

PRODUCT SPECIFICATION SHEET

BELZONA 5831

FN10239



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 20-40°C (68-104°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 m²/litre (35.5 ft²/litre) per coat.

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	2.17 - 2.23 g/cm ³

Solidifier Component

Appearance	Thixotropic liquid
Colour	Black or Brown
Density	1.20 - 1.26 g/cm ³

Mixed Properties

Mixing Ratio by Weight (Base : Solidifier)	1.75 : 1
Mixing Ratio by Volume (Base : Solidifier)	1 : 1
Mixed Density	1.72 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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ABRASION

Taber

When determined in accordance with ASTM D4060 the sliding Taber abrasion resistance, will typically be:

Dry (CS17 Wheels)

49 mm³ loss per 1000 cycles 7 day cure at 20°C (68°F)

Wet (H10 Wheels)

527 mm³ loss per 1000 cycles 7 day cure at 20°C (68°F)

ADHESION

Tensile Shear

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

Substrate	Grit Blasted (SSPC-SP10) (ISO 8501-1 Sa2.5)	Ground (SSPC-SP11) (ISO 8501-1 St3)
Clean & Dry	17.7 MPa / 2,569 psi	16.0 MPa / 2,317 psi
Underwater	11.5 MPa / 1,671 psi	13.8 MPa / 2,001 psi
Oil Contaminated	15.5 MPa / 2,254 psi	14.4 MPa / 2,087 psi

Cleavage Adhesion

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

Grit Blasted (SSPC-SP10) (ISO 8501-1 Sa2.5)	Cleavage Adhesion
Clean and Dry	196 N/mm / 1,119 pli

Pull Off Adhesion

The 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 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	22.1 MPa / 3,204 psi*	24.0 MPa / 3,473 psi*
Wet	19.8 MPa / 2,870 psi*	22.7 MPa / 3,293 psi*
Underwater	15.3 MPa / 2,224 psi*	20.5 MPa / 2,978 psi*
Oil Contaminated	15.0 MPa / 2,181 psi*	18.8 MPa / 2,721 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	5.30 MPa (768 psi)*
Wet	5.05 MPa (732 psi)*

* Cohesive failure of concrete

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.

COMPRESSIVE PROPERTIES

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

	Compressive Strength	Proportional Limit	Youngs Modulus
20°C/68°F cure & test	27.2 MPa 3,949 psi	11.95 MPa 1,733 psi	523.1 MPa 7.59 x 10 ⁴ psi
7 days at 40°C/104°F cure & 20°C/68°F test	31.5 MPa 4,567 psi	20.71 MPa 3,004 psi	848.9 MPa 12.3 x 10 ⁴ psi

ELONGATION & TENSILE PROPERTIES

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

Tensile Strength (Maximum)	12.64 MPa (1,833 psi)	7 days at 20°C (68°F)
	13.59 MPa (1,971 psi)	7 days at 40°C (104°F)
Tensile Strength (Yield)	4.36 MPa (632 psi)	7 days at 20°C (68°F)
	3.72 MPa (540 psi)	7 days at 40°C (104°F)
Elongation	1.26 %	7 days at 20°C (68°F)
	0.53 %	7 days at 40°C (104°F)
Young's Modulus	2,783 MPa	7 days at 20°C (68°F)
	(4.04 x 10 ⁵ psi)	7 days at 40°C (104°F)
	4,503 MPa (6.53 x 10 ⁵ psi)	

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FLEXURAL PROPERTIES

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

	Flexural Strength	Flexural Modulus
20°C/68°F cure & test	12.7 MPa 1,835 psi	474.6 MPa (6.88 x 10 ⁴ psi)
7 days at 40°C/104°F cure & 20°C/68°F test	30.6 MPa 4,438 psi	1,417 MPa (2.05 x 10 ⁵ psi)

HARDNESS

Shore D & Barcol Hardness

The Shore D and Barcol hardness, when determined in accordance with ASTM D2240 and ASTM D2583 respectively, will typically be:

	Shore D	Barcol 935
7 day cure at 20°C/68°F	70	61
7 day cure at 40°C/104°F	71	63

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 230°C (446°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
20°C/68°F cure & test	4.2 KJ/m ² 42.3 J/m	4.0 KJ/m ² 41.4 J/m
7 days at 40°C/104°F cure & 20°C/68°F test	3.1 KJ/m ² 30.4 J/m	3.5 KJ/m ² 43.3 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

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.

MANUFACTURER / SUPPLIER

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

Belzona Inc.
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HEALTH AND SAFETY

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

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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