

ION EXCHANGER



R2

Applications

The R2 ion exchange column produces purified water for research, medical and pharmaceutical applications.

Description

The mixed bed of resins in the R2 ion exchanger reacts like a large number of pairs of cation and anion exchangers in series. The strong acid produced by the cationic resin ($\text{RH}^+ + \text{NA Cl} \Rightarrow \text{RNA}^+ + \text{HCl}$) is immediately neutralized by the neighboring anionic resin ($\text{ROH} \rightarrow +\text{HCl} \text{ RCl H}^2 \text{ O}$) resulting in the formation of water, so that the exchange front remains neutral. The water passing through the exchanger is thus demineralized without releasing the co-ions resulting from the exchange, which would restrict the reaction by establishing an equilibrium, as in the case of a cationic or anionic exchange alone.

The height of the exchange front therefore depends on the diffusion rate of the ions, the volume charge of the solution and its initial concentration.

The result is an exceptional water quality that is almost impossible to get with the classical technique of separate cationic and anionic beds. A coloured indicator is used to show the saturation point. Once saturated, the resin can't be regenerated.

Properties

- **Structure:**
Styrene / Divinylbenzene copolymer
- **Functional groups:**
Quaternary ammonium
- **Composition:**
40% strongly acidic cations
60% strongly basic anions
- **Ionic Form:**
H⁺ (95% minimum)/OH⁻(90% minimum)
- **Chemical resistance:**
INSOLUBLE in acids, diluted bases and standard solvents.
- **Color change:**
New **BLEU**, saturated **OCRE**

Characteristics

- **Conductivity:** 0.3 à 2 µS/cm
- **Maximum pressure:**
3 bar at room temperature
- **Minimum treated volume:** 180 L at 20°F
- **Flow rate:** up to 20 liters/hour
- **Working temperature:** 10-60°C
- **Storage:**
1 year, in its original packaging, at room temperature
- **Dimensions:** 500x60 mm
- **Weight:** 1,35 kg

Performance

The conductivity is related to the influent water alkalinity. The capacity can be estimated by the following formula:

$$\text{Vol} = 550/\text{ST}$$

Vol is the number of liters of water with total salinity ST (meq/l) that one liter of resin can treat until it reaches saturation.