PRODUCT SPECIFICATION SHEET
BELZONA 1321
FN10026

GENERAL INFORMATION

Product Description:
A two component coating system designed to operate under continuous immersion at operating temperatures up to 140°F (60°C). Exhibits excellent erosion-corrosion resistance. Resistant to a broad range of aqueous solutions, hydrocarbons and process chemicals. Also used as a high strength structural adhesive for bonding or for creation of irregular load bearing shims with good electrical insulation characteristics. For use in Original Equipment Manufacture or repair situations.

Application Areas:
When mixed and applied as detailed in the Belzona Instructions for Use (IFU), the system is ideally suited for application to the following:

- Centrifugal and turbine pumps
- Propellers
- Pipe elbows
- Heat exchangers, water box ends, division bars and tube sheets
- Butterfly and gate valves
- Kort nozzles
- T-pieces

APPLICATION INFORMATION

Working Life
Will vary according to temperature. At 77°F (25°C) the usable life of mixed material is 30 minutes.

Cure Time
Allow to solidify for the times shown in the Belzona IFU before subjecting it to the conditions indicated.

Volume Capacity
25.7 cu. in. (422 cm³)/kg.

Coverage rate
Belzona 1321 should be applied as a two coat system at a recommended average thickness of 15 mil (375 µm) per coat. At the minimum recommended two coat system thickness of 24 mil (600 µm), the theoretical coverage rate will be 7.6 ft² (0.71m²)/kg.

Base Component
- Appearance: Paste
- Colour: Grey
- Density: 2.60 - 2.80 g/cm³

Solidifier Component
- Appearance: Liquid
- Colour: Blue or Violet
- Density: 1.03 - 1.09 g/cm³

Mixed Properties
- Mixing Ratio by Weight (Base : Solidifier): 11 : 1
- Mixing Ratio by Volume (Base : Solidifier): 4 : 1
- Mixed Form: Liquid
- Peak Exotherm Temperature: 158 - 185°F (70 - 85°C)
- Time to Peak Exotherm: 53 - 63 mins.
- Sag Resistance: nil at 25 mil (625 microns)
- Mixed Density: 2.32 - 2.42 g/cm³
- VOC content (ASTM D2369 / EPA ref. 24): 0.74% / 17.6 g/L

The above application information serves as introductory guide only. For full application details including the recommended application procedure/technique, refer to the Belzona IFU which is enclosed with each packaged product.
<table>
<thead>
<tr>
<th>ABRASION</th>
<th>CORROSION PROTECTION</th>
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<tbody>
<tr>
<td>Taber</td>
<td>Corrosion Resistance</td>
</tr>
<tr>
<td>The Taber abrasion resistance determined in accordance with ASTM D4060 with 1 kg load is typically:</td>
<td>Once fully cured, will show no visible signs of corrosion after 5,000 hours exposure in the ASTM B117 salt spray cabinet.</td>
</tr>
<tr>
<td>H10 Wheels (Wet) 178 mm² loss per 1000 cycles</td>
<td></td>
</tr>
<tr>
<td>CS17 Wheels (Dry) 14 mm² loss per 1000 cycles</td>
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<table>
<thead>
<tr>
<th>ADHESION</th>
<th>ELONGATION &amp; TENSILE PROPERTIES</th>
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<tbody>
<tr>
<td>Tensile Shear</td>
<td>When determined in accordance with ASTM D638, typical values will be:</td>
</tr>
<tr>
<td>When tested in accordance with ASTM D1002, using degreased strips, grit blasted to a 3-4 mil profile, typical values will be:</td>
<td>Elongation</td>
</tr>
<tr>
<td>Mild steel 2,710 psi (18.68 MPa)</td>
<td>0.5% 68°F (20°C) cure</td>
</tr>
<tr>
<td>Copper 3,050 psi (21.03 MPa)</td>
<td>Tensile Strength</td>
</tr>
<tr>
<td>Stainless steel 3,180 psi (21.92 MPa)</td>
<td>3703 psi (25.54 MPa) 68°F (20°C) cure</td>
</tr>
<tr>
<td>Aluminium 2,090 psi (14.41 MPa)</td>
<td>Young's Modulus</td>
</tr>
<tr>
<td>Tensile Fatigue</td>
<td></td>
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<tr>
<td>The Tensile fatigue in accordance with ASTM D3166 at ambient temperature and 595 psi (4.1 MPa) applied static tensile stress is &gt;1,000,000 cycles</td>
<td>7.76x10⁵ psi (5352 MPa) 68°F (20°C) cure</td>
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<tr>
<td>Pull Off Adhesion</td>
<td></td>
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<tr>
<td>When tested in accordance with ASTM D 4541/ ISO 4624, the pull off strength from grit blasted steel will be typically:</td>
<td>Flexural Strength</td>
</tr>
<tr>
<td>6330 psi (43.64 MPa) 68°F (20°C) cure</td>
<td>9,400 psi (64.81 MPa) 68°F (20°C) cure</td>
</tr>
<tr>
<td>6290 psi (43.37 MPa) 212°F (100°C) cure</td>
<td>Flexural Modulus</td>
</tr>
<tr>
<td>Cleavage strength</td>
<td></td>
</tr>
<tr>
<td>When tested in accordance with ASTM D 1062, the cleavage strength to grit blasted steel will be typically:</td>
<td>7.70 x 10⁶ psi (5309MPa) 68°F (20°C) cure</td>
</tr>
<tr>
<td>1634 pli 68°F (20°C) cure</td>
<td></td>
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<thead>
<tr>
<th>CHEMICAL RESISTANCE</th>
<th>FLEXURAL PROPERTIES</th>
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<tr>
<td>Once fully cured, the material will demonstrate excellent resistance to most commonly found inorganic acids and alkalis at concentrations up to 20%.</td>
<td></td>
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<tr>
<td>The material is also resistant to hydro-carbons, mineral oils, lubricating oils and many other commonly found chemicals.</td>
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<tr>
<td>* For a more detailed description of chemical resistance properties, refer to relevant Chemical Resistance chart.</td>
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<tr>
<th>HARDNESS</th>
<th>COMPRESSIVE PROPERTIES</th>
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<tr>
<td>Shore D</td>
<td>When determined in accordance with ASTM D2240, typical values will be:</td>
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<tr>
<td>When determined in accordance with ASTM D2583, will typically be:</td>
<td>Compressive Strength</td>
</tr>
<tr>
<td>84</td>
<td>12,500 psi (86.18 MPa) 68°F (20°C) cure</td>
</tr>
<tr>
<td>Barcol Hardness</td>
<td>Barcol 934-1 Barcol 935</td>
</tr>
<tr>
<td>The Barcol hardness, when determined in accordance with ASTM D2583, will typically be:</td>
<td>20 87</td>
</tr>
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<td></td>
<td>31 92</td>
</tr>
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### Heat Resistance

**Heat Distortion Temperature (HDT)**
Tested to ASTM D648 (264 psi fibre stress), typical values obtained will be:
- 118°F (48°C) 68°F (20°C) cure
- 189°F (88°C) 212°F (100°C) cure

**Dry Heat Resistance**
The indicated degradation temperature in air based on Differential Scanning Calorimetry (DSC) operated in accordance with ISO11357 is typically 428°F (220°C). For many applications the product is suitable down to -40°F (-40°C).

**Wet Heat Resistance**
Designed to operate under continuous immersion at operating temperatures up to 140°F (60°C). Suitable for steaming out up to 410°F (210°C).

### Shelf Life
Separate base and solidifier components shall have a shelf life of 5 years from the date of manufacture when stored in their original unopened containers between 41°F (5°C) and 86°F (30°C).

### Approvals/Acceptances
The material has received recognition from organizations worldwide including:
- U.S.D.A.
- ABS
- BUREAU VERITAS
- LLOYDS REGISTER
- NATO
- YORK INTERNATIONAL
- UK WRAS

### Impact Resistance

**Impact Strength**
The impact strength (reverse notched) when tested to ASTM D256 is typically:
- 43 J/m or 2.77 kJ/m² 68°F (20°C) cure
**PRODUCT SPECIFICATION SHEET**

**BELZONA 1321**

**FN10026**

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**WARRANTY**

This product will meet the performance claims stated herein when material is stored and used as instructed in the Belzona Information For Use leaflet. Belzona ensures that all its products are carefully manufactured to ensure the highest quality possible and are tested strictly in accordance with universally recognized standards (ASTM, ANSI, BS, DIN, ISO, etc.). Since Belzona has no control over the use of the product described herein, no warranty for any application can be given.

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**AVAILABILITY AND COST**

**Belzona 1321** is available from a network of Belzona Distributors throughout the world for prompt delivery to the application site. For information, consult the Belzona Distributor in your area.

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**HEALTH AND SAFETY**

Prior to using this material, please consult the relevant Safety Data Sheets.

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**MANUFACTURER / SUPPLIER**

Belzona Polymeric Ltd.
Claro Road, Harrogate,
HG1 4DS, UK

Belzona Inc.
14300 NW 60th Ave.
Miami Lakes, FL, 33014, USA

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**TECHNICAL SERVICE**

Complete technical assistance is available and includes fully trained Technical Consultants, technical service personnel and fully staffed research, development and quality control laboratories.

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The technical data contained herein is based on the results of long term tests carried out in our laboratories and to the best of our knowledge is true and accurate on the date of publication. It is however subject to change without prior notice and the user should contact Belzona to verify the technical data is correct before specifying or ordering. No guarantee of accuracy is given or implied. We assume no responsibility for rates of coverage, performance or injury resulting from use. Liability, if any, is limited to the replacement of products. No other warranty or guarantee of any kind is made by Belzona, express or implied, whether statutory, by operation of law or otherwise, including merchantability or fitness for a particular purpose.

Nothing in the foregoing statement shall exclude or limit any liability of Belzona to the extent such liability cannot by law be excluded or limited.

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Publication No. 14-03-20
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