Storage & Transportation

Dehydration

One of the major risks is that resins dry out. Resin beads that have dried out become free-flowing and some shrinkage of the beads is evident. Care should be taken to clean up spills of ion exchange resins since the small beads are very slippery when stepped on. Unless rewetting is carried out carefully beads can crack or break on rewetting. Damage can be minimised by following the recommended procedure for rewetting the resins. A brine of 20-30% is slowly introduced and left for at least 1h to equilibrate. Brine displacement is carried out, reducing brine concentration by 5% on consecutive treatment.

A contact of 30 min. is used for successive displacements. The final 5% brine is then displaced and rinsed out with water. In cases where resin is very dry it is recommended that the process is optimized in the laboratory by altering the starting concentration of brine, temperature, rates of addition and contact times, prior to plant treatment.

It should be notes that resins in the hydrogen form will generate acid and resin in the hydroxide form, caustic soda. In each case cation resin will be converted to sodium form and anion resin to the chloride form.

Contamination

Certain resins are supplied in specially purified ionic forms. If such resins are left exposed to the atmosphere, they can become carbonated from contact with carbon dioxide or contaminated with chemicals present in the air or rainwater. Hence once resin containers are opened, resins should be used as soon as possible, and any unused resin adequately resealed in suitable containers.

Warehousing

Exposure to high temperature and sunlight. It is recommended that Jacobi resins are stored indoors or under cover. All containers,and especially bags should be stored away from direct sunlight. This is to maintain the temperature below 40 °C (104°F), and to ensure stray UV light (which can promote oxidation, and increase growth of algae and bacteria) does not fall upon any exposed resin. It also follows that resin should not be stored near a radiator, or any other heating appliance, or in a warm boiler house.

Exposure to low temperature and frost

Although it has been found that Jacobi Resins will withstand temperatures as low as -40°C (-40°F), successive thawing and freezing may damage the product, and/or the packaging. Hence it is recommended that the resins are stored above 0°C, (32°F). If for any reason resin becomes frozen it should be left to thaw out gradually. Not attempt should ever be made to free frozen material mechanically. If it is anticipated that it will be necessary to handle resin at sub-zero temperatures, the resin may be conditioned with saturated brine prior to storage.

Transportation

During transportation of resins precautions should be taken to avoid the extremes of temperatures as outlined previously. If product becomes frozen during transportation, thawing should take place gradually, without any physical interference.

Table 1. Expected Shelf Life of Ion Exchange Resins

RESIN FAMILY	**SHELF LIFE BY APPLICATION MONTHS FROM DATE OF MANUFACTURE**				
Type	Ionic Form	Potable Water & Food	Industrial Water Treatment	Nuclear Industry	Ultra-Pure Water
Strong acid cation	Na+	24	60	n/a	n/a
Strong acid cation	H+	n/a	36	24	6
Strong acid cation	NH4+	n/a	24	12	n/a
Weak acid cation	H+	12	60	n/a	n/a
Strong base anion Type 1	Cl-	24	60	n/a	n/a
Strong base anion Type 1	OH-	n/a	24	24	6
Strong base anion Type 2	Cl-	24	48	n/a	n/a
Strong base anion Type 2	OH-	n/a	12	n/a	n/a
Strong base acrylic anion	Cl-	24	48	n/a	n/a
Weak base anion	Free Base	24	60	n/a	n/a
Weak base acrylic anion	Free Base	24	48	n/a	n/a
Mixed Beds	H+/OH-	n/a	Up to 24*	24	6
Chelating	Na+ or H+	24	60	n/a	6

*DEPENDENT ON STORAGE CONDITIONS, PRECONDITIONING APPLIED AND INTENDED APPLICATION

25 Lit. Polyethylene valve bag

48 bags per pallet

Polyethylene FIBCs
(big bag), 1.000 lit.

JACOBI-TIS-RESINEX-STORAGE-TRANSPORTATION-A4-ENG-A0413

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