



## **DOWEX™ Ion Exchange Resins**

### Loading and Start Up Procedure for Layered Bed Anion Resins

For coflow and blocked systems:

#### **Procedure**

##### **Before loading the resins, make a detailed inspection of the empty vessel:**

- Remove all debris from previous resins or foreign material.
- Clean up distributors and collector, and inspect all laterals for damage or plugging.
- Inspect the nozzles, check that they are in good shape, clean and tight, and gaskets are intact and in place. Whenever possible, replace with new ones if older than 5 years.
- Inspect the rubber lining for integrity, and perform a spark test, if possible.
- Whenever possible, check the pressure loss of the empty vessel at nominal flow rate (in the case of in-situ regeneration) and observe the flow patterns for uniformity.

##### **Loading of the resins:**

- Make available water in the right quality and quantity.
- Fill the vessel with sufficient water (~1/3 vessel height), or completely in the case of using a vacuum eductor.
- Load the strong base anion resin in the chloride form by dumping the resin from the top, or by the use of a vacuum eductor.
- Backwash the resin at maximum available expansion for 30 minutes, according to the manufacturers recommended flow rates.
- Let the resin settle and record the level.
- With 1 meter (3 feet) of water above the strong base anion resin, load the weak base anion resin and soak overnight to ensure wetting of the resin. Backwash at 1.5-2 m/hr (0.5-0.75 gpm/ft<sup>2</sup>) for 30 minutes.
- Alternatively, if an overnight soak is not feasible, the bed can be operated for one cycle before a backwash is performed. This will allow the resin to be wetted during operation, but care should be taken so that a backwash is not performed on unwetted resin, as resin loss will occur.
- Close the vessel and carry out a double regeneration.

##### **Start-up operation:**

- Start the run and monitor rinse down and conductivity.
- It is strongly recommend that the first runs be stopped based on throughput, according to the CADIX design. The plant may produce more after a double regeneration, but if exhausted in this condition it will take more cycles to reach the final equilibrium at normal regeneration levels. The expected high water quality at countercurrent systems will be achieved only after a few runs, provided that the endpoint is monitored correctly and the plant is not overrun.

**DOWEX™ Ion Exchange Resins**  
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Warning: Oxidizing agents such as nitric acid attack organic ion exchange resins under certain conditions. This could lead to anything from slight resin degradation to a violent exothermic reaction (explosion). Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

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