



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® 4331**.

Allow new concrete to cure a minimum of 28 days prior to application.

Horizontal concrete surfaces, as well as new concrete, will exhibit the phenomenon of laitence which must be removed prior to application.

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".

(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 48 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 2 days, thoroughly clean and roughen the surface and then proceed to Section 1 (b) - "Conditioning".

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® 4331** not exceeding an area of 12 sq.ft. (1.1 m²) per unit. Brush the **Belzona® 4911** well into the surface using a stiff bristled brush. Conditioning and overcoating must be completed within the times shown:

Ambient Temperature	Usable life after mixing	Minimum overcoating time	Maximum overcoating time*
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 the **Belzona® 4331** 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® 4331** must be used within the following times.

Temperature	50°F (10°C)	68°F (20°C)	86°F (30°C)
Use all material within	45 min.	20 min.	15 min.

3. MIXING RATIO

For mixing small quantities of **Belzona® 4331**, use:
10.75 parts Base to 1 part Solidifier by weight.

4. VOLUME CAPACITY OF MIXED BELZONA® 4331

60 cu.in. (975 cm³) per 1.5 kg unit.

3. APPLYING BELZONA® 4331

FOR BEST RESULTS

Do not apply when:

- The temperature is below 59°F (15°C) or the relative humidity is above 90%.
- Rain, snow, fog or mist is present.
- There is moisture on the metal surface or is likely to be deposited by subsequent condensation.
- The working environment is likely to be contaminated by oil/grease from adjacent equipment or smoke from kerosene heaters or tobacco smoking.

a) Application Limits

Belzona® 4331 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.

- b) Apply the **Belzona® 4331** directly on to the prepared surface with a stiff bristled brush or with the plastic applicator provided at a thickness of 20 mils (500 microns). To achieve the correct film thickness a practical coverage rate of 20 sq.ft. (1.85 m².) per 1.5kg unit should be obtained. Application to rough or irregular surfaces may reduce this coverage by 20- 25%.

TO ACHIEVE A UNIFORM COATING

- Apply the coating in one operation without interruption.
- In the area being treated by one unit of material, first "stripe coat" detail areas such as brackets, edges, corners and welds. Use a brush or applicator to initially wet out the substrate before building up to the full coating thickness over the complete area designated for that unit of material.
- Use a wet film thickness gauge to regularly check that the correct film thickness is being achieved.
- Finish application with a brush to obtain uniform coverage.
- Ensure adequate lighting is available to prevent misses.

INSPECTION

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

- Where wet sponge testing is being used as an aid to confirm continuity of the coating, care should be taken to ensure that the surface is thoroughly wetted out by repeated passage of the sponge tester over the surface. The addition of a wetting agent such as detergent to the water used on the sponge will also assist.
- Spark testing can be carried out to confirm coating continuity. A DC voltage of 3,000 volts is recommended to confirm that minimum coating thickness of 16 mil (400 microns) has been achieved.

NOTE: 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. COMPLETION OF THE MOLECULAR REACTION

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

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

NOTE: 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 SURFACES

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.

HEALTH & SAFETY INFORMATION

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

All descriptions are based on the results of long term tests carried on in our laboratories and are believed to be true and accurate. No condition or warranty is given covering the results from the use of our products in any particular case, whether the purpose is disclosed or not, and we cannot accept liability if the desired results are not obtained.

Copyright © 1999 by Belzona International Limited. All rights reserved. Certain portions of this work copyright © 1988. No part of this work covered by the copyrights hereon may be reproduced or used in any form or by any means - graphic, electronic or mechanical including photocopying, recording, taping or information storage and retrieval systems - without written permission of the publisher.

Belzona® is a registered trademark

Belzona® 4331 - Instructions For Use (Page 2)

Belzona Polymerics Ltd.,
Claro Road,
Harrogate, HG1 4AY,
England.
Tel: +44 (0) 1423 567641
Fax: +44 (0) 1423 505967

Belzona Inc.,
2000 N.W. 88 Court,
Miami, Florida 33172,
U.S.A.
Tel: +1 (305) 594 4994
Fax: +1 (305) 599 1140



BS EN ISO 9002 : 1994
Certificate No. Q/09335



Printed in England Publication No. 13-10-99