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# PRODUCT SPECIFICATION SHEET **BELZONA® 4231**

## 1. PRODUCT NAME

### **Belzona® 4231**

A rapid curing system for repairing and resurfacing concrete and stonework damaged by impact, vibration, chemicals and environmental attack. Also for grouting and bonding.

## 2. MANUFACTURER

### **Belzona Inc.,**

2000 NW 88th Court,  
Miami, Florida 33172.

### **Belzona Polymerics Ltd.,**

Claro Road, Harrogate,  
HG1 4AY, England.

## 3. PRODUCT DESCRIPTION

Designed for rapid cure and ease and versatility in application. A combination of selected quartz particles and two specifically formulated reactive liquid resins (**Belzona® 4251**) which interlink chemically fusing the quartz particles together. Ideally suited for horizontal surfaces, the system may also be applied on vertical substrates up to ¼ inch (6mm) thickness.

Suitable for rapid grouting of handrails, holding down bolts, etc. (See Shelf Life)

Having outstanding adhesion, strength, hardness and chemical resistance it is ideal for emergency repairs to any structure made from concrete, brick, marble, stone, etc.

## 4. TECHNICAL DATA

### Belzona® 4251 Base Component

|            |                        |
|------------|------------------------|
| Appearance | Opaque Liquid          |
| Colour     | Dark Green             |
| Density    | 1.08 g/cm <sup>3</sup> |

### Belzona® 4251 Solidifier Component

|            |                        |
|------------|------------------------|
| Appearance | Opaque Liquid          |
| Color      | White                  |
| Density    | 1.35 g/cm <sup>3</sup> |

### Belzona® 4231 Aggregate Component

|              |                                  |
|--------------|----------------------------------|
| Appearance   | Pre-wetted, fine granular powder |
| Color        | Beige                            |
| Bulk Density | 1.5 g/cm <sup>3</sup>            |

### Mixing Ratio

For mixing small quantities the mixing ratio of the component to achieve a tolerable screed is:-

|                                 |               |
|---------------------------------|---------------|
| (Base : Solidifier : Aggregate) |               |
| by weight                       | 1 : 1.25 : 14 |
| by volume                       | 1 : 1 : 10    |

Mixing rate by volume

(Base : Solidifier) 1 : 1

Aggregate may be added to desired consistency.

### • **Shelf Life:**

After 1 year the **Belzona® 4251** (E Magma Resins) will begin to gel and will not pour. Shelf life of material as a grouting material is, therefore, 1 year.

The components will continue to be useable as a trowelable material for up to 2 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), use all mixed material within 5 minutes.

### • **Coverage Rates:**

Each 2.5 kg unit applied at the minimum recommended film thickness of ¼ inch (6 mm) will cover approximately 2.15 sq. ft. (0.2 sq. m.).

### • **Volume Capacity:**

The volume capacity of mixed product is 75 cu.ins. (1250 cm<sup>3</sup>) per 2.5 kg unit.

### • **Cure Time:**

Will be reduced for thicker sections and extended for thinner applications. At the recommended film thickness of ¼ inch (6 mm) allow to solidify for the times shown in the chart below before subjecting it to the conditions indicated.

## 5. PHYSICAL/MECHANICAL PROPERTIES

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

### • **Abrasion Resistance:**

#### **Taber**

When tested in accordance with ASTM D4060 using H10 wheels, 1 kg load, typical loss per 1,000 cycles is  
Dry 510mm<sup>3</sup>

### • **Adhesion:**

#### **Elcometer**

|              |                                   |
|--------------|-----------------------------------|
| Dry concrete | 800 psi (56 kgs/cm <sup>2</sup> ) |
| Wet concrete | 600 psi (42 kgs/cm <sup>2</sup> ) |

### • **Chemical Resistance:**

This material offers resistance to a broad range of chemicals and will demonstrate excellent resistance for permanent immersion to the following chemical environments:

#### **Good**

15% Acetic Acid  
15% Sulphuric Acid  
20% Sodium Hydroxide  
Bleach  
15% Hydrochloric  
15% Nitric acid  
Diesel

#### **Moderate**

Unleaded petrol

#### **Poor**

Xylene

### • **Compressive Strength:**

When tested in accordance with ASTM D695 the compressive strength is typically 10,000 psi (700 kgs/cm<sup>2</sup>).

### • **Compressive Modulus:**

When tested in accordance with ASTM D695 the compressive modulus is typically 1.18 x 10<sup>5</sup> psi (8300 kgs/cm<sup>2</sup>).

## CURE TIMES

| Temperature                  | 32°F (0°C) | 50°F (10°C) | 68°F (20°C) |
|------------------------------|------------|-------------|-------------|
| To resist pedestrian traffic | 1½ hrs     | 1¼ hrs      | 1 hrs       |
| Full mechanical hardness     | 2 days     | 1 day       | 8 hrs       |
| Full chemical resistance     | 7 days     | 5 days      | 3 days      |

• **Flexural Strength:**

The flexural strength of the material (binder/aggregate matrix), when tested to ASTM D790 is typically 3,200 psi (225 kgs/cm<sup>2</sup>).

• **Flexural Modulus:**

When tested in accordance with ASTM D790 the flexural modulus is typically 1.76 x 10<sup>6</sup> psi (1.24 x 10<sup>5</sup> kgs/cm<sup>2</sup>).

• **Heat Distortion Temperature:**

The heat distortion temperature when tested to ASTM D648 is typically 129°F (54°C).

• **Heat Resistance:**

For many typical applications, the product is thermally stable to 300°F (149°C) dry and 140°F (60°C) wet, and down to -40°F (-40°C).

• **Shrinkage:**

The material, when tested in accordance with ASTM C157, will show no measurable shrinkage during cure.

**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® 4231** 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 Material Safety Data Sheet provided with each packaged product.

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