GENERAL INFORMATION

Product Description:
A two component paste grade system with extended working life for repairing and rebuilding machinery and equipment. Based on a silicon steel alloy blended with high molecular weight reactive polymers and oligomers. Also used as a high strength structural adhesive for bonding or for creation of irregular load bearing shims with good electrical insulation characteristics. Once cured, the repair is durable and fully machinable. 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:

- Shafts
- Hydraulic rams
- Bearing housings
- Bushing fits
- Keyways
- Engine blocks
- Casings
- Levelling
- Pipes
- Tanks
- Flange faces

APPLICATION INFORMATION

Working Life
Will vary according to temperature. At 77°F (25°C) the usable life of mixed material is 35 minutes.

Cure Time
Cure times will vary depending on the ambient conditions and will be reduced for thicker sections and extended for thinner applications. Consult the Belzona IFU for specific details.

Volume Capacity
23.5 cu.in. (385 cm³)/kg.

Base Component
- Appearance: Paste
- Colour: Dark grey
- Gel Strength at 77°F (25°C) 175 - 325 g/cm³ QH
- Density 2.80 - 3.00 g/cm³

Solidifier Component
- Appearance: Paste
- Colour: Light grey
- Gel Strength at 77°F (25°C) 100 - 250 g/cm³ QV
- Density 2.37 - 2.43 g/cm³

Mixed Properties
- Mixing Ratio by Weight (Base : Solidifier) 1.2 : 1
- Mixing Ratio by Volume (Base : Solidifier) 1 : 1
- Mixed Form: Paste
- Peak Exotherm Temp. 86-113°F (30 - 45°C)
- Time to Peak Exotherm 43 - 63 mins.
- Slump Resistance nil at 1.0 inch (2.5 cm)
- Mixed Density 2.57- 2.71 g/cm³

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.
ABRASION

<table>
<thead>
<tr>
<th>Test</th>
<th>Resistance (mm³) per 1000 cycles</th>
</tr>
</thead>
<tbody>
<tr>
<td>HI0 Wheels (Wet)</td>
<td>1660</td>
</tr>
<tr>
<td>CS17 Wheels (Dry)</td>
<td>55</td>
</tr>
</tbody>
</table>

ADHESION

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleavage Mild steel</td>
<td>1250 lbs./in. (22.3 kg/mm)</td>
</tr>
<tr>
<td>Tensile Shear Mild steel</td>
<td>3300 psi (22.8 MPa)</td>
</tr>
<tr>
<td>Aluminium</td>
<td>1900 psi (13.1 MPa)</td>
</tr>
<tr>
<td>Copper</td>
<td>2000 psi (13.8 MPa)</td>
</tr>
<tr>
<td>Pull Off Adhesion</td>
<td>2180 psi (15.0 MPa)</td>
</tr>
</tbody>
</table>

CHEMICAL ANALYSIS

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Total Concentration (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluoride</td>
<td>132</td>
</tr>
<tr>
<td>Chloride</td>
<td>168</td>
</tr>
<tr>
<td>Bromide</td>
<td>ND (&lt;1)</td>
</tr>
<tr>
<td>Sulphur</td>
<td>14153</td>
</tr>
<tr>
<td>Nitrite</td>
<td>1</td>
</tr>
<tr>
<td>Nitrate</td>
<td>4</td>
</tr>
<tr>
<td>Zinc</td>
<td>4.2</td>
</tr>
<tr>
<td>Antimony, Arsenic, Bismuth, Cadmium, Lead, Tin, Silver, Mercury, Gallium and Indium</td>
<td>ND (&lt;3.0)</td>
</tr>
</tbody>
</table>

CHEMICAL RESISTANCE

Once fully cured, the material will demonstrate excellent resistance to most commonly found inorganic acids and alkalis at concentrations up to 10%. The material is also resistant to hydro-carbons, mineral oils, lubricating oils and many other commonly found chemicals.

* For a more detailed description of chemical resistance properties, refer to relevant Chemical Resistance chart.

COMPRESSIVE PROPERTIES

When determined in accordance with ASTM D695, typical values will be:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressive Strength</td>
<td>12,500 psi (86.2 MPa)</td>
</tr>
</tbody>
</table>

CORROSION PROTECTION

Corrosion Resistance
Once fully cured, will show no visible signs of corrosion after 5,000 hours exposure in the ASTM B117-73 salt spray cabinet.

ELECTRICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dielectric Strength</td>
<td>149 volts/mil (5960 volts/mm)</td>
</tr>
<tr>
<td>Dielectric Constant</td>
<td>8 at 1000Hz 6 at 1 MHz</td>
</tr>
<tr>
<td>Dissipation Factor</td>
<td>&lt; 0.0005 at 1 MHz 0.0050 at 1000 Hz</td>
</tr>
<tr>
<td>Surface Resistivity</td>
<td>8.7 x 10^4 ohm.</td>
</tr>
<tr>
<td>Volume Resistivity</td>
<td>6.0 x 10^5 ohm cm.</td>
</tr>
</tbody>
</table>

ELONGATION & TENSILE PROPERTIES

When determined in accordance with ASTM D638, typical values will be:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td>3339 psi (23.02 MPa) 68°F (20°C) 212°F (100°C)</td>
</tr>
<tr>
<td>Elongation</td>
<td>0.205% 0.234% 68°F (20°C) 212°F (100°C)</td>
</tr>
<tr>
<td>Young's Modulus</td>
<td>1.22x10⁶ psi (8443 MPa) 68°F (20°C) 212°F (100°C)</td>
</tr>
</tbody>
</table>
PRODUCT SPECIFICATION SHEET
BELZONA 1121
FN10012

FLEXURAL PROPERTIES
When determined in accordance with ASTM D790, typical values will be:

- Flexural Strength
  6500 psi (44.8 MPa)

HARDNESS
Shore D
When determined in accordance with ASTM D2240, typical value will be:
87
68°F (20°C) cure

Barcol Hardness
The Barcol hardness, when determined in accordance with ASTM D2583, will typically be:

<table>
<thead>
<tr>
<th>Ambient cure (68°F/20°C)</th>
<th>Post cure (212°F/100°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barcol 934-1</td>
<td>9</td>
</tr>
<tr>
<td>Barcol 935</td>
<td>85</td>
</tr>
</tbody>
</table>

HEAT RESISTANCE
Heat Distortion Temperature (HDT)
Tested to ASTM D648 (264 psi fibre stress), typical values obtained will be:
122°F (50°C) 68°F (20°C) cure
160°F (71°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 392°F (200°C).
For many applications the product is suitable down to -40°F (-40°C).

IMPACT RESISTANCE
When tested to ASTM D256 the Izod impact strength (un-notched) is typically:
1.0 ft-lbs./in. (51 J/m).

THERMAL EXPANSION
Tested to ASTM E288 the coefficient of thermal expansion is typically 68 ppm/°C.

SHELF LIFE
Separate base and solidifier components shall have a shelf life of 5 years from 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
**PRODUCT SPECIFICATION SHEET**
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FN10012

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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.

### AVAILABILITY AND COST

Belzona 1121 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.

### HEALTH AND SAFETY

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

### MANUFACTURER / SUPPLIER

<table>
<thead>
<tr>
<th>Belzona Polymeric Ltd.</th>
<th>Belzona Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claro Road, Harrogate,</td>
<td>14300 NW 60th Ave,</td>
</tr>
<tr>
<td>HG1 4DS, UK</td>
<td>Miami Lakes, FL, 33014, USA</td>
</tr>
</tbody>
</table>

### 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.

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