PRODUCT SPECIFICATION SHEET
BELZONA 5831
FN10102

GENERAL INFORMATION

Product Description:
Belzona 5831 is an environmental moisture tolerant barrier coating, specially formulated for the protection of metallic and non-metallic surfaces. **Belzona 5831** has been designed specifically for substrate temperatures ranging from 25-40°C (77-104°F).

Application Areas:
When mixed and applied as detailed in the Belzona Instructions for Use (IFU), the system is specifically designed for applications where water or oil contamination cannot be effectively removed including splash zones and underwater.

APPLICATION INFORMATION

Working Life
Will vary according to temperature. At 20°C (68°F) the usable life of mixed material is 45 minutes.

Coverage Rate
Applied at a thickness of 300 micron (12mil), the theoretical coverage rate is 3.3 m^2/litre (35.5 ft^2/litre) per coat should be achieved.

The **Belzona 5831** should be applied in 2 coats to achieve a minimum thickness of 400 micron (16mil).

In practice many factors influence the exact coverage rate achieved. Application at low temperatures will reduce coverage rates. On rough surfaces such as pitted steel the coverage rate achieved may be reduced by up to 20%.

Application under water will reduce coverage rates further.

Cure Time
The **Belzona 5831** system will cure under cold, wet conditions down to 5°C (41°F). Allow to solidify for the times shown in the Belzona IFU before subjecting it to the conditions indicated.

Base Component	
Appearance	Viscous liquid
Colour	White
Density	2.19 - 2.25 g/cm^3

Solidifier Component	
Appearance	Thixotropic liquid
Colour	Black or Brown
Density	1.23 - 1.29 g/cm^3

Mixed Properties	
Mixing Ratio by Weight (Base : Solidifier)	1.75 : 1
Mixing Ratio by Volume (Base : Solidifier)	1 : 1
Mixed Density	1.75 g/cm^3
Mixed Colour	Grey or Beige
Sag Resistance	≥500 µm

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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BELZONA® Repair • Protect • Improve

ADHESION

Tensile Shear
When tested in accordance with ASTM D1002, using mild steel substrates:

Clean and dry	12.2 MPa (1770 psi) 13.2 MPa (1920 psi)	Ground Blasted
Underwater	10.6 MPa (1540 psi) 7.5 MPa (1090 psi)	Ground Blasted
Oil contaminated	12.5 MPa (1810 psi) 13.8 MPa (2010 psi)	Ground Blasted

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

Clean and dry	20.7 MPa (3000 psi)*
Wet	15.4 MPa (2234 psi)*
Underwater	12.9 MPa (1871 psi)*
Oil contaminated	16.4 MPa (2379 psi)*

* Cohesive failure of **Belzona 5831**

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

Dry	5.39 MPa (782 psi)
Wet	4.17 MPa (605 psi)

ATLAS CELL TESTING

When tested in accordance with NACE standard TM0174 in contact with de-ionized water at 40°C (104°F) no blistering is observed in the immersed portion or vapor phase after 1,000 hours immersion.

CATHODIC DISBONDMENT

When tested in accordance with ASTM G8, the disbondment diameter is typically:

7.6mm (0.3 in.)

CHEMICAL ANALYSIS

The mixed **Belzona 5831** has been independently analysed for halogens, heavy metals, and other corrosion-causing impurities in accordance with ASTM E165, ASTM D4327 and ASTM E1479. Typical results are displayed as follows:

Analyte	Total Concentration (ppm)
Fluoride	283
Chloride	1392
Bromide	ND (<10)
Sulphur	9979
Nitrite	12
Nitrate	15
Zinc	6
Antimony	44.7
Lead	3.6
Arsenic, Bismuth, Cadmium, Tin, Silver, Mercury, Gallium and Indium	ND (<3.0)

ND : Not Detected

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	20.4 MPa 2,962 psi	8.9 MPa 1,284 psi	262.1 MPa 0.38 x 10^5 psi
28 days at 68°F/20°C cure & test	77.4 MPa 11,221 psi	29.5 MPa 4,272 psi	759.3 MPa 1.10 x 10^5 psi
212°F/100°C cure & 68°F/20°C test	90.5 MPa 13,119 psi	59.9 MPa 8,692 psi	1,303.7 MPa 1.89 x 10^5 psi

ELECTRICAL PROPERTIES

When tested in accordance with ASTM D149, method A, with voltage rise of 2kV/s, typical value will be:

Dielectric strength	30.9 kV/mm

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ELONGATION & TENSILE PROPERTIES

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

Tensile Strength (Maximum)	12.59 MPa (1,826 psi) 14.21 MPa (2,061 psi) 21.17 MPa (3,070 psi)	7 days at 20°C (68°F) 28 days at 20°C (68°F) 7 days at 100°C (212°F)
Tensile Strength (Yield)	3.67 MPa (532 psi) 3.67 MPa (532 psi)	7 days at 20°C (68°F) 28 days at 20°C (68°F)
Elongation	5.25 % 1.42 % 0.66 %	7 days at 20°C (68°F) 28 days at 20°C (68°F) 7 days at 100°C (212°F)
Young's Modulus	1,406 MPa (2.04 x 10^5 psi) 2,004 MPa (2.91 x 10^5 psi) 4379 MPa (6.35 x 10^5 psi)	7 days at 20°C (68°F) 28 days at 20°C (68°F) 7 days at 100°C (212°F)

FLEXURAL STRENGTH

Flexural Strength
When tested to ASTM D790 typical values obtained are:

19.2 MPa (2780 psi) ambient cure

HARDNESS

Shore D
The Shore D hardness of the material when tested to ASTM D2240 is typically:
72 68°F (20°C) cure

Barcol Hardness
The Barcol hardness, when determined in accordance with ASTM D2583, will typically be:

	Ambient cure (68°F/20°C)	Post cure (212°F/100°C)
Barcol 935	57	74

HEAT RESISTANCE

Wet Heat Resistance
For many typical applications the material is suitable for continuous immersion in aqueous solutions up to 40°C (104°F).

Dry Heat Resistance
The indicated degradation temperature in air based on Differential Scanning Calorimetry (DSC) operated in accordance with ISO11357 is typically 180°C (356°F).
For many applications the product is suitable down to -40°C (-40°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
68°F/20°C cure & test	5.0 KJ/m^2 50.8 J/m	4.4 KJ/m^2 45.2 J/m
28 days at 68°F/20°C cure & test	4.1 KJ/m^2 41.6 J/m	5.3 KJ/m^2 67.5 J/m
212°F/100°C cure & 68°F/20°C test	2.8 KJ/m^2 27.6 J/m	2.9 KJ/m^2 36.2 J/m

SALT SPRAY RESISTANCE

When tested in accordance with ASTM B117, the coating shows no blistering or corrosion after 2000 hours exposure, whether applied to:

Clean grit blasted steel
Clean ground steel
Rusty steel prepared by wire brushing

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 5831 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