BELZONA 5811
FN10100

Product Specification Sheet

1. PRODUCT NAME
Belzona® 5811
(Immersion Grade)
A high performance barrier coating for the protection of metallic and non-metallic surfaces against attack from aqueous solutions.

Also used as a high strength structural adhesive for bonding or for creation of irregular load bearing shims with good electrical insulation characteristics.

For use in Original Equipment Manufacture or repair situations.

2. MANUFACTURER
Belzona Polymerics Ltd.,
Claro Road, Harrogate,
HG1 4DS, England.

Belzona Inc.,
2000 N.W. 88 Court,
Miami, Florida 33172, U.S.A.

3. PRODUCT DESCRIPTION
A two component system applied by brush or spray for protection of metallic and non-metallic surfaces operating under immersion conditions in contact with aqueous solutions.

Applications
Cooling tower pans
Submersible pumps
Effluent tanks and channels
Marine buoys
Storage tanks
Water Boxes
Manholes
Internal and external pipework
Steel and concrete piling
Water inlet screens
Chemical containment areas
Sludge digesters
Buried pipework and structures

4. TECHNICAL DATA
Base Component

Appearance	Viscous liquid
Color	Black, Beige or Grey
Density	1.67 - 1.71 g/cm³

Solidifier Component

Appearance	Clear mobile liquid
Color	Dark brown
Density	1.00 - 1.04 g/cm³

Mixed Properties at 68°F (20°C)

Mixing Ratio by Weight (Base : Solidifier)	5 : 1
Mixing Ratio by Volume (Base : Solidifier)	3 : 1
Mixed Density	1.46 - 1.50 g/cm³

• ***Shelf Life:***
Separate base and solidifier components shall have a shelf life of at least 5 years when stored between 32°F (0°C) and 86°F (30°C).

• ***Working Life:***
Will vary according to temperature. At 68°F (20°C) the usable life of mixed material is 2 hours.

• ***Coverage Rate:***
The **Belzona® 5811** should be applied in 2 coats to achieve a minimum thickness of 16 mils (400 microns). The theoretical coverage rate at 16 mils (400 microns) is 27 sq.ft. (2.5m²)/litre. Refer to the Instructions For Use for practical coverage rate guidelines.

• ***Cure Time:***
The **Belzona® 5811** system should be allowed to cure for 10 days at 59°F (15°C) or 5 days at 68°F (20°C) before being immersed.

5. PHYSICAL/MECHANICAL PROPERTIES
Determined after 28 days cure at 68°F (20°C) ambient cure or 24 hours at 77°F (25°C) followed by 4 hours at 212°F (100°C) post cure.

• ***Adhesion:***
Tensile Shear
When tested in accordance with ASTM D1002, using metal substrates, grit blasted to a 3-4 mil (75-100 micron) profile, typical values will be:

	Ambient Cure	Post Cure
Aluminum	2,300 psi (15.9MPa)	2,450 psi (16.9MPa)
Brass	2,680 psi (18.5MPa)	2,750 psi (19.0MPa)
Mild steel	3,370 psi (23.2MPa)	3,640 psi (25.1MPa)
Copper	2,230 psi (15.4MPa)	2,650 psi (18.3MPa)
Stainless steel	3,340 psi (23.0MPa)	3,330 psi (22.9MPa)

Pull Off Adhesion
When tested in accordance with ASTM D 4541/ ISO 4624, the pull off strength from grit blasted steel will be typically: 4,450 psi (30.7MPa)

• ***Chemical Resistance:***
The material will demonstrate excellent resistance to a broad range of chemicals.
* *For a more detailed description of chemical resistance properties, refer to Product Data G501.*

• ***Compressive Strength:***
When tested in accordance with ASTM D695, typical values obtained will be:
5,500 psi (37.9MPa) ambient cure
5,700 psi (39.3MPa) post cure

CURE TIMES

TEMPERATURE	50°F (10°C)	68°F (20°C)	86°F (30°C)
Light loading	48 hrs	24 hrs	12 hrs
Full mechanical/thermal loading or water immersion	14 days	5 days	2 days
Chemical contact	21 days	7 days	5 days

• ***Electrical properties***

Dielectric Strength

When tested in accordance with ASTM D149 typical values obtained will be:

330 volts/mil (8.4kV/mm).

Dielectric Constant

When tested in accordance with ASTM D150 typical values obtained will be:

2.82

Surface Resistivity

When tested in accordance with ASTM D257 typical values obtained will be:

4402 Mohm

• ***Flexural Strength:***

When tested to ASTM D790 typical values obtained will be:

5,160 psi (35.6MPa)	ambient cure
6,040 psi (41.6MPa)	post cure

• ***Flexural Modulus:***

When tested to ASTM D790 typical values obtained will be:

3.4×10^5 psi (2344 MPa)

• ***Hardness:***

Shore D

The Shore D hardness of the material when tested to ASTM D2240 is typically

80	ambient cure
81	post cure

Koenig Pendulum

When tested to ISO 1522 the Koenig damping time of the coating is typically

64 seconds	ambient cure
128 seconds	post cure

Barcol

Tested to ASTM D2583 to Barcol hardness will typically be:

75	ambient cure

• ***Heat Resistance:***

For many typical applications the material is suitable for continuous immersion in aqueous solutions up to 122°F (50°C). Please consult Belzona TKL for additional advice where immersed applications will operate close to 122°F (50°C). The material will be stable under dry conditions up to 300°F (150°C).

• ***Immersion Resistance:***

Atlas Cell:

When tested in accordance with NACE TM 0174 the coating will exhibit no rusting (ASTM D610 rating 10) or blistering (ASTM D714 rating 10) after 6 months immersion in de-ionized water at 104°F (40°C).

Seawater Immersion:

When tested in accordance with ISO 2812-2, no blistering, rusting, cracking or delamination was observed after 6 months immersion in seawater at 104°F (40°C).

• ***Impact Strength:***

The Izod impact strength (un-notched) of the material when tested in accordance with ASTM D256 is typically 0.81 ft.lbs./in (45 J/m) ambient and post cure.

6. SURFACE PREPARATION AND APPLICATION PROCEDURES

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

7. AVAILABILITY AND COST

Belzona® 5811 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.

11. APPROVALS/ ACCEPTANCES

U.S.D.A.

PAPER BOARD INDUSTRIES CORPORATION

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

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