

# PRODUCT SPECIFICATION SHEET

## BELZONA 5811

FN10100



### GENERAL INFORMATION

#### Product Description:

A two component solvent free system applied by brush or spray for protection of metallic and non-metallic surfaces operating under immersion conditions in contact with aqueous solutions. Also used as a 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:

- Cooling tower pans
- Submersible pumps
- Effluent tanks and channels
- Marine buoys
- Storage tanks
- Water Boxes
- Manholes
- Internal and external pipework
- Steel and concrete piling
- Water inlet screens
- Chemical containment areas
- Sludge digesters
- Buried pipework and structures

### APPLICATION INFORMATION

#### Working Life

Will vary according to temperature. At 68°F (20°C) the usable life of mixed material is 2 hours.

#### Coverage Rate

The **Belzona 5811** should be applied in 2 coats to achieve a minimum thickness of 16 mil (400 micron).  
The theoretical coverage rate at 16 mil (400 micron) is 27 sq.ft. (2.5m<sup>2</sup>)/litre.  
Refer to the Instructions For Use for practical coverage rate guidelines.

#### Cure Time

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

#### Base Component

Appearance Viscous liquid  
Color Beige or Grey  
Density 1.67 - 1.71 g/cm<sup>3</sup>

#### Solidifier Component

Appearance Clear mobile liquid  
Color Dark brown  
Density 1.00 - 1.04 g/cm<sup>3</sup>

#### Mixed Properties

Mixing Ratio by Weight (Base : Solidifier) 5 : 1  
Mixing Ratio by Volume (Base : Solidifier) 3 : 1  
Mixed Density 1.46 - 1.50 g/cm<sup>3</sup>

*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.*

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### ADHESION

#### Tensile Shear

When tested in accordance with ASTM D1002, using metal substrates, grit blasted to a 3-4 mil (75-100 micron) profile, typical values will be:

<b>Aluminum</b>	2,300 psi (15.9MPa)	28 days at 68°F (20°C)
	2,450 psi (16.9MPa)	4 hours at 212°F (100°C)
<b>Brass</b>	2,680 psi (18.5MPa)	28 days at 68°F (20°C)
	2,750 psi (19.0MPa)	4 hours at 212°F (100°C)
<b>Mild steel</b>	3,370 psi (23.2MPa)	28 days at 68°F (20°C)
	3,640 psi (25.1MPa)	4 hours at 212°F (100°C)
<b>Copper</b>	2,230 psi (15.4MPa)	28 days at 68°F (20°C)
	2,650 psi (18.3MPa)	4 hours at 212°F (100°C)
<b>Stainless steel</b>	3,340 psi (23.0MPa)	28 days at 68°F (20°C)
	3,330 psi (22.9MPa)	4 hours at 212°F (100°C)

#### Pull Off Adhesion

When tested in accordance with ASTM D 4541/ ISO 4624, the pull off strength from grit blasted steel will be typically:  
Cure 28 days at 68°F (20°C) 4,450 psi (30.7MPa)

### CHEMICAL RESISTANCE

The material will demonstrate excellent resistance to a broad range of chemicals. For a more detailed description of chemical resistance properties, refer to relevant Chemical Resistance chart.

### COMPRESSIVE STRENGTH

#### Compressive yield strength

When tested in accordance with ASTM D695, typical values obtained will be:  
28 days at 68°F (20°C) 5,500 psi (37.9MPa)  
4 hours at 212°F (100°C) 5,700 psi (39.3MPa)

### ELECTRICAL PROPERTIES

#### Dielectric Strength

When tested in accordance with ASTM D149 typical values obtained will be: 330 volts/mil (8.4kV/mm)

#### Dielectric Constant

When tested in accordance with ASTM D150 typical values obtained will be: 2.82

#### Surface Resistivity

When tested in accordance with ASTM D257 typical values obtained will be: 4402 Mohm

### FLEXURAL PROPERTIES

#### Flexural Strength

When tested to ASTM D790 typical values obtained will be:  
28 days at 68°F (20°C) 5,160 psi (35.6MPa)  
4 hours at 212°F (100°C) 6,040 psi (41.6MPa)

#### Flexural Modulus

When tested to ASTM D790 typical values obtained will be:  
Cure 28 days at 68°F (20°C) 3.4 x 10<sup>5</sup> psi (2344 MPa)

### HARDNESS

#### Shore D

The Shore D hardness of the material when tested to ASTM D2240 is typically:  
28 days at 68°F (20°C) 80  
4 hours at 212°F (100°C) 81

#### Koenig Pendulum

When tested to ISO 1522 the Koenig damping time of the coating is typically:  
28 days at 68°F (20°C) 64 seconds  
4 hours at 212°F (100°C) 128 seconds

#### Barcol

When tested to ASTM D2583 the Barcol hardness will typically be:  
28 days at 68°F (20°C) 75

### HEAT RESISTANCE

#### Wet Heat Resistance

For many typical applications the material is suitable for continuous immersion in aqueous solutions up to 122°F (50°C). Please consult Belzona TKL for additional advice where immersed applications will operate close to 122°F (50°C).

#### Dry Heat Resistance

The indicated degradation temperature in air based on Differential Scanning Calorimetry (DSC) operated in accordance with ISO11357 is typically 356°F (180°C).  
For many applications the product is suitable down to -40°F (-40°C).

### IMMERSION RESISTANCE

#### Atlas Cell

When tested in accordance with NACE TM 0174 the coating will exhibit no rusting (ASTM D610 rating 10) or blistering (ASTM D714 rating 10) after 6 months immersion in de-ionized water at 104°F (40°C).

#### Seawater Immersion

When tested in accordance with ISO 2812-2, no blistering, rusting, cracking or delamination was observed after 6 months immersion in seawater at 104°F (40°C).

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### IMPACT STRENGTH

The Izod impact strength (un-notched) of the material when tested in accordance with ASTM D256 is typically:

28 days at 68°F (20°C)	0.81 ft.lb./in (45 J/m)
4 hours at 212°F (100°C)	0.81 ft.lb./in (45 J/m)

### SHELF LIFE

Separate base and solidifier components shall have a shelf life of at least 5 years when stored between 32°F (0°C) and 86°F (30°C).

### TENSILE PROPERTIES

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

<b>Tensile Strength (Maximum)</b>	1750 psi (12.07 MPa)	7 days at 68°F (20°C)
	2244 psi (15.48 MPa)	28 days at 68°F (20°C)
<b>Tensile Strength (Yield)</b>	522 psi (3.60 MPa)	7 days at 68°F (20°C)
	998 psi (6.88 MPa)	28 days at 68°F (20°C)
<b>Elongation</b>	6.3 %	7 days at 68°F (20°C)
	1.0 %	28 days at 68°F (20°C)
<b>Young's Modulus</b>	1.48 x 10 <sup>5</sup> psi (1020 MPa)	7 days at 68°F (20°C)
	3.14 x 10 <sup>5</sup> psi (2167 MPa)	28 days at 68°F (20°C)

### WARRANTY

Belzona guarantees 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 further guarantees that all its products are carefully manufactured to ensure the highest quality possible and tested strictly in accordance with universally recognised 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 5811** 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.

### MANUFACTURER

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

Belzona Inc.  
2000N.W. 88<sup>th</sup> Court,  
Miami, Florida, USA, 33172

### HEALTH AND SAFETY

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

### 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.

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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ISO 9001:2008  
Q 09335  
ISO 14001:2004  
EMS 509612

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