

# ION EXCHANGE RESINS

**Transforming water  
quality, one bead at a time!**

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## Softening & Dealkalisation

Strong Acid Cation exchange (SAC) resin resistant to chlorine oxidation. Suitable for potable use and solvent-free. Ideal for Sodium dealkalization and softening applications. Low PSSA leakage.



Weak Acid Cation exchange (WAC) best suitable for dealkalization and softening applications. Temporary Hardness & Alkalinity associated with hardness ions



**In certain situations, the outcomes may be remarkable when using these resins together & as a great RO pre-treatment step.**



# De-Ionisation & Demineralisation

Strong Acid Cation exchange (SAC) resins are designed with a high degree of cross-linking and optimized bead size distribution to efficiently remove cations. They are mechanically stable and robust.

In multistage cation removal systems, Weak Acid Cation exchange (WAC) resins are utilized along with other components to effectively remove divalent ions.

Strong Base Anion exchange (SBA) resins offer high selectivity for anions and soft anions like silica and carbonate/bicarbonate ions.

The most suitable choice for strong anions is the Weak Base Anion (WBA) exchange resins. The proportion of SBA groups can be tailored for the best outcomes.



Avert the preventable PSSA fouling issue on SBA resins!





# Mixed Bed Resins & Condensate Polishing

Specialty SAC resins have a high degree of cross-linking and well-optimized bead size distribution to effectively eliminate trace cations. They offer high purity and fast kinetics in a mixed bed system.



Regeneration stands out as the pivotal stage in the design and operation of a mixed bed plant or CPP unit. The morphology and chemical attributes of the resin hold significant importance in this process.

Premium quality SBA resins are designed for high temperature stability and surface treated for high stress mixed bed applications. They offer excellent separability, mechanical stability, and osmotic stability.

When the temperature goes over 60C, the deterioration of SBA Resin accelerates!



# Ready To Use or Non-Regenerable Mixed Bed Resin (RTU/NRMB)



There are pre-formulated resin mixtures offered in various stoichiometric proportions to facilitate the production of ultrapure water (UPW). Common applications include stator cooling, Semiconductor,\* Pharma, labortary, medical and RO permeate polishing.

NRMB/UPW resins of premium quality are engineered to achieve high specific flow rates and are delivered in a highly regenerated state. Proper storage and packaging play a critical role in minimizing rinse times.

Selection criteria for NRMB include:

- Target Conductivity
- Total Organic Carbon (TOC)
- Silica levels
- CO<sub>2</sub> load
- Particle concentration
- Boron\*





# Heavy Metals Removal



Iminodiacetic Acid (IDA) and AminoMethylphosphinic Acid (AMPA) are specialized chelating resins designed to effectively remove trace levels of various heavy metals such as Cu, Ni, Co, Zn, Cd, and Pb. They can also target trivalent metals like  $Al^{3+}$  and  $Cr^{3+}$  under specific conditions.

Chelating resins can be used as single use or regenerable with common chemicals. Special functional groups for contaminants like Hg are also well established.

These resins are highly efficient for brine softening and high total dissolved solids (TDS) applications. Additionally, Fe and Mn Catalytic adsorbers demonstrate great effectiveness in handling concentrations below 10 and 5ppm, respectively.

pH holds the crown!



# Selective Anionic Resins for Dissolved Contaminants Removal

**Nitrates-** Multiple options are available. Background sulfate concentrations drive the resin selection.

**Sulfates-** AIX resins with complex amine functionality show high capacity

**Phosphates-** Selective removal is better with granular ferric hydroxide adsorbers

**Chromate (VI)-** Special chelating functional group is extremely effective

**Perchlorate-** Single-use Tributyl Amine resin exhibits extremely high selectivity

**Cyanides-** Various anionic resins have been proven for this application. These can be extended to Uranium removal

**Selenates & Arsenic-** Regenerable chelating resins & GFH adsorbers

**Boron-** Macroporous Chelating anionic resins

**Flouride-** Doped chelating resins based on IDA & AMPA functionality



When you prioritize selectivity, regeneration is impacted as a trade-off!





# PFAS Selective AIX Resins

By employing a combination of adsorption and ion exchange mechanisms with proper pre-treatment, PFAS selective IX resins offer a superb solution for achieving extremely high removal efficiency and ultra-low concentrations in the treated stream. When coupled with effective pre-treatment and controlled co-contaminant levels, PFAS AIX can be seamlessly integrated into any treatment flowsheet, serving as a pivotal step or a final polisher.

Weak Base Anion Resins  
SBA with moderate Selectivity  
Super Selective AIX  
Gel & Macroporous  
Uniform Particle Size  
Drinking Water Certification

**Maximize capacity and selectivity balance with a range of resin options!**





# ADSORBER PORTFOLIO

High Capacity Macroporous Adsorbers for VOC  
Customised bead morphology  
BTEX Removal  
Chlorinated Hydrocarbons  
Alkanes  
CO<sub>2</sub> Capture  
Steam regeneration





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