

Product Data Sheet

DIAION™ CR11

DIAION™ CR11 is an iminodiacetate type chelating resin. It has a high selectivity for multivalent metal ions, especially transition metal elements like Fe(III) and Cu(II), than monovalents. It also provides rapid kinetics, high operating capacity, low swelling and shrinking ratio, and excellent mechanical stability. It is recommended for chemical process separations, and metals removal and recovery from wastewater.

The selectivity of DIAION™ CR11 toward metal ions :

$\text{Cr}^{3+} > \text{In}^{3+} > \text{Fe}^{3+} > \text{Ce}^{3+} > \text{Al}^{3+} > \text{La}^{3+} > \text{Hg}^{2+} > \text{UO}^{2+} > \text{Cu}^{2+} > \text{VO}^{2+} > \text{Pb}^{2+} > \text{Ni}^{2+} > \text{Cd}^{2+} > \text{Zn}^{2+} > \text{Co}^{2+} > \text{Fe}^{2+} > \text{Mn}^{2+} > \text{Be}^{2+} > \text{Ca}^{2+} > \text{Mg}^{2+} > \text{Sr}^{2+}$

Product		
Grade Name	DIAION™ CR11	
Type	Chelating Resin	
Matrix	Styrene-DVB, Highly Porous	
Chemical Structure		
Functional Group	Iminodiacetate	
Ionic Form	Na^+	
Specification		
Whole Bead Count	-	95 min.
Cu Adsorption Capacity	mmol/mL	0.5 min.
Water Content	%	60 - 66
Particle Size Distribution on 1180 μm	%	5 max.
Particle Size Distribution thr. 355 μm	%	2 max.
Effective Size	mm	0.40 min.
Uniformity Coefficient	-	1.6 max.
Calcium Breakthrough Capacity	meq/mL	0.35 min.
Typical Properties		
Shipping Density	g/L	730
Mean Particle Size	μm	560
Particle Density	g/mL	1.12
Total Swelling (H^+ to Na^+)	%	28

Recommended Operating Conditions

Maximum Operating Temperature	°C	120 (Na ⁺) 80 (H ⁺)
Effective pH Range		4* - 10**
Minimum Bed Depth	mm	800
Service Flow Rate	BV/h	10 - 30
Regenerant		HCl
Regenerant Concentration	%	HCl 4 - 10
Regenerant Level	g/L	100 - 200
Regenerant Flow Rate	BV/h	2 - 10
Total Rinse Requirement	BV	10 - 20

1 BV(Bed Volume)=1 m³/m³-resin

*Some metal ions can be slightly adsorbed at a pH lower than 4.

**In an alkaline solutions, ions may be precipitated as hydroxides.

Hydraulic Characteristics

The approximate pressure drop at various temperatures and flow rates for each meter of bed depth of DIAION™ CR11 resin in normal down flow operation is shown in the graphs below.

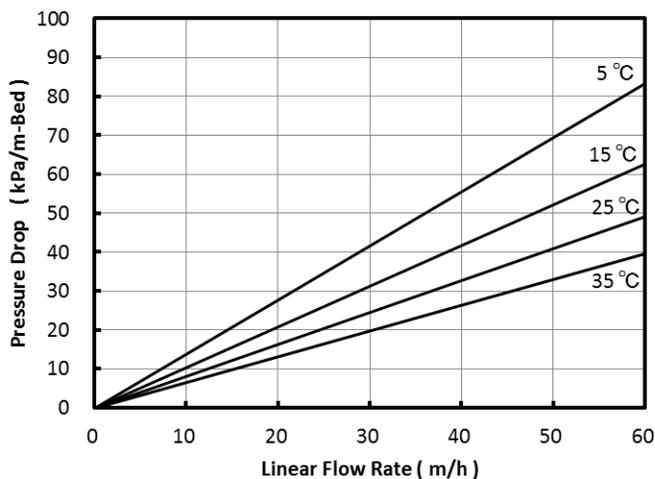


Fig. 1 Pressure Drop of CR11

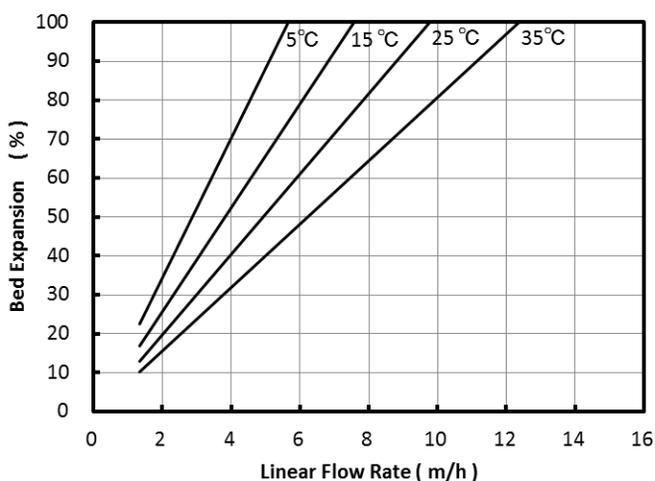


Fig. 2 Bed Expansion of CR11

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