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

# PRODUCT SPECIFICATION SHEET
# BELZONA® 5811

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

## 2. MANUFACTURER
**Belzona Polymerics Ltd.,**
Claro Road, Harrogate,
HG1 4AY, 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 or Beige. |
| Density | 1.61 - 1.66 g/cm$^3$ |

Solidifier Component

| | |
|---|---|
| Appearance | Clear mobile liquid |
| Color | Dark brown |
| Density | 1.18 - 1.22 g/cm$^3$ |

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 | 1.39 - 1.42 g/cm$^3$ |

### • *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:*
Applied at a thickness of 10mil (250 microns), a theoretical coverage rate of 43 sq.ft./liter (4 sq.m./liter) should be achieved.

### • *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 7 days cure at 77°F (25°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 profile, typical values will be:

| | Ambient Cure | Post Cure |
|---|---|---|
| Aluminum | 1,600 psi (112 kgs/cm$^2$) | 2,260 psi (159 kgs/cm$^2$) |
| Brass | 2,560 psi (180 kgs/cm$^2$) | 2,565 psi (180 kgs/cm$^2$) |
| Mild steel | 2,700 psi (190 kgs/cm$^2$) | 3,300 psi (232 kgs/cm$^2$) |
| Copper | 1,890 psi (133 kgs/cm$^2$) | 2,080 psi (146 kgs/cm$^2$) |
| Stainless steel | 2,510 psi (176 kgs/cm$^2$) | 2,520 psi (177 kgs/cm$^2$) |

### • *Atlas Cell Testing:*
When tested in accordance with NACE standard TM01-74 in contact with water at 122°F (50°C) no blistering is observed in the immersed portion or vapour phase after 670 hours immersion.

### • *Chemical Resistance:*
The material will demonstrate excellent resistance to the following chemicals;
10% sulfuric acid
20% hydrochloric acid
10% phosphoric acid
sodium hydroxide (all concentrations)
ethyl acetate
ethylene glycol
25% ammonia solution
diethanolamine
sea water
water
crude oil
Gasoline (petrol)
Toluene

* *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:
6,760 psi (475 kgs/cm$^2$) ambient cure
8,700 psi (612 kgs/cm$^2$) post cure

### • *Flexural Strength:*
When tested to ASTM D790 typical values obtained will be:
4020 psi (283 kgs/cm$^2$) ambient cure
5780 psi (406 kgs/cm$^2$) post cure

### • *Hardness:*
The Shore D hardness of the material when tested to ASTM D2240 is typically
80 ambient cure
84 post cure

### • *Heat Resistance:*
For many typical applications the material is suitable for continuous immersion in aqueous solutions up to 122°F (50°C). The material will be stable under dry conditions up to 300°F (150°C).

**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 |

• ***Impact Strength:***
The Izod impact strength (un-notched) of the material when tested in accordance with ASTM D256 is typically 1 ft.lbs./in (55 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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