Belzona 4411

(GRANOGRIP)

BELZONA®
Repair • Protect • Improve

INSTRUCTIONS FOR USE

1. TO ENSURE AN EFFECTIVE MOLECULAR WELD

APPLY ONLY TO CLEAN, FIRM, DRY AND WELL ROUGHENED SURFACES

a) Brush away loose contamination and degrease with a rag soaked in **Belzona® 9111** (Cleaner/ Degreaser) or any other effective cleaner which does not leave a residue, e.g. methyl ethyl ketone (MEK).

b) (i) **Concrete Surfaces**
Concrete must be structurally sound with a surface free from laitance, oils, paints or other contamination. The surface must be mechanically abraded to expose the aggregate.
(ii) **Quarry Tiles**
Tiles must be firmly bonded and free from contamination. Blast clean to remove hard surface layer, ideally providing a 2 - 3 mil (50 - 75 micron) profile.
(iii) **Wood**
Roughen to produce an open textured surface.
(iv) **Steel Surfaces**
Blast clean, using an angular abrasive, to achieve a clean surface with a minimum depth of profile of 3 mil (75 microns). After blasting, the surface should be coated before any oxidation takes place.

c) Brush over the surface again and degrease with **Belzona® 9111.**

2. MASKING THE SURFACE TO PROVIDE A NON-SKID PATTERN

After preparing the surface, lay out masking tape to give the outline of the required grip pattern. This can be varied to suit the type and location of the substrate, and may be in the form of strips, squares or chevrons.

3. COMBINING THE REACTIVE COMPONENTS

NOTE: Do not commence mixing of the Belzona® 4411 until all surface preparation and masking is complete.

a) Transfer approximately a quarter of the contents of the **Belzona® 4411** Solidifier can to the **Belzona® 4411** Base unit.
b) Mix until a uniform consistency is achieved.
c) Add the remainder of the Solidifier and mix thoroughly to a uniform streak-free material.

NOTES:

1. MIXING AT LOW TEMPERATURES
To ease mixing when the material temperature is below 41°F (5°C), warm the Base and Solidifier containers until the contents attain a temperature of 68-77°F (20-25°C).

2. WORKING LIFE
From the commencement of mixing, **Belzona® 4411** must be used within the following times.

Temperature	41°F(5°C)	59°F(15°C)	77°F(25°C)	86°F(30°C)
Use all material within	60 min.	40 min.	30 min.	25 min.

Provided that the surface to be treated is cool, the working life of **Belzona® 4411** can be extended by initially pouring the mixed material onto the surface, prior to spreading it to the required thickness.

Alternatively, if difficulty is experienced in applying all of the material within its working life, it should be split between two or more operatives to apply.

3. MIXING RATIO
For mixing small quantities of **Belzona® 4411,** use:
2.0 parts Base to 1 part Solidifier by volume, or
2.5 parts Base to 1 part Solidifier by weight

4. VOLUME CAPACITY OF MIXED BELZONA® 4411
43.5 cu.in. (713.4 cm³) per 800g unit.

4. APPLYING BELZONA® 4411

FOR BEST RESULTS
Do not apply when:-
(i) The temperature is below 41°F (5°C) or the relative humidity is above 90%.
(ii) Rain, snow, fog or mist is present.
(iii) There is moisture on the surface or is likely to be deposited by subsequent condensation.
(iv) The working environment is likely to be contaminated by oil/grease from adjacent equipment or smoke from kerosene heaters or tobacco smoking.

a) Apply the **Belzona® 4411** directly on to the prepared surface with a stiff bristled brush or with the plastic applicator provided to give an even film thickness of 12 - 20 mil (300 - 500 microns) dependent on the type of Aggregate used (see Note 3). Keep the **Belzona® 4411** within the limits of the masking tape.

b) Immediately sprinkle the chosen Belzona® Aggregate into the uncured **Belzona® 4411** to the required density.

c) Press the Belzona® Aggregate into the **Belzona® 4411** using a wooden block.

d) Lightly sweep over the system with a brush to remove excess Aggregate, which can be used again.

e) Remove masking tape immediately to give a neat finish to the application.

NOTES:

1. COLOR

Belzona® 4411 is available in a choice of three colors, Gray, Safety Yellow and Safety Red.

2. CHOOSING THE CORRECT GRADE OF BELZONA® AGGREGATE

For maximum grip, or where heavy dirt build-up is likely, use **Belzona® 9211** (Supergrip Aggregate). For pedestrian areas or with **Belzona® 4411** Yellow or Red, use **Belzona® 9221** (Surefoot Aggregate). Two units of Aggregate to one unit of **Belzona® 4411** will give a dense coverage.

3. PRACTICAL COVERAGE RATE

A full 800g mix should cover the areas quoted below:

Belzona Aggregate	Film Thickness	Coverage Rate on	
		Smooth/Non-Porous Surface	Coarse/Porous Surface
Belzona® 9211	15 - 20 mil (375 - 500 µ)	17.0 sq.ft. 1.6 m²	13.7 sq.ft. 1.3 m²
Belzona® 9221	12 - 15 mil (300 - 375 µ)	20.0 sq.ft. 1.9 m²	15.8 sq.ft. 1.5 m²

4. APPLICATION TO DAMP SURFACES

Damp surfaces will reduce the adhesion of **Belzona® 4411** by approximately 25%. To avoid sealing moisture into the surface, such applications should be made in strips or squares.

5. 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 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® 4411** to solidify as below before subjecting it to the conditions indicated:

	Light pedestrian traffic or loading (no chemical contact)	Full traffic or loading (no chemical contact)	Chemical contact
41°F/ 5°C	24 hours	4 days	10 days
50°F/10°C	15 hours	3 days	8 days
59°F/15°C	9 hours	2 days	6 days
68°F/20°C	6 hours	1½ days	4 days
77°F/25°C	4 hours	24 hours	3 days
86°F/30°C	3 hours	12 hours	2 days

6. AGGREGATE ENCAPSULATION

For specialist applications where loose grit cannot be tolerated, the Aggregate can be incorporated into the mixed **Belzona® 4411.**

Tests have shown that mixing one volume of Aggregate to two of **Belzona® 4411** produces a material with the Aggregate firmly encapsulated in the cured **Belzona® 4411.** This encapsulated system is easy to clean and still provides good non-slip properties. This technique of application will reduce the coverage rate by approximately 20%.

HEALTH & SAFETY INFORMATION

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

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