**DOWEX™ MARATHON™ C**
A Uniform Particle Size, High Capacity Cation Exchange Resin for Softening (Industrial and Residential) and Demineralization Applications

<table>
<thead>
<tr>
<th>Product</th>
<th>Type</th>
<th>Matrix</th>
<th>Functional group</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOWEX™ MARATHON™ C</td>
<td>Strong acid cation</td>
<td>Styrene-DVB, gel</td>
<td>Sulfonic acid</td>
</tr>
</tbody>
</table>

**Guaranteed Sales Specifications**

<table>
<thead>
<tr>
<th></th>
<th>Na+ form</th>
<th>H+ form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total exchange capacity, min.</td>
<td>eq/L</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>kgr/ft³ as CaCO₃</td>
<td>43.7</td>
</tr>
<tr>
<td>Water content</td>
<td>%</td>
<td>42 - 48</td>
</tr>
<tr>
<td>Uniformity coefficient, max.</td>
<td></td>
<td>1.1</td>
</tr>
</tbody>
</table>

**Typical Physical and Chemical Properties**

<table>
<thead>
<tr>
<th></th>
<th>Na+ form</th>
<th>H+ form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean particle size†</td>
<td>μm</td>
<td>585 ± 50</td>
</tr>
<tr>
<td>Whole uncracked beads</td>
<td>%</td>
<td>95 - 100</td>
</tr>
<tr>
<td>Total swelling (Na+ → H+)</td>
<td>%</td>
<td>8</td>
</tr>
<tr>
<td>Particle density</td>
<td>g/mL</td>
<td>1.28</td>
</tr>
<tr>
<td>Shipping weight</td>
<td>g/L</td>
<td>820</td>
</tr>
<tr>
<td></td>
<td>lbs/ft³</td>
<td>51</td>
</tr>
</tbody>
</table>

**Recommended Operating Conditions**

- Maximum operating temperature: 120°C (250°F)
- pH range: 0 - 14
- Bed depth, min.: 800 mm (2.6 ft)
- Flow rates:
  - Service/fast rinse: 5 - 60 m/h (2 - 24 gpm/ft²)
  - Backwash: see figure 1
  - Co-current regeneration/displacement rinse: 1 - 10 m/h (0.4 - 4 gpm/ft²)
  - Counter-current regeneration/displacement rinse: 5 - 20 m/h (2 - 8 gpm/ft²)
- Total rinse requirement: 2 - 5 Bed volumes
- Regenerant:
  - 1 - 8% H₂SO₄, 4 - 8% HCl or
  - 8 - 12% NaCl

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

DOWEX™ MARATHON™ C strong acid cation exchange resin is a uniform particle size resin designed for industrial and residential softening and demineralization applications. The small uniform beads exhibit faster kinetics than conventionally sized resins. The improved kinetics results in improved regeneration efficiency, higher operating capacity, reduced regenerant usage and less waste water.

DOWEX MARATHON C resin also shows outstanding stability to compressive and osmotic stress.

**Packaging**

25 liter bags or 5 cubic feet fiber drums

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**Figure 1. Backwash Expansion Data**

Temperature = 25°C (77°F)  gpm/ft²

![Graph showing backwash expansion data]

For other temperatures use:

\[ F_T = F_{25°C} \times (1 + 0.008 \times (T_T - 77)), \text{ where } F = \text{gpm/ft}^2 \]

\[ P_T = P_{25°C} / (0.004 T_T + 0.48), \text{ where } P = \text{bar/m} \]

**Figure 2. Pressure Drop Data**

Temperature = 20°C (68°F)  gpm/ft²

![Graph showing pressure drop data]

For other temperatures use:

\[ P_T = P_{20°C} / (0.014 T_T + 0.65), \text{ where } P = \text{psf} \]

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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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DOWEX™ Ion Exchange Resins
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Japan: +813 5460 2100
China: +86 21 2301 9000

http://www.dowex.com

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