

DOW™ Ion Exchange Resins

Proper Storage Conditions for DOW Ion Exchange Resins

**Storage of New,
Unused Resin**

Unused resins, in their original packaging, can be stored under proper conditions for longer than their recommended shelf life without experiencing a decline in their physical properties, in most cases. Standard demineralizing and softening resins experience minimal change in chemical properties over a three-year period. For more sensitive applications, shorter storage times are recommended as shown in the following table.

Resin	Ionic Form	Application			
		Softening	Demineralization	Nuclear	Ultrapure Water
Cation	Na	3 years	3 years		
Cation	H		3 years	3 years	3 years
Cation	NH ₄			3 years	
Anion types 1/2	Cl		3 years		
Anion type 1	OH		2 years	2 years	2 years
Ready to use mixed bed	H/OH		3 years	3 years	3 years
IMAC HP resins	H/OH	1 year	1 year		

Resins should be stored in their original unopened packaging in a cool dry area. An indoor storage facility with climate control between 0-40° C (32-105° F) should be used for the best results.

Storage temperatures above 40° C (105° F) can cause premature loss of capacity for anion resins, particularly those stored in the OH-form. While cation resins can withstand higher temperatures (up to 80° C/175° F), it is best to store all resins under similar conditions. Storage temperatures below 0° C (32° F) can cause resin freezing. Tests of DOW™ resins under repeated freeze-thaw cycles show that bead damage can occur, so frozen resin must be thawed before safe loading can take place. Frozen resin should be thawed out completely under room temperature conditions before loading and use.

**Storage of Used
Resins**

As with new resins, used resins should be stored under climate controlled conditions, where feasible, to maximize the life of the resins.

Additionally, care should be taken that resins are not exposed to air, as they will dry out and shrink. When re-hydrated, these resins are susceptible to bead breakage due to rapid re-swelling. The salt can then be removed by successive dilutions, to prevent rapid change in osmotic pressures and resulting bead breakage.

Biological growth problems can be caused by inactivity of the resin during extended storage. In order to minimize the potential for biofouling, inactive systems should be stored in a biostatic solution such as concentrated NaCl. In addition to minimizing biogrowth, the concentrated brine solution will prevent freezing. The recommended procedure for resins used for water demineralization is as follows:

- After exhaustion and a thorough backwash, the resin is ready for lay-up.
- Apply a 15-25% NaCl solution to the bed and fill the vessel so that no air is present.
- Upon reactivation of the vessel, the resin will need to be re-hydrated by successive washes of less concentrated salt to minimize osmotic shock.
- Prior to service, the beds must undergo a double or triple regeneration.

For mixed bed resins in condensate polishing and other ultrapure water applications, the resins should be left in a regenerated condition as follows:

- Separate the resins and carry out a double regeneration.
- Rinse out the regenerants and leave the resins in the rinse water.
- Flush the resins periodically down-flow (about once per week) to remove any TOC (Total Organic Carbon) leachate.
- Prior to start-up, rinse and regenerate as normal.

LENNTECH

info@lennotech.com Tel. +31-152-610-900

www.lennotech.com Fax. +31-152-616-289

DOW™ Ion Exchange Resins

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.

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

