Belzona 4351

FN10087 (MAGMA CR5)

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 other coatings, as well as any loose surface material, before application of **Belzona® 4911.** Horizontal concrete surfaces, as well as new concrete, will exhibit the phenomenon of laitance which must be removed prior to application. Allow new concrete to cure for a minimum of 28 days Floors should have an effective vapor barrier installed.

Test for presence of moisture either

a) In accordance with ASTM D4263 – plastic sheet method, or
b) Measure moisture content using Electronic Moisture Meter <6% moisture (<15%WME)

If test is positive for presence of moisture, test further by either

a) Measure Moisture Vapor Emission Rate in accordance with ASTM F 1869 - Anhydrous Calcium Chloride test. Acceptable if <3lbs/1000ft²/24 hours (15g/m²/24 hours), or
b) Measure Relative Humidity of concrete in accordance with ASTM F2170. Acceptable if <75%

Consideration must be given to the provision of suitable earthing points for the **Belzona® 4351**. This should be done in consultation with a qualified electrician. See Section 4. for guidelines on suitable earthing points.

Once existing concrete surfaces have been prepared in accordance with these recommendations, proceed to Section 1 (b) - ”Conditioning”.

(ii) Metallic Surfaces

Remove any rust, paint and other surface coatings or contaminants. 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".

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 the Conditioner onto the surface to be treated with **Belzona® 4351** not exceeding an area of 12 sq.ft. (1.1 m²) per 450g unit. Brush the **Belzona® 4911** well into the surface using a stiff bristled brush. Conditioning and overcoating must be completed within the times shown below:

Ambient Temperature	Usable life after mixing	Minimum overcoating time	Maximum overcoating time*
59°F/15°C	55 mins	Application can commence as soon as it is possible to do so without disturbing the Conditioner	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 the **Belzona® 4351** Solidifier component to the Base unit.

Mix thoroughly until a completely homogeneous liquid, free of 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® 4351** must be used within the following times.

Temperature	59°F (15°C)	68°F (20°C)	77°F (25°C)	86°F (30°C)
Use all material within	35 min.	25 min.	20 min.	15 min.

3. MIXING RATIO

For mixing small quantities of **Belzona® 4351,** use:
6 parts Base to 1 part Solidifier by weight.

4. VOLUME CAPACITY OF MIXED BELZONA® 4351

44.5 cu.in. (730 cm³) per 1 kg unit.

3. APPLYING BELZONA® 4351

a) Application Limits

Belzona® 4351 can be applied when the temperature of the material, substrate and environment is anywhere between 59°F (15°C) and 86°F (30°C). Below 59°F (15°C), the material will be too stiff for easy mixing and application. Above 86°F (30°C), the material may be somewhat fluid and will have a short usable life.

Reference must also be made to the cure times. Below 59°F (15°C), the rate of cure is drastically reduced and some external heat source must be used to effect full cure.

COVERAGE RATES

Recommended number of coats	2
Target thickness 1st coat	10 mils (250 microns)
Target thickness 2nd coat	10 mils (250 microns)
Minimum total DFT	16 mils (400 microns)
Maximum total DFT	Only limited by sag resistance
Theoretical coverage rate 1st coat	31 sq.ft/kg unit (2.9 m²/kg unit)
Theoretical coverage rate 2nd coat	31 sq.ft/kg unit (2.9 m²/kg unit)
Theoretical coverage rate to achieve minimum recommended system thickness	19.4 sq.ft/kg unit (1.8 m²/kg unit)

PRACTICAL COVERAGE RATES

Appropriate loss factors must be applied to the above coverage rates. In practice, many factors influence the actual coverage rate achieved. On rough surfaces such as pitted steel the practical coverage rate will be reduced. Application at low temperatures will also reduce practical coverage rates further.

a) Apply the mixed material using a short bristled brush or squeegee to the prepared surface.
b) Apply a further coat of **Belzona® 4351** as in (a). Apply the second layer as soon as it is possible to do so without disturbing the first layer. The maximum overcoat time is 4 hours when working at temperatures between 59°F (15°C) and 86°F (30°C).
c) If the maximum overcoating time for the **Belzona® 4351** is exceeded, then the cured surface should be abraded and fresh **Belzona® 4351** applied.

NOTES:

1. PINHOLE TESTING

In the event that a high voltage spark test is to be used to aid in confirming coating integrity, it is recommended to use **Belzona® 4311** as the first coat on the prepared metal surface. It is then the **Belzona® 4311** which is spark-tested. The subsequent coats of **Belzona® 4351** should then be applied onto the **Belzona® 4311** in accordance with the **Belzona® 4311** Instructions for Use / overcoating section. Attention should be paid to ensure that there are regular "earthing" points in the **Belzona® 4311** and these areas should be visually inspected in the final coated system.

2. CLEANING

Mixing and application tools should be cleaned immediately after use with **Belzona® 9111** (Cleaner/Degreaser) 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.

4. EARTHING POINTS ON CONCRETE

Suitable earthing points can be metallic equipment such as tank supports, pipes, steel columns, posts etc. These must be electrically tested to confirm permanent continuity with an earth ground.

If suitable earthing points are not readily available, alternatives such as metal plates embedded into the coating may be used with a copper wire connected to ground. Contact Belzona Technical Services for additional suggestions.

Connections should be confirmed by a qualified electrician. At least two earthing points should be provided and all coating should be within 10 meters of the earthing points. All earthing points must be prepared as in section 1 (ii) before being coated with **Belzona® 4351**. Note. **Belzona® 4911** must NOT be applied to these earthing points.

5. COMPLETION OF THE MOLECULAR REACTION

Allow **Belzona® 4351** to solidify as below before subjecting it to the conditions Indicated:

	Light pedestrian traffic	Vehicular traffic	Full chemical resistance
59°F/15°C	16 hours	48 hours	14 days
68°F/20°C	12 hours	36 hours	7 days
77°F/25°C	8 hours	24 hours	6 days
86°F/30°C	6 hours	20 hours	5 days

NOTE: Below 59°F (15°C) solidification times will be significantly extended and the resultant chemical resistance capability of the **Belzona® 4351** will be reduced.

6. FORCE CURE FOR OPTIMUM CHEMICAL RESISTANCE

Allow **Belzona® 4351** 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.

7. NON-SLIP SURFACES

Belzona® 4351 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® 4351** 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® 4351** may be slightly reduced.

HEALTH & SAFETY INFORMATION

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

The technical data contained herein is based on the results of long term tests carried out in our laboratories and to the best of our knowledge is true and accurate on the date of publication. It is however subject to change without prior notice and the user should contact Belzona to verify the technical data is correct before specifying or ordering. No guarantee of accuracy is given or implied. We assume no responsibility for rates of coverage, performance or injury resulting from use. Liability, if any, is limited to the replacement of products. No other warranty or guarantee of any kind is made by Belzona, express or implied, whether statutory, by operation of law or otherwise, including merchantability or fitness for a particular purpose.

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