



## Discontinuation of DOWEX™ MAC-3 Ion Exchange Resin

Technical replacement guide and frequently asked questions for ion exchange resins in water treatment for industrial and power market segments.

### Introduction

DuPont Water Solutions has developed a broad and deep ion exchange product portfolio that has helped the industry meet many of its most challenging water treatment needs for over 80 years. Over the decades we have worked closely with you to ensure our innovations meet your evolving needs, and to be better enabled to continue doing so, we have recently consolidated and updated our ion exchange resin portfolio for water treatment in industrial and power market segments.

As a result customers who have been purchasing or using DOWEX™ MAC-3 Resin will now be transitioned to AmberLite™ IRC83 H Resin. The AmberLite™ IRC83 H has similar performance characteristics and will deliver the same high level of performance as DOWEX™ MAC-3. As a guide to resin transition, together with information on resin performance and applications, a set of frequently asked questions (FAQ) are provided below. We understand this change can impact your or your customers' operations, and we remain committed to support you during this transition. Please reach out to your DuPont representative for any specific questions regarding your unique situation.

### Key Resin Parameters

A comparison of physical specifications of DOWEX™ MAC-3 Resin and its replacement option is shown below.

**Table 1: Key resin parameters for the discontinued and replacement resins**

Resin Parameter	DOWEX™ MAC-3	AmberLite™ IRC83 H
Physical Form	White to amber opaque beads	Off-white, opaque spherical beads
Matrix	Polyacrylic, Macroporous	Polyacrylic, Macroporous
Functional Group	Carboxylic Acid	Carboxylic Acid
Total Volume Capacity, min. eq/L	3.8	4.7
Water Retention Capacity, %	44 – 52	40.0 – 50.0
Particle diameter, µm	***	500 - 750
Uniformity coefficient, max	***	1.6
Total Swelling (H <sup>+</sup> to Na <sup>+</sup> ) %	70	60
Shipping weight, g/L	750	785

## Frequently Asked Questions

**What are the general features of the replacement resin and where is it used?**

AmberLite™ IRC83 H Resin

- General purpose dealkalization and softening resin with a long-established record of reliable performance.
- Operated in H-form, removes only hardness associated with alkalinity
- Applications: Industrial softening, high salinity softening, demineralization of water with high oxidant levels, reverse osmosis pretreatment, steam assisted gravity drainage

**Is there a difference in appearance between DOWEX™ MAC-3 Resin and the AmberLite™ IRC83 H Resin?**

Both of these resins have a white to off-white color and will appear as spherical beads of varied size. Slight color differences may be noticed in the replacement products.

**Can the replacement resin be used to top off a vessel containing the DOWEX™ MAC-3 Resin?**

Yes, instances of a bed that has need of supplementing cation exchange resin volume can utilize AmberLite™ IRC83 H Resin.

**Will operating capacity change for the system after installing the replacement product?**

The AmberLite™ IRC83 H Resin has a minimum total volume capacity specification of 4.7 eq/L, whereas the DOWEX™ MAC-3 Resin has a minimum capacity specification of 3.8 eq/L. The replacement product could yield increased operating capacity under the right conditions which can lead to less frequent regenerations and decreased water consumption.

**Is particle size different?**

Both products are Gaussian distribution resins, and the replacement product has a tighter uniformity coefficient specification. Performance characteristics related to particle size are expected to be similar.

**Will pressure drop characteristics change?**

Pressure drop expectations for both products are similar. Any change in pressure drop is not expected to be outside recommended ranges or limit system performance.

**Are any changes required to installation or commissioning procedures?**

No required changes to commissioning or installation procedures are expected.

## Frequently Asked Questions (cont.)

### Is there a difference in backwash flowrates or expansion?

While the particle size properties are similar, as with any rebed, it is recommended to monitor the initial backwash and adjust flowrates if necessary to achieve the recommended bed expansion. This will promote proper removal of particulates from the bed and prevent resin loss from over flow.

### Are any regeneration process changes required?

As with all WACs, in dealkalization applications the regenerant dosage is based on operating capacity and for softening applications dosage is based on total capacity of the resin. Since AmberLite™ IRC83 H Resin has a higher total exchange capacity than the DOWEX™ MAC-3 Resin and can also have greater operating capacity, regenerant dosage may need adjustment. For additional information, consult [AmberLite™ IRC83 H Ion Exchange Resin](#) (Form No. 45-D01248-en).

### Are there shrink/swell characteristics that are different for the replacement products?

The shrink/swell expectations for these products for swell from H<sup>+</sup> form to Na<sup>+</sup> form is extreme- 60 to 70%. Conversion to Ca<sup>2+</sup> form results in less swelling and is the recommended usage.

### Is the resin available in the same ionic form that is available today?

Yes, the AmberLite™ IRC83 H Resin ships in the H<sup>+</sup> form which is the same ionic form as the DOWEX™ MAC-3 Resin.

### Are storage recommendations the same for the new resin? Does shelf life stay the same?

For specific storage recommendations, please refer to the [DuPont Water Solutions Customer Portal](#).

### Will there be handling or EH&S differences with the new product?

For specific concerns, consult the SDS of the products, specifically section 7, or consult with your technical service provider.

**Have a question? Contact us at:**

[www.dupont.com/water/contact-us](http://www.dupont.com/water/contact-us)

All information set forth herein is for informational purposes only. This information is general information and may differ from that based on actual conditions. 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 DuPont is represented. The claims made may not have been approved for use in all countries. Please note that physical properties may vary depending on certain conditions and while operating conditions stated in this document are intended to lengthen product lifespan and/or improve product performance, it will ultimately depend on actual circumstances and is in no event a guarantee of achieving any specific results. DuPont assumes no obligation or liability for the information in this document. References to "DuPont" or the "Company" mean the DuPont 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. No freedom from infringement of any patent or trademark owned by DuPont or others is to be inferred.

DuPont™, the DuPont Oval Logo, and all trademarks and service marks denoted with ™, SM or ® are owned by affiliates of DuPont de Nemours, Inc. unless otherwise noted. © 2024 DuPont. All right reserved.

