Belzona 4331

(MAGMA CR3)

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) SURFACE PREPARATION

(i) Concrete Surfaces

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.
Horizontal concrete surfaces and new concrete will show the phenomenon of surface laitance and this must be removed by mechanical scarification.
Once existing concrete surfaces have been prepared in accordance with these recommendations, proceed to Section 1 (b) "Conditioning".

NOTE:
All porous surfaces such as concrete require to be Conditioned with **Belzona® 4911** (Magma TX Conditioner).

(ii) Metallic surfaces

Remove all paint, tar and any other coatings.
Blast clean the metal surface to achieve the following standard of cleanliness:
ISO 8501-1 Sa 2½ very thorough blast cleaning.
American Standard near white finish SSPC SP 10.
Swedish Standard Sa 2½ SIS 05 5900.
Minimum depth profile should be 3 mils (75 microns). Now proceed to Section 2 "Combining the Reactive Components".

(iii) Areas already treated with Belzona® 4111 (Magma Quartz).

Belzona® 4331 may be applied directly to **Belzona® 4111** without conditioning so long as the application takes place within 6 hours and the **Belzona® 4111** has been kept uncontaminated by foreign matter. In this case, proceed directly to Section 2 "Combining the Reactive Components". Where an existing **Belzona® 4111** application has been in service for longer than 6 hours, thoroughly clean and roughen the surface and then proceed to Section 2 "Combining the Reactive Components".

b) CONDITIONING

Add the entire contents of **Belzona® 4911** (Magma TX Conditioner) Solidifier to **Belzona® 4911** Base and stir thoroughly until completely mixed. Immediately brush conditioner onto the surface to be treated with **Belzona® 4331** not exceeding an area of 12 sq.ft. (1.1 sq.m) per 450g unit. Brush the **Belzona® 4911** well into the surface using a stiff bristled brush.
Conditioning and overcoating must be complete within the times shown.

Temperature	Usable life after mixing	Minimum Overcoating	Maximum Overcoating*
59°F/15°C	55 mins	Application can commence as soon as conditioning has been completed.	6 hours
68°F/20°C	45 mins		6 hours
77°F/25°C	32 mins		6 hours
86°F/30°C	20 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.

2. COMBINING THE REACTIVE COMPONENTS

Add the entire contents of **Belzona® 4331** Solidifier to **Belzona® 4331** Base. Mix thoroughly until a complete homogeneous liquid free from any streaks is achieved.

NOTES:

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

2. **WORKING LIFE**
   From the commencement of mixing, **Belzona® 4331** must be used within the times shown below.

Temperature	59°F/15°C	68°F/20°C	86°F/30°C
Use all material within	45 mins	20 mins	15 mins

3. **MIXING SMALL QUANTITIES**
   For mixing small quantities of **Belzona® 4331** use:
   10.75 parts Base to 1 parts Solidifier by weight.

4. **VOLUME CAPACITY OF MIXED BELZONA® 4331**
   60 cu.in. (975 cm³) per 1.5kg unit.

3. APPLYING BELZONA® 4331

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 metal 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.

Application Limits
Belzona® 4331 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.

3.1 APPLICATION AS A 1 COAT SYSTEM
Where application conditions permit, **Belzona® 4331** may be applied as a single coat.

Apply the **Belzona® 4331** directly on to the prepared surface with a stiff bristled brush or with the plastic applicator provided. To achieve the target film thickness of 20 mils (500 microns), a practical coverage rate of 20 sq.ft (1.85 sq.m) per 1.5 kg unit should be obtained. Application to rough or irregular surfaces may reduce this coverage by 20 - 25%.

TO ACHIEVE A UNIFORM COATING

a) Apply the coating in one operation without interruption.
b) Use a brush or applicator to initially wet out the substrate before building up to the full coating thickness.
c) Use a wet film thickness gauge to regularly check that the correct film thickness is being achieved.
d) Finish application with a brush to obtain uniform coverage.
e) Pay careful attention to coating detail areas such as brackets, edges and corners.
f) Ensure adequate lighting is available to prevent misses.

3.2 APPLICATION AS A 2 COAT SYSTEM

a) Apply the first coat of **Belzona® 4331** as in **3.1** above, and allow to harden (use time to resist pedestrian traffic in section 4 as a guide).
b) Before applying the second coat, wash the surface of the **Belzona® 4331** with a warm detergent solution to remove any amine bloom that has formed. Rinse with clean water and allow to dry.
c) Carefully grit blast using a moderate blast pressure and fine grit to remove surface layer, but without significant loss of coating. A frosted appearance free from gloss should be produced with a target profile of 1.5 mil (40 microns). Remove debris and degrease with **Belzona® 9111** or any other effective cleaner which does not leave a residue e.g. MEK. Allow solvent to evaporate.
d) Apply a second coat of **Belzona® 4331.**

INSPECTION

a) Immediately after application of each unit, visually inspect for pinholes and misses. Where detected these should be immediately brushed out.

b) Once the application is complete and the coating has hardened, carry out a thorough visual inspection to confirm freedom from pinholes and misses, and to identify any possible mechanical damage.

c) Spark testing can be carried out to confirm continuity. A DC voltage of 2,000 volts is recommended to confirm that minimum coating thickness of 16 mils (400 microns) has been achieved.

REPAIRS

Any misses, pinholes or mechanical damage found in the coating should be repaired by grit blasting or abrading the surface to produce a frosted appearance free of gloss, prior to application of further material as detailed in **3.2** above.

CLEANING

Mixing tools should be cleaned immediately after use with **Belzona® 9111** or any other effective solvent e.g. Methyl ethyl ketone (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.

4. COMPLETION OF THE MOLECULAR REACTION

Allow **Belzona® 4331** to solidify as below before subjecting it to the conditions indicated.

	Pedestrian traffic	Chemical resistance
50°F/10°C	16 hours	7 days
68°F/20°C	8 hours	5 days
86°F/30°C	4 hours	3 days

Below 59°F (15°C) solidification times will be significantly extended and the resultant chemical resistance capability of the Belzona® 4331 will be reduced.

5. FORCE CURE FOR OPTIMUM CHEMICAL RESISTANCE

Allow **Belzona® 4331** to solidify for 12 hours at 68°F (20°C) then force cure the product at 180°F (80°C) for 4 hours, to attain maximum chemical resistance properties.

6. NON-SLIP SURFACE

Belzona® 4331 will solidify to a smooth, hard finish. As such for pedestrian traffic areas, it is strongly recommended that Belzona® Grip Systems Aggregate be broadcast into the **Belzona® 4331** immediately after application. The choice and amount of Aggregate will vary with the degree of non-slip desired. While personal safety will be enhanced, the ultimate chemical resistance of **Belzona® 4331** may be slightly reduced.

7. STORAGE

Store in a dry environment at a temperature between 59°F (15°C) and 86°F (30°C).

Inadvertent storage of **Belzona® 4331** Solidifier below 59°F (15°C) may result in partial solidification. If this occurs, the material can be restored to its normal form by resealing the container and warming to between 104°F (40°C) and 122°F (50°C) for three hours in a well ventilated, dry area.

HEALTH & SAFETY INFORMATION

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

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