PRODUCT SPECIFICATION SHEET
BELZONA 4181
FN10079

BELZONA®
Repair • Protect • Improve

GENERAL INFORMATION

Product Description:
A heat or acid resistant trowelable system for repair and protection of concrete, stone and other rigid substrates subject to impact and abrasion. Designed for resistance to Inorganic acids, **Belzona 4181** uses a complex acid catalysable hybrid resin system incorporating closely packed acid resistant fillers. The product is supplied as a 3 component system, Base, Solidifier and Aggregate, that when combined, forms a trowelable consistency to rebuild damaged surfaces or to provide an impact and abrasion resistant surface.

Application Areas:
Ideally suited for horizontal surfaces, the system may be applied on vertical surfaces up to ¼" (6mm) thickness. Having outstanding adhesion, strength, hardness and acid resistance, **Belzona 4181** is ideally suited for :-

- Chemical drains and channels
- Gulleys
- Bunds
- Chemical transfer and holding areas
- Tank pads
- Pump bases
- Ovens

APPLICATION INFORMATION

Working Life
Will vary according to temperature. At 77°F (25°C), use all mixed material within 30 minutes.

Coverage Rate
Each 15 kg unit applied at the minimum recommended film thickness of ¼ inch will cover approximately 10.67 sq.ft. (1.05 m^2 at a thickness of 6mm).

Cure Time
Will be reduced for thicker sections and extended for thinner applications. Allow to solidify for the times shown in the IFU before subjecting it to the conditions indicated.

Volume Capacity
384 cu.ins. (6300 cm^3) per 15 kg unit.

Base Component

Appearance	Clear Liquid
Colour	Light amber
Viscosity	40 - 50 poise at 77°F (25°C)
Density	1.17 - 1.19 g/cm^3

Solidifier Component

Appearance	Clear Liquid
Colour	Amber
Viscosity	3 - 6 cPs at 77°F (25°C)
Density	1.05 - 1.07 g/cm^3

Aggregate Component

Appearance	Pre-wetted, fine granular powder
Colour	Red
Density	2.5 - 2.7 g/cm^3

Mixing Ratio
For mixing small quantities the mixing ratio by weight of the component is:-

(Base : Solidifier : Aggregate)	100 : 30 : 1000

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 tested in accordance with ASTM D4060 using H10 wheels wet, 1 kg load, typical loss per 1,000 cycles is 395 mm^3

ADHESION

Tensile Shear
The tensile shear adhesion to steel of the polymeric binder, when tested in accordance with ASTM D1002 is typically 2,400 psi (16.5 MPa).

Elcometer

Dry concrete	600 psi (4.14 MPa)*

** Cohesive failure of substrate*

CHEMICAL ANALYSIS

The mixed **Belzona 4181** has been independently analysed for halogens, heavy metals, and other corrosion-causing impurities, with the following typical results:

Analyte	Total Concentration (ppm)
Fluoride	ND (<10)
Chloride	15
Bromide	ND (<10)
Sulphur	3
Nitrite	ND (<8)
Nitrate	ND (<8)
Tin	10.4
Arsenic	8
Antimony, Bismuth, Cadmium, Lead, Zinc, Silver, Mercury, Gallium and Indium	ND (<3.0)

ND : Not Detected

CHEMICAL RESISTANCE

The material offers good resistance to a broad range of chemicals, particularly inorganic acids.

* *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:

	Compressive Strength	Proportional Limit	Youngs Modulus
68°F/20°C cure & test	44.1 MPa 6,391 psi	40.9 MPa 5,932 psi	1,202.3 MPa 1.74 x 10^5 psi
68°F/20°C cure & test (Heavily Compacted)	71.7 MPa 10,403 psi	66.8 MPa 9,685 psi	1,484.7 MPa 2.15 x 10^5 psi
212°F/100°C cure & 68°F/20°C test	109.9 MPa 15,940 psi	105.2 MPa 15,262 psi	1,900.4 MPa 2.76 x 10^5 psi
212°F/100°C cure & 68°F/20°C test (Heavily Compacted)	165.5 MPa 24,002 psi	164.5 MPa 23,863 psi	2,220.8 MPa 3.22 x 10^5 psi

FLEXURAL PROPERTIES

Flexural Strength
The flexural strength of the material (binder/ aggregate matrix), when tested to ASTM D790 is typically:

6,444 psi (44.4 MPa).

HEAT RESISTANCE

Heat Distortion Temperature (HDT)
The heat distortion temperature when tested to ASTM D648 is typically:

Ambient cure	129°F (54°C).
Post cure @ 100°C	365°F (186°C)
Post cure @ 150°C	420°F (216°C)

Heat Resistance
For many typical applications involving impact or abrasion, the product is suitable up to 300°F (150°C). The material is not recommended for chemical immersion at elevated temperatures.

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	1.3 KJ/m^2 13.5 J/m	1.8 KJ/m^2 22.6 J/m
212°F/100°C cure & 68°F/20°C test	1.7 KJ/m^2 17.1 J/m	2.0 KJ/m^2 25.4 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 32°F (0°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 4181 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