Belzona 4111

(MAGMA-QUARTZ)

BELZONA®
Repair • Protect • Improve

INSTRUCTIONS FOR USE

1. TO ENSURE AN EFFECTIVE MOLECULAR WELD

Any surface to which **Belzona® 4111** is to be applied must be clean, firm and dry. Wash old concrete down with detergent to remove oil, grease and dust. Use clean water to wash away the detergent.

Remove all paint, tar and any other coatings. Allow new concrete to cure for a minimum of 28 days or until the moisture content is below 6% using a Protimeter. Wire brush vertical upstands to remove loose surface material.

Horizontal concrete surfaces and new concrete will show the phenomenon of surface laitence and this must be removed by mechanical scarification.

Abrade metallic surfaces to remove loose rust and flaking paint and then roughen by blasting, grinding or other suitable means to achieve a rough bright metal surface. Vacuum up any loose dust produced by surface preparation techniques.

Treat any surface to which **Belzona® 4111** should not adhere with **Belzona® 9411** (Release Agent) and leave for 15 - 20 minutes to dry before proceeding; seal porous surfaces to be treated with **Belzona® 9411** first, with a suitable lacquer, e.g. shellac or cellulose enamel.

2. CONDITIONING

Add the entire contents of **Belzona® 4911** (Magma TX Conditioner) Solidifier to **Belzona® 4911** Base and stir thoroughly until completely mixed. Immediately brush all of this conditioner onto the surface to be treated with **Belzona® 4111,** with a stiff bristled brush, not exceeding an area of 12 sq.ft. (1.1 m²) per 450g unit.

NOTES:

1. For mixing small quantities of **Belzona® 4911** use:
2 Parts Base : 1 Part Solidifier by Volume

2. Conditioning and overcoating must be completed within the following times:

Ambient Temperature	Usable life after mixing	Minimum overcoating time	Maximum overcoating time*
41°F/ 5°C	230 mins	Application can commence as soon as conditioning has been completed.	6 hours
50°F/10°C	105 mins		6 hours
59°F/15°C	55 mins		6 hours
68°F/20°C	45 mins		6 hours
77°F/25°C	32 mins		6 hours

* If the maximum overcoating time for the **Belzona® 4911** is exceeded, then the cured surface should be abraded and fresh **Belzona® 4911** applied.

3. COMBINING THE REACTIVE COMPONENTS

Belzona® 4111 is supplied in two pack sizes, 5 kg and 15 kg. Whereas mixing of the 5 kg unit may be carried out by hand in the bucket supplied, due to the bulk and stiffness of the materials it is essential that a mechanical mixer is used when mixing the 15 kg unit, as described below.

1. Remove the **Belzona® 4111** Aggregate and **Belzona® 4151** (Magma-Quartz Resins) Base and Solidifier tins from the bucket.
2. Place the empty bucket into the mixer cage. Wedge in with wooden chocks if necessary.
3. With the mixer running, empty the entire contents of **Belzona® 4151** Base and Solidifier units into the rotating bucket. Allow the mixer to run for 1 - 2 minutes to achieve a homogeneous mix.
4. Immediately, and with the mixer still running, slowly add the **Belzona® 4111** Aggregate into the resin mix until the desired consistency is obtained. For screeding or trowelling, add all the Aggregate to the mixed resins. The Aggregate loading should be reduced for grouting or pouring. Mix for 5 minutes and then proceed immediately to “Application”.

NOTES:

1. WORKING LIFE

From the commencement of mixing, **Belzona® 4111** must be applied within the times shown overleaf:

Temperature	Use all material within
41°F/ 5°C	2 hours
50°F/10°C	1 hour
59°F/15°C	45 mins
68°F/20°C	35 mins
77°F/25°C	30 mins

These times are based on ALL the Aggregate being added to the mixed Base and Solidifier. Use of small amounts will REDUCE the Usable Life.

2. MIXING OF SMALL QUANTITIES

For mixing small quantities of **Belzona® 4111,** use:-
2 parts of **Belzona® 4151** Base to 1 part of **Belzona® 4151** Solidifier by Volume.
Belzona® 4111 Aggregate may be added to the desired consistency.

3. VOLUME CAPACITY OF MIXED BELZONA® 4111

2160 cm³ (131 cu. ins.) per 5 kg pack and 6490 cm³ (396 cu.ins.) per 15 kg pack.

4. COVERAGE RATE

On a flat smooth surface, the coverage rate of **Belzona® 4111** is 0.37 m² (4 sq.ft.) per 5 kg pack, 1.1 m² (12 sq.ft.) per 15 kg pack at a thickness of 0.6 cm (0.25 ins.)

4. APPLYING BELZONA® 4111

Apply the mixed **Belzona® 4111** directly on to the conditioned surface with a trowel, float or other suitable tool. Tamp down firmly to remove entrapped air, to compact it and to ensure maximum contact with the surface.

Complete the operation within 30 minutes (see "Working Life") as after this time the **Belzona® 4111** will begin to solidify. When working with large volumes of **Belzona® 4111,** the usable life can be extended by spreading mixed material out on a board to avoid heat build-up during use.

NOTES:

1. APPLICATION TO VERTICAL SURFACES

When applying **Belzona® 4111** to vertical surfaces, the normal maximum thickness obtainable without sagging is 0.25 ins. (0.6 cms.). However, on small areas thicknesses of 0.5 ins. (1.2 cms.) can be achieved without sagging and, if necessary, a piece of polyethylene can be pressed onto the surface of the **Belzona® 4111** to prevent sagging. The polyethylene can be removed when the **Belzona® 4111** has cured.

2. APPLICATION LIMITS

Belzona® 4111 can be applied when the temperature is anywhere between 5°C and 25°C. Below 5°C the material may be too stiff for easy mixing and application, and above 25°C the material may be too "fluid" to enable the required thickness, or build up, to be obtained on vertical surfaces. Reference must also be made to the cure times below. Below 5°C the rate of cure is drastically reduced and some external heat source must then be used to effect full cure.

3. DAMP SURFACES

Belzona® 4111 can be applied to damp surfaces but its adhesion will be approximately 75% of that obtained on a dry surface.

4. ALTERNATIVE FINISHES

When a very smooth finish to the **Belzona® 4111** is required, a steel float, cleaned and wetted with **Belzona® 9111** should be used. Rougher surfaces, with increased non-slip properties, can be achieved by finishing with a wooden float or brush, working the surface in a circular motion to achieve the desired effect. Note that ease of cleaning and chemical resistance may be reduced by rough finishing.

5. COLORING

Belzona® 4111 is supplied as a concrete grey color, but it can be tinted as required by mixing in with the Aggregate a powder type concrete coloring additive such as Cementone or Trumix Color Pack. As a guide, an addition of 1/2 - 1% by weight of colorant is sufficient to give a strong color.

6. APPLYING ADDITIONAL LAYERS OF BELZONA® 4111

Where this is required it should be done as soon as the first layer is firm enough to accept the second layer and within the maximum overcoating time of 6 hours.

After this time the surface of the **Belzona® 4111** must be abraded before further application.

In all cases the surface must be conditioned with **Belzona® 4911** (see Section 2) before applying further **Belzona® 4111.**

7. CLEANING

Mixing tools should be cleaned immediately after use with **Belzona® 9111** or any other effective solvent e.g. MEK. Brushes, injection guns, spray equipment and any other application tools should be cleaned using a suitable solvent such as **Belzona® 9121**, MEK, acetone or cellulose thinners.

5. COMPLETION OF THE MOLECULAR REACTION

Allow **Belzona® 4111** to solidify for the following times before subjecting it to the conditions indicated:

Temperature	41°F (5°C)	59°F (15°C)	77°F (25°C)
To resist pedestrian traffic	16 hours	6 hours	4 hours
Machine hard	24 hours	8 hours	6 hours
For full mechanical hardness	2 days	24 hours	16 hours
For full chemical resistance	14 days	10 days	5 days

These figures are for **Belzona® 4111** at a film thickness of 0.25 ins. (6 mm). They will be reduced for higher film thicknesses.

HEALTH & SAFETY INFORMATION

Please read and make sure you understand the relevant Material Safety Data Sheets.

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