**DOWEX™ MARATHON™ A**
A Uniform Particle Size, High Capacity, Strong Base Anion Exchange Resin for Demineralization Applications

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Matrix</th>
<th>Functional Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOWEX™ MARATHON™ A</td>
<td>Type I strong base anion</td>
<td>Quaternary amine</td>
</tr>
</tbody>
</table>

### Guaranteed Sales Specifications

<table>
<thead>
<tr>
<th></th>
<th>Cl⁻ form</th>
<th>OH⁻ form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total exchange capacity, min.</td>
<td>1.3 eq/L</td>
<td>1.0 eq/L</td>
</tr>
<tr>
<td></td>
<td>28.4 kgr/ft³ as CaCO₃</td>
<td>21.9 kgr/ft³ as CaCO₃</td>
</tr>
<tr>
<td>Water content %</td>
<td>50 - 60%</td>
<td>60 - 72%</td>
</tr>
<tr>
<td>Uniformity coefficient, max.</td>
<td>1.1</td>
<td>1.1</td>
</tr>
</tbody>
</table>

### Typical Physical and Chemical Properties

<table>
<thead>
<tr>
<th></th>
<th>Cl⁻ form</th>
<th>OH⁻ form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean particle size μm</td>
<td>575 ± 50</td>
<td>610 ± 50</td>
</tr>
<tr>
<td>Whole uncracked beads %</td>
<td>95 - 100</td>
<td>95 - 100</td>
</tr>
<tr>
<td>Total swelling (Cl⁻ → OH⁻) %</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Particle density g/mL</td>
<td>1.08</td>
<td>1.06</td>
</tr>
<tr>
<td>Shipping weight, approx. g/L</td>
<td>670</td>
<td>640</td>
</tr>
<tr>
<td></td>
<td>lbs/ft³</td>
<td>42</td>
</tr>
</tbody>
</table>

### Recommended Operating Conditions

- **Maximum operating temperature:**
  - OH⁻ form: 60°C (140°F)
  - Cl⁻ form: 100°C (212°F)
- **pH range:** 0 - 14
- **Bed depth, min.:** 800 mm (2.6 ft)
- **Flow rates:**
  - Service/fast rinse: 5 - 60 m³/h (2 - 24 gpm/ft²)
  - Backwash: See figure 1
  - Co-current regeneration/displacement rinse: 1 - 10 m³/h (0.4 - 4 gpm/ft²)
  - Counter-current regeneration/displacement rinse: 5 - 20 m³/h (2 - 8 gpm/ft²)
- **Total rinse requirement:** 3 - 6 Bed volumes
- **Regenerant:**
  - Type: 2 - 5% NaOH
  - Temperature: Ambient or up to 50°C (122°F) for silica removal

† For additional particle size information, please refer to Particle Size Distribution Cross Reference Chart (Form No. 177-01775).
**Typical Properties and Applications**

DOWEX™ MARATHON™ A anion exchange resin is specifically designed to give high throughput and economical operation in primary demineralizer beds. Because of its uniform particle size, this resin offers a number of economic advantages over conventional (polydispersed) resins. The small uniform bead size of DOWEX MARATHON A resin results in rapid exchange kinetics during operation, more complete regeneration of the resin, and faster, more thorough rinse following regeneration. It can be used for all types of water but especially for waters that have a high percentage of silica and carbon dioxide.

**Packaging**

25 liter bags or 5 cubic feet fiber drums

**Figure 1. Backwash Expansion Data**

![Graph showing backwash expansion data.](image)

**Figure 2. Pressure Drop Data**

![Graph showing pressure drop data.](image)

For other temperatures use:

- For temperature in °F:
  \[ F_T = F_{77°C} \times \left[ 1 + 0.008 \times (T - 77) \right], \text{ where } F \equiv \text{gpm/ft}^2 \]

- For temperature in °C:
  \[ F_T = F_{25°C} \times \left[ 1 + 0.008 \times (1.8T - 45) \right], \text{ where } F \equiv \text{m/h} \]

**Note:** These resins may be subject to drinking water application restrictions in some countries: please check the application status before use and sale.

**DOWEX™ Ion Exchange Resins**

For more information about DOWEX resins, call the Dow Water Solutions business:

- North America: 1-800-447-4369
- Latin America: (+55) 11-5188-9222
- Europe: (+32) 3-450-2240
- Pacific: +60 3 7968 3392
- Japan: +81 3 5460 2100
- China: +86 21 2301 9000
- [http://www.dowex.com](http://www.dowex.com)

**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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