g/mL
Shipping Weight	640 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 – 80°C (41 – 176°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™ SCAV2 Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Estimated pressure drop for AMBERLITE SCAV2 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)

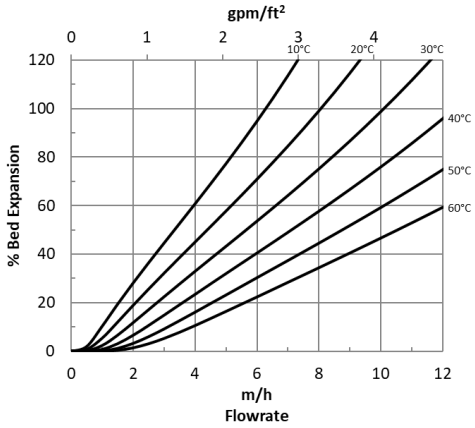
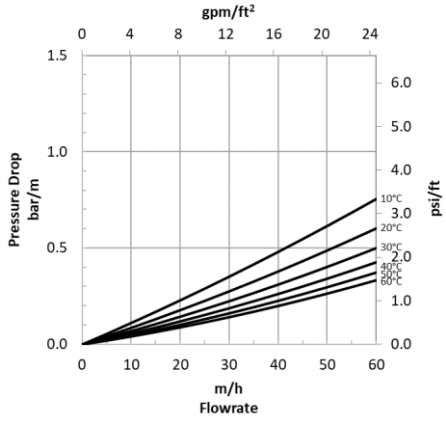


Figure 2: Pressure Drop

Temperature = 10 – 60°C (50 – 140°F)



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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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