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# PRODUCT SPECIFICATION SHEET **BELZONA® 5111**

## 1. PRODUCT NAME

**Belzona® 5111  
(Ceramic Cladding)**

## 2. MANUFACTURER

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

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

## 3. PRODUCT DESCRIPTION

A two-part modified urethane, solvent based system for protecting metallic and masonry surfaces against chemical, abrasive and corrosive attack. The system produces a coating of extreme hardness, durability and chemical resistance, yet giving a highly decorative, aesthetically pleasing, non-toxic surface. The material can be applied by brush or spray.

Prior to application of Belzona® 5111, depending on the nature of the substrate there are two kinds of pre-treatments required:

- 1) On steel and other ferrous surfaces apply two coats of Belzona® 5111 (Liquid Anode) and two coats of Belzona® 5111.
- 2) On cementitious and non-ferrous metallic surfaces apply one coat of Belzona® 5911 (Ceramic Conditioner) and one coat of Belzona® 5111.

### Applications

All structural steelwork  
Tanks (external surfaces)  
Pipes  
Cooling towers  
Bridges  
Walls  
Floors

## 4. TECHNICAL DATA

### Belzona® 5111 Base Component

Appearance	Moderately viscous liquid
Color	White or gray
Odor	Solvent
Viscosity	4.4 - 6.4 poise at 77°F (25°C)
Density	Gray 1.37 - 1.41 g/cm <sup>3</sup> White 1.51 - 1.55 g/cm <sup>3</sup>
Solids by weight	68.9%
Solids by volume	49.5%

### Belzona® 5111 Solidifier Component

Appearance	Clear moderately viscous liquid
Color	Pale yellow
Odor	Solvent
Viscosity	1.5 - 3.5 poise at 77°F (25°C)
Density	1.06 - 1.08 g/cm <sup>3</sup>
Solids by weight	75.0%
Solids by volume	70.8%

### Mixed Components

Density	1.33 - 1.39 g/cm <sup>3</sup>
Solids by weight	70.3%
Solids by volume	55.9%

### Belzona® 5911 Base Component

Appearance	Viscous free flowing liquid
Color	White
Odor	Solvent
Viscosity	Gray 6 - 9 poise White 5 - 8 poise at 77°F (25°C)
Density	1.50 - 1.53 g/cm <sup>3</sup>

### Belzona® 5911 Solidifier Component

Appearance	Clear viscous liquid
Color	Water white
Odor	Solvent
Viscosity	15 - 25 poise at 77°F (25°C)
Density	1.15 - 1.17 g/cm <sup>3</sup>

### Mixed Components

Density	1.46 - 1.47 g/cm <sup>3</sup>
Solids by weight	64.2%
Solids by volume	43.8%

## • VOC Content:

Belzona® 5111	lbs/US gal	g/liter
Base	3.90	467
Solidifier	2.26	271
Mixed	3.40	408
Belzona® 5911	lbs/US gal	g/liter
Base	4.61	552
Solidifier	3.21	385
Mixed	4.38	525

## • Shelf Life:

All base and solidifier components will 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 77°F (25°C) the usable life of mixed material is:

Belzona® 5111	8 hours
Belzona® 5911	8 hours

## • Coverage Rate:

The average practical coverage rate depends on roughness, porosity, profile and the nature of the substrate.

### **BELZONA® 5911**

Film thickness per coat	
Wet	5 mils (125 microns)
Dry	1 1/2 mils (38 microns)
Steel	-
Aluminum	86 sq.ft. (8.0 sq.m.)/liter
New Asbestos	81 sq.ft. (7.5 sq.m.)/liter
Smooth concrete	65 sq.ft. (6.0 sq.m.)/liter
Plaster	65 sq.ft. (6.0 sq.m.)/liter
Smooth brick	65 sq.ft. (6.0 sq.m.)/liter

### **BELZONA® 5111**

Film thickness per coat	
Wet	2 3/4 mils (70 microns)
Dry	1 1/2 mils (38 microns)
Steel	151 sq.ft. (14.0 sq.m.)/liter
Aluminum	151 sq.ft. (14.0 sq.m.)/liter
New Asbestos	130 sq.ft. (12.0 sq.m.)/liter
Smooth concrete	119 sq.ft. (11.0 sq.m.)/liter
Plaster	130 sq.ft. (12.0 sq.m.)/liter
Smooth brick	108 sq.ft. (10.05 sq.m.)/liter

## • Cure Time:

At 77°F (25°C) the mixed materials shall conform to the guidelines in the chart below.

## CURE TIMES

	Belzona® 5911	Belzona® 5111
Touch dry	2 hours	6 hours
Hard dry for overcoating	8 hours	8 hours
Maximum overcoating	2 days	2 days
Full cure	7 days	7 days

## 5. PHYSICAL / MECHANICAL PROPERTIES

Determined after 7 days cure at 77°F (25°C).

### • **Abrasion Resistance:**

#### **Elcometer**

The weight of silicon carbide grit required to remove 1 micron of coating equals 7.1 grams.

#### **Taber**

Using CS17 wheels and 1 kg load is 30 mm<sup>3</sup> loss/1000 cycles.

### • **Accelerated Weathering Resistance:**

In accordance with BS 3900 Part F3, the system will show no discoloration, loss of gloss, blistering, flaking, rusting or other breakdowns after 3000 hours exposure in weatherometer.

### • **Adhesion:**

#### **Cross Hatch**

When tested to BS 3900 Part E6 on steel is Class "0" (100% pass).

### • **Chemical Resistance:**

**Although not recommended for total immersion applications, the material has been tested as below:**

When exposed to the following chemicals, the system should show no signs of breakdown after 6 months at 77°F (25°C).

- 5% Hydrochloric acid
- 10% Sulfuric acid
- 10% Sodium hydroxide
- Xylene
- Aviation Fuel
- Gasoline
- Ethyl acetate
- Ethylene glycol

### • **Corrosion Resistance:**

The system demonstrates no rusting, blistering or flaking when exposed to 2000 hours in the salt spray cabinet operating to BS 3900 Part F4.

### • **Extensibility:**

Tested in accordance with ASTM D522 Conical Mandrel test is 34%.

### • **F.D.A. Acceptance:**

The product meets the requirements of CFR21 Part 175.300, paragraphs C,D,E, and F.

### • **Hardness:**

Pencil hardness in accordance with ASTM D3363 is 4H.  
Perzox hardness with glass as standard is 72%.

### • **Impact Resistance:**

Pass 1/16 inch (1.5 mm) tested to BS 3900 Part E3.

### • **Scratch Resistance:**

2000 grams tested to BS 3900 Part E3.

## 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® 5111** 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

U.S.D.A.  
RHODE ISLAND DEPARTMENT OF  
TRANSPORTATION.

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**Belzona® 5111 - Product Specification Sheet (2)**