

# PRODUCT SPECIFICATION SHEET

## BELZONA 1812

FN10040



### GENERAL INFORMATION

**Product Description:**

A two component system for repairing and protecting surfaces against abrasive attack. The product is based on high molecular weight polymers and oligomers incorporating abrasion resistant ceramic aggregates. This material may be applied from 1/8 inch (3 mm) to unlimited thickness onto horizontal or vertical surfaces.

**Application Areas:**

When mixed and applied as detailed in the Belzona Instructions for Use (IFU), the system protects the substrate from abrasive attack and is ideally suited for application to the following:

- Pipe bends
- Chutes and hoppers
- Deflector screens
- Wear plates
- Centrifuges
- Mixing bowls

### APPLICATION INFORMATION

**Working Life**

Will vary according to temperature. At 77°F (25°C) the usable life of mixed material is 20 minutes.

**Coverage Rate:**

Each 1 kg applied at 0.118 inch (3 mm) thickness will cover approximately 1.61 sq.ft. (0.15 sq.m.).

**Cure Time**

Cure times will vary depending on the ambient conditions and will be reduced for thicker sections and extended for thinner applications. At a thickness of approximately 0.236 in. (6 mm), allow to solidify for the times shown in the Belzona IFU before subjecting it to the conditions indicated.

**Volume Capacity**

26.85 cu.ins. (440 cc)/kg.  
53.7 cu.ins. (880 cc)/2kg unit.  
537 cu.ins. (8.8 litre)/20kg unit.

**Base Component**

Appearance Granular thixotropic paste  
Color Grey  
Density 2.2 - 2.4 g/cm<sup>3</sup>

**Solidifier Component**

Appearance Granular thixotropic paste  
Color Red  
Density 2.0 - 2.1 g/cm<sup>3</sup>

**Mixed Properties**

Mixing Ratio by Weight (Base : Solidifier)	4.5 : 1
Mixing Ratio by Volume (Base : Solidifier)	4 : 1
Mixed Density	2.27 g/cm <sup>3</sup>
Useable Life	
at 70°F (22°C)	20-25 mins
at 50°F (10°C)	45-60 mins
Tack Free Time	
at 71°F (22°C)	4½ hours
at 50°F (10°C)	8 hours
Slump Resistance	nil at 0.5 inch (12.7 mm)
VOC content (ASTM D2369 / EPA ref. 24)	0.21% / 4.70 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.*

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### ABRASION

#### Taber

The Taber abrasion resistance determined in accordance with ASTM D4060 with 1 kg load is typically:  
H10 Wheels (Wet) 120 mm<sup>3</sup> loss per 1000 cycles

#### Impact Abrasion

Test consists of firing 2 kg of G34 chilled iron grit at 75 psi and 90° angle:

**Belzona 1812** volume loss 8 mm<sup>3</sup>

### ADHESION

#### Tensile Shear

When tested in accordance with ASTM D1002 typical values will be:  
1950 psi (13.4 MPa)

### CHEMICAL ANALYSIS

The mixed **Belzona 1812** has been independently analyzed for halogens, heavy metals, and other corrosion-causing impurities, with the following typical results:

Analyte	Total Concentration (ppm)
Fluoride	159
Chloride	559
Bromide	ND (<12)
Sulfur	824
Nitrite	ND (<6)
Nitrate	ND (<6)
Lead	15.2
Zinc, Antimony, Arsenic, Bismuth, Cadmium, Tin, Silver, Mercury, Gallium and Indium	ND (<3.0)
	ND : Not Detected

### CHEMICAL RESISTANCE

While specifically designed for dry heat abrasion resistance, **Belzona 1812** exhibits excellent chemical resistance to most commonly found chemical substances including inorganic acids and bases.

### COMPRESSIVE PROPERTIES

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

	Compressive Strength	Proportional Limit	Youngs Modulus
24 hours at 68°F/20°C cure & test	81.6 MPa 11,827 psi	64.0 MPa 9,254 psi	1,447.5 MPa 2.10 x 10 <sup>5</sup> psi
68°F/20°C cure & test	88.5 MPa 12,829 psi	78.8 MPa 11,424 psi	1,622.5 MPa 2.35 x 10 <sup>5</sup> psi
24 hours at 212°F/100°C cure & 68°F/20°C test	122.6 MPa 17,778 psi	97.2 MPa 14,101 psi	1,653.5 MPa 2.40 x 10 <sup>5</sup> psi
212°F/100°C cure & 68°F/20°C test	137.7 MPa 19,970 psi	127.7 MPa 18,517 psi	1,786.7 MPa 2.59 x 10 <sup>5</sup> psi

### FLEXURAL PROPERTIES

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

Flexural Strength	
7000 psi (48.2 MPa)	68°F (20°C) cure
9250 psi (63.8 MPa)	212°F (100°C) cure

### HEAT RESISTANCE

#### Heat Distortion Temperature (HDT)

Tested to ASTM D648 (264 psi fiber stress), typical values obtained will be:

122°F (50°C)	7 day cure at 68°F (20°C)
208°F (98°C)	7 day cure at 212°F (100°C)

#### Wet (Slurry) Service Temperature

For many typical wet (slurry) service applications, the product is suitable down from -40 °F (-40 °C) up to 176 °F (80 °C).

#### Dry Service Temperature

For many typical dry service applications, the product is suitable down from -40 °F (-40 °C) up to 212 °F (100 °C).

#### 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).

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### IMPACT RESISTANCE

#### Izod Pendulum

Izod impact strength, when determined in accordance with ASTM D256, will typically be:

	Reversed notched Izod Impact Strength	Un-notched Izod Impact Strength
68°F/20°C cure & test	1.6 KJ/m <sup>2</sup> 16.9 J/m	1.7 KJ/m <sup>2</sup> 20.8 J/m
212°F/100°C cure & 68°F/20°C test	2.5 KJ/m <sup>2</sup> 26.7 J/m	3.9 KJ/m <sup>2</sup> 48.7 J/m

### 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).

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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 1812** 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

Belzona Limited,  
Claro Road, Harrogate,  
HG1 4DS, UK

Belzona Inc.  
14300 NW 60<sup>th</sup> Ave,  
Miami Lakes, FL, 33014, USA

### 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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