BELZONA® World leaders in the conservation of man-made resources and the environment

PRODUCT SPECIFICATION SHEET
BELZONA® 4181

1. PRODUCT NAME
Belzona® 4181
A heat or acid resistant trowelable system for repair and protection of concrete, stone and other rigid substrates subject to impact and abrasion.

2. MANUFACTURER
Belzona Inc.,
2000 NW 88th Court,
Miami, Florida 33172.

Belzona Polymerics Ltd.,
Claro Road, Harrogate,
HG1 4AY, England.

3. PRODUCT DESCRIPTION
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 resistant surface.

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
Chemical transfer and holding areas
Pump bases
Gulleys
Tank pods
Ovens
Bunds

4. TECHNICAL DATA
Base Component

Appearance	Clear Liquid
Colour	Light amber
Viscosity	40 - 50 poise at 77°F (25°C)
Density	1.17 - 1.19 g/cm³

Solidifier Component

Appearance	Clear Liquid
Color	Amber
Viscosity	3 - 6 cPs at 77°F (25°C)
Density	1.05 - 1.07 g/cm³

Aggregate Component

Appearance	Pre-wetted, fine granular powder
Color	Red
Density	2.5 - 2.7 g/cm3

Mixing Ratio
For mixing small quantities the mixing ratio by weight of the component is:-
(Base : Solidifier : Aggregate)
100 : 30 : 1000

• *Shelf Life:*
All components will have a shelf life of at least 3 years when stored between 32°F (0°C) and 86°F (30°C).

• *Working Life:*
Will vary according to temperature.
At 77°F (25°C), use all mixed materialwithin 30 minutes.

• *Coverage Rates:*
Each 15 kg unit applied at the minimum recommended film thickness of 1/4 inch (6 mm) will cover approximately 11.3 sq.ft. (1.05 m²).

• *Volume Capacity:*
The volume capacity of mixed product is 384 cu.ins. (6300 cm³) per 15 kg unit.

• *Cure Time:*
Will be reduced for thicker sections and extended for thinner applications. At the recommended film thickness of 1/4 inch (6 mm) allow to solidify for the times shown in the chart below before subjecting it to the conditions indicated.

5. PHYSICAL/MECHANICAL PROPERTIES
Determined after 7 days cure at 77°F (25°C).

• *Abrasion Resistance:*
Taber
When tested in accordance with ASTM D4060 using H10 wheels, 1 kg load, typical loss per 1,000 cycles is Wet 395 mm³

• *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 (169 kgs/cm²).

Elcometer
Dry concrete 600 psi (42 kgs/cm²)*
** Cohesive failure of substrate*

• *Chemical Resistance:*
This material offers resistance to a broad range of chemicals and will demonstrate excellent resistance in normal service to the following chemicals:

25% Ammonia
36% Hydrochloric Acid
88% Lactic Acid
30% Nitric Acid
15% Nitric Acid
40% Phosphoric Acid
15% Sulphuric Acid
55% Sulphuric Acid
75% Sulphuric Acid
98% Sulphuric Acid
40% Sodium Hydroxide
Methyl Ethyl Ketone
Methylene Chloride
N.Methylpyrolidone

CURE TIMES

Temperature	59°F (15°C)	77°F (25°C)
To resist pedestrian traffic	12 hrs	8 hrs
Full mechanical hardness	48 hrs	24 hrs
Machine Hard	16 hrs	12 hrs
Full chemical resistance	10 days	5 days

• *Compressive Strength:*

When tested in accordance with ASTM D695 the compressive strength is typically 9,150 psi (643 kgs/cm^2).

• *Flexural Strength:*

The flexural strength of the material (binder/aggregate matrix), when tested to ASTM D790 is typically 6,444 psi (453 kgs/cm^2).

q *Heat Distortion Temperature:*

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)

q *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.

6. SURFACE PREPARATION AND APPLICATION PROCEDURES

For proper techniques, refer to Belzona® Instructions For Use which is enclosed with each packaged product.

7. 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.

8. WARRANTY

Belzona® guarantees this product will meet the performance claims stated herein when material is stored and used as instructed in the Belzona® Instructions 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, etc.). Since Belzona® has no control over the use of the product described herein, no warranty for any application can be given.

9. TECHNICAL SERVICES

Complete technical assistance is available and includes fully trained Technical Consultants, technical service personnel and fully staffed research, development and quality control laboratories.

10. HEALTH AND SAFETY

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

Belzona Polymerics Ltd.,
Claro Road,
Harrogate, HG1 4AY,
England.
Tel: +44 (0) 1423 567641
Fax:+44 (0) 1423 505967
E-Mail: Belzona@belzona.co.uk

Belzona Inc.,
2000 N.W. 88 Court,
Miami, Florida 33172,
U.S.A.
Tel: +1 (305) 594 4994
Fax:+1 (305) 599 1140
E-Mail: Belzona@belzona.com

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