PRODUCT SPECIFICATION SHEET
BELZONA 1818
FN10211

BELZONA®
Repair • Protect • Improve

GENERAL INFORMATION

Product Description:
Belzona 1818 is a two component, fast curing, surface tolerant, abrasion resistant system ideal for patch repairs on surfaces subject to high erosion.

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 the application to:

- Screw conveyors
- Chutes and hoppers
- Hydrocyclones
- Wear Plates
- Slurry pumps
- Grinding mills

APPLICATION INFORMATION

Application Methods
Plastic applicator and spatula

Application Temperature
Application should ideally occur in the following ambient temperature range: 5°C/41°F to 40°C/104°F

Volume Capacity
The volume capacity of mixed material is 432 cm^3 / 26.4 in^3 per 1kg unit.

Coverage rate
When applied at 3 mm (0.12 inch) thickness, the theoretical coverage rate will be
0.14 sq.m. (1.55 sq. ft.) per 1kg unit.
When applied at 6 mm (0.25 inch) thickness, the theoretical coverage rate will be
0.07 sq.m. (0.78 sq. ft.) per 1kg unit.

Cure Time
Cure times will vary depending on the ambient conditions. At 20°C/68°F light mechanical loading is possible after 2 hours. Consult the Belzona IFU for specific details.

Working Life
The working life will vary according to the temperature. At 20°C/68°F, the usable life of mixed material will typically be 16 minutes, consult the Belzona IFU for specific details.

Base Component

Colour:	Blue
Form:	Paste
Density:	2.20 g/cm^3

Solidifier Component

Colour:	Grey
Form:	Paste
Density:	2.48 g/cm^3

Mixed Properties

Mixing Ratio by Weight (Base : Solidifier)	4 : 3
Mixing Ratio by Volume (Base : Solidifier)	3 : 2
Colour:	Blue
Mixed Form:	Paste
Mixed Density:	2.31 g/cm^3
Slump Resistance:	>12.7 mm / >0.5 in
VOC (ASTM D2369):	0.07 % / 1.55 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
When determined in accordance with ASTM D4060 the sliding Taber abrasion resistance will be:

Dry (CS17 Wheels)
4 mm^3 loss per 1000 cycles (7 day cure at 20°C/68°F)

Wet (H10 Wheels)
100 mm^3 loss per 1000 cycles (7 day cure at 20°C/68°F)

Grit impact
Direct impact of 2kg of G34 chilled iron grit at 80psi and 90° angle, will typically result in volume loss of:
18 mm^3. (7 day cure at 20°C/68°F)

ADHESION

Cleavage Adhesion
The Cleavage Adhesion on mild steel substrates, as determined in accordance with ASTM D1062, following a 7 day cure at 68°F/20°C, will typically be:

	Cleavage Adhesion	Failure Mode
Grit Blasted (SSPC-SP10) (ISO 8501-1 Sa2.5)	1046 pli /183 N/mm*	Cohesive
Ground (SSPC-SP11) (ISO 8501-1 St3)	620 pli /109 N/mm*	Adhesive

***Bond line thickness approximately 2 mm.**

Pull Off Adhesion
The PosiTest Dolly Pull Off Strength on 10mm thick mild steel, as determined in accordance with ASTM D4541 and ISO 4624, following a 7 day cure at 68°F/20°C, will typically be:

Grit Blasted (SSPC-SP10) (ISO 8501-1 Sa2.5)	Pull Off Adhesion
Clean & Dry	2,370 psi /16.3 MPa
Transformer Oil contaminated	2,040 psi /14.1 MPa
Wet	2,300 psi /15.9 MPa
Underwater	2,220 psi / 15.3 MPa

Ground (SSPC-SP11) (ISO 8501-1 St3)	Pull Off Adhesion
Clean & Dry	1,805 psi /12.4 MPa
Transformer Oil contaminated	1,675 psi /11.6 MPa
Wet	1,730 psi /11.9 MPa
Underwater	1,480 psi /10.2 MPa

ADHESION

Tensile Shear Adhesion
The Tensile Shear Adhesion on mild steel substrates, as determined in accordance with ASTM D1002, following a 7 day cure at 20°C / 68°F, will typically be:

Substrate	Grit Blasted (SSPC-SP10) (ISO 8501-1 Sa2.5)	Ground (SSPC-SP11) (ISO 8501-1 St3)
Clean & Dry	1,115 psi /7.7 MPa*	650 psi /4.5 MPa*
Transformer Oil contaminated	900 psi /6.2 MPa*	543 psi /3.7 MPa*
Wet	1,120 psi / 7.7 MPa*	642 psi /4.4 MPa*
Underwater	1,170 psi /8.1 MPa*	925 psi /6.4 MPa*

*Bond line thickness approximately 2mm.

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	88.4 MPa 12,814 psi	80.1 MPa 11,617 psi	1,614.7 MPa 2.34 x 10^5 psi
68°F/20°C cure & test	132.7 MPa 19,242 psi	121.5 MPa 17,619 psi	1,720.3 MPa 2.50 x 10^5 psi
24 hours at 194°F/90°C cure & 68°F/20°C test	125.2 MPa 18,161 psi	111.1 MPa 16,108 psi	1,793.1 MPa 2.60 x 10^5 psi
194°F/90°C cure & 68°F/20°C test	136.6 MPa 19,810 psi	123.0 MPa 17,838 psi	1,813.6 MPa 2.63 x 10^5 psi

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ELONGATION & TENSILE PROPERTIES

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

Tensile Strength (Maximum)

2,525 psi /17.4 MPa	(24 hour cure at 20°C/68°F)
2,875 psi /19.8 MPa	(7 day cure at 20°C/68°F)
2,690 psi / 18.6 MPa	(24 hour cure at 90°C/194°F)
2,800 psi /19.3 MPa	(7 day post cure at 90°C/194°F)

Elongation

0.21 %	(24 hour cure at 20°C/68°F)
0.22 %	(7 day cure at 20°C/68°F)
0.22%	(24 hour cure at 90°C/194°F)
0.22 %	(7 day post cure at 90°C/194°F)

Young's Modulus

16.40 x 10^5 psi /11,315 MPa	(24 hour cure at 20°C/68°F)
16.64 x 10^5 psi /11,483 MPa	(7 day cure at 20°C/68°F)
13.17 x 10^5 psi /9,089 MPa	(24 hour cure at 90°C/194°F)
16.49 x 10^5 psi /11,377 MPa	(7 day post cure at 90°C/194°F)

FLEXURAL PROPERTIES

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

Flexural Strength (Maximum)

3,790 psi /26.1 MPa	(24 hour cure at 20°C/68°F)
4,600 psi /31.7 MPa	(7 day cure at 20°C/68°F)
5,736 psi /39.7 MPa	(24 hour cure at 90°C/194°F)
5,865 psi /40.4 MPa	(7 day post cure at 90°C/194°F)

Flexural Modulus

8.75 x 10^5 psi /6,038 MPa	(24 hour cure at 20°C/68°F)
10.63 x 10^5 psi /7,331 MPa	(7 day cure at 20°C/68°F)
8.31 x 10^5 psi /5.736 MPa	(24 hour cure at 90°C/194°F)
9.92 x 10^5 psi /6,845 MPa	(7 day post cure at 90°C/194°F)

HEAT RESISTANCE

Heat Distortion (HDT)
The HDT when determined in accordance with ASTM D648, will typically be:

Cure	HDT
24hrs at 20°C/68°F	44°C/111°F
7 days at 20°C/68°F	51°C/124°F
24 hour post cure at 90°C/194°F	95°C/203°F
7 day post cure at 90°C/194°F	106°C/223°F

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 200°C (392°F).

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
24 hours at 68°F/20°C cure & test	1.8 KJ/m^2 18.4 J/m	1.9 KJ/m^2 24.1 J/m
68°F/20°C cure & test	1.8 KJ/m^2 19.7 J/m	2.1 KJ/m^2 25.9 J/m
24 hours at 194°F/90°C cure & 68°F/20°C test	2.2 KJ/m^2 23.2 J/m	2.4 KJ/m^2 30.9 J/m
194°F/90°C cure & 68°F/20°C test	2.2 KJ/m^2 23.4 J/m	2.2 KJ/m^2 28.1 J/m

SHELF LIFE

Separate base and solidifier components shall have a shelf life of 3 years from date of manufacture when stored in their original unopened containers between 5°C (41°F) and 30°C (86°F).

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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 1818 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 60th 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.

Belzona products are manufactured under an ISO 9001 Registered Quality Management System