

## PRODUCT DATA SHEET

# AMBERLITE™ IRC86RF

## Industrial Grade Weak Acid Exchanger

AMBERLITE IRC86RF resin is a gel type high capacity weak acid cation exchange resin containing carboxylic acid groups. The principal application of this resin is dealkalization of industrial waters. AMBERLITE IRC86RF resin, in the hydrogen cycle, removes hardness associated with alkalinity. The particle size distribution of AMBERLITE IRC86RF is designed for use in packed bed and floating bed

systems. When used in combination with a strong acid cation exchanger in demineralizer systems, it reduces acid regenerant consumption. Due to its high swelling, it is not recommended to use AMBERLITE IRC86RF in applications where the resin is fully converted from H<sup>+</sup> to Na<sup>+</sup> form.

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### PROPERTIES

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Physical form _____	Clear amber spherical beads
Matrix _____	Gel polyacrylic copolymer
Functional group _____	Carboxylic acid
Ionic form as shipped _____	H <sup>+</sup>
Total exchange capacity <sup>[1]</sup> _____	≥ 4.10 eq/L (H <sup>+</sup> form)
Moisture holding capacity <sup>[1]</sup> _____	47 to 53 % (H <sup>+</sup> form)
Shipping weight _____	790 g/L
Particle size	
Uniformity coefficient <sup>[1]</sup> _____	≤ 1.5
Harmonic mean size <sup>[1]</sup> _____	0.600 to 0.800 mm
< 0.300 mm <sup>[1]</sup> _____	0.1 % max
Reversible swelling _____	H <sup>+</sup> → Na <sup>+</sup> ≤ 100 %
(total conversion)	H <sup>+</sup> → Ca <sup>++</sup> ≤ 15 %
	H <sup>+</sup> → Mg <sup>++</sup> ≤ 50 %

<sup>[1]</sup> Contractual value

Test methods are available on request.

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### SUGGESTED OPERATING CONDITIONS

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Maximum operating temperature _____	100°C
Minimum bed depth _____	700 mm
Service flow rate _____	5 to 70 BV*/h
Regeneration	
Regenerant _____	HCl     H <sub>2</sub> SO <sub>4</sub>
Level _____	104 to 110 % of operating capacity
Concentration (%) _____	2 to 5     0.5 to 0.7
Minimum contact time _____	30 minutes
Slow rinse _____	2 BV at regeneration flow rate
Fast rinse _____	2 to 4 BV at service flow rate

\* 1 BV (Bed Volume) = 1 m<sup>3</sup> solution per m<sup>3</sup> resin

## PERFORMANCE

### Operating capacity

The operating capacity of AMBERLITE IRC86RF resin is a function of analysis, temperature and service flow rate of water. Data providing information to calculate the capacity are given in the engineering data sheet (EDS 0235 A).

### Regeneration

AMBERLITE IRC86RF resin is readily regenerated with little over stoichiometric amounts of strong acids. If sulfuric acid is used, care must be taken to apply a low concentration of  $H_2SO_4$  (• 0.7 %) in order to avoid calcium sulfate precipitation.

## LIMITS OF USE

Due to its high swelling between  $H^+$  and  $Na^+$  or  $NH_4^+$  forms, it is recommended not to use AMBERLITE IRC86RF resin between these ionic

forms. AMBERLITE IRC86RF resin is suitable for industrial uses. For all other specific applications such as pharmaceutical, food processing or potable water applications, it is recommended that all potential users seek advice from Rohm and Haas in order to determine the best resin choice and optimum operating conditions.

## HYDRAULIC CHARACTERISTICS

Figure 1 shows the bed expansion of AMBERLITE IRC86RF resin as a function of backwash flow rate and water temperature. Figure 2 shows the pressure drop data for AMBERLITE IRC86RF resin, as a function of service flow rate and water temperature. Pressure drop data are valid at the start of the service run with clear water and a correctly classified bed. The hydraulic curves are for  $H^+$  form resin.

