Hydrosizer® U2023

BRAND FAMILY OVERVIEW
Our Hydrosizer® line of products includes sizing solutions designed for use in the manufacturing of glass fiber, carbon fiber and natural fiber, including both chopped and continuous formats of those fibers. These are in turn used to manufacture composite products and components.

USAGE
An APE free, high strength sizing for glass and carbon fiber with excellent adhesion, providing good strand integrity and compatibility with most polyamide resins and polyester systems.

DESCRIPTION
Nonionic polyurethane dispersion

PERFORMANCE ATTRIBUTES
This product is used in many applications including the following:

<table>
<thead>
<tr>
<th>Market</th>
<th>Properties Imparted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber Sizing</td>
<td>chopped strands, impact resistance, PA compatible, PET/PBT compatible, thermal stability</td>
</tr>
</tbody>
</table>

PHYSICAL PROPERTIES
The following properties are typical but should not be considered specifications:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Milky white liquid</td>
</tr>
<tr>
<td>Solids Type</td>
<td>Polyurethane</td>
</tr>
<tr>
<td>Emulsifier Charge</td>
<td>Anionic / Nonionic</td>
</tr>
<tr>
<td>Non-Volatile (%)</td>
<td>59.0 - 61.0</td>
</tr>
<tr>
<td>pH</td>
<td>6.5 - 8.5</td>
</tr>
<tr>
<td>Recommended pH of your system</td>
<td>&gt; 7.0</td>
</tr>
<tr>
<td>Brookfield Viscosity (cps)</td>
<td>500 - 2000</td>
</tr>
<tr>
<td>Spindle Number</td>
<td>3</td>
</tr>
<tr>
<td>RPM</td>
<td>60</td>
</tr>
</tbody>
</table>

APPLICATION DATA
Stir well before using in production. The components of Hydrosizer U2023 have been risk-assessed based on their function in the sizing in our Food Contact Declaration of Compliance. This assessment was made according to the scientific opinion of the EFSA (European Food and Safety Authority) Panel: “Approach for safety assessment of glass fibre-sizing agents in glass fibre-reinforced plastics for food contact.” in relation with Commission Regulation EU n°10/2011 Article 5. Please contact Michelman Regulatory department in order to get our Food Contact Declaration of Compliance.
Hydrosizer® U2023

STORAGE
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep from freezing.

HANDLING
Handle in accordance with good industrial hygiene and safety practice. Use personal protective equipment as required.

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The following information for this product, specific to each site of manufacture, is available upon request:

• Material Safety Data Sheets in various formats and languages (includes global chemical inventory listing)
• Food Contact Declaration of Compliance (if applicable)

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