



BELZONA® 4311 (MAGMA CR1)

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® 4311**.

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® 4311 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® 4311** 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 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 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® 4311** 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® 4311** 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	45 min.	35 min.	25 min.	15 min.

3. MIXING RATIO

For mixing small quantities of **Belzona® 4311**, use:
5 parts Base to 1 part Solidifier by weight, or
3.8 parts Base to 1 part Solidifier by volume

4. VOLUME CAPACITY OF MIXED BELZONA® 4311

71 cu.in. (1160 cm³) per 1.5 kg unit.

3. APPLYING BELZONA® 4311

a) Application Limits

Belzona® 4311 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 mixed material using a short bristled brush or squeegee to the prepared surface. Practical coverage rates will depend on the applied film thickness of the **Belzona® 4311** as well as the contour, shape and roughness of the prepared surface. As a guide, a 1.5 kg mix should be sufficient to cover an area of 44 - 48 sq.ft. (4.0 - 4.4 m².) at the minimum recommended film thickness of 10 mil (250 microns). Application to rough or irregular surfaces may reduce this coverage by 20 - 25%.
- c) Apply a further coat of **Belzona® 4311** as in (b). Apply the second layer as soon as it is possible to do so without disturbing the first layer. Never apply product in excess of 4 hours when working at temperatures between 59°F (15°C) and 86°F (30°C).
- d) If the maximum overcoating time for the **Belzona® 4311** is exceeded, then the cured surface should be abraded and fresh **Belzona® 4311** applied.

NOTES:

1. DIFFERENTIATION BETWEEN LAYERS

Belzona® 4311 is available in gray and red, to facilitate application and to prevent misses. In service the colour of the applied product may change.

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. COMPLETION OF THE MOLECULAR REACTION

Allow **Belzona® 4311** 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® 4311** will be reduced.

5. FORCE CURE FOR OPTIMUM CHEMICAL RESISTANCE

Allow **Belzona® 4311** 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® 4311 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® 4311** 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® 4311** may be slightly reduced.

HEALTH & SAFETY INFORMATION

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

All descriptions are based on the results of long term tests carried out 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 © 2002 by Belzona International Limited. All rights reserved. Certain portions of this work copyright © 1980-2001 by Belzona International Limited. 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® 4311 - Instructions For Use - (Page 2)

Printed in England Publication No. 60-7-01

Belzona Polymerics Ltd.,
Claro Road,
Harrogate, HG1 4AY, England.
Tel: +44 (0) 1423 567641
Fax: +44 (0) 1423 505967
E-Mail: belzona@belzona.co.uk

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



BS EN ISO 9002 : 1994
Certificate No. Q09335



www.belzona.com