

# Belzona 4301

FN10208 (MAGMA CR1 HI-BUILD)



## INSTRUCTIONS FOR USE

### 1. TO ENSURE AN EFFECTIVE MOLECULAR WELD

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

#### a) SURFACE PREPARATION

##### (i) 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 75 microns (3 mils).

Now proceed to **Section 2. "COMBINING THE REACTIVE COMPONENTS"**.

##### (ii) 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.

Test for presence of moisture, either:

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

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

- Measure Moisture Vapor Emission Rate in accordance with ASTM F 1869 - Anhydrous Calcium Chloride test. Acceptable if <15g/m<sup>2</sup>/24 hours (3lbs/1000ft<sup>2</sup>/24 hours), or
- Measure Relative Humidity of concrete in accordance with ASTM F2170. Acceptable if <75%

Once existing concrete surfaces have been prepared in accordance with these recommendations, proceed to **b) "CONDITIONING"**.

#### NOTE:

All porous surfaces such as concrete should to be conditioned with **Belzona® 4911** (Magma TX Conditioner).

#### 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® 4301** not exceeding an area of 2.4 m<sup>2</sup> (26 sq.ft.) per kg. Brush the **Belzona® 4911** well into the surface using a stiff bristled brush.

Conditioning and overcoating must be completed within the following times:

Temperature	Usable life after mixing	Minimum overcoating time	Maximum overcoating time*
10°C/50°F	105 minutes	Application can commence as soon as conditioning has been completed	6 hours
20°C/68°F	45 minutes		6 hours
30°C/86°F	20 minutes		6 hours
40°C/104°F	7 minutes		6 hours

Note - If the maximum overcoating time for the **Belzona® 4911** is exceeded, then the cured surface should be abraded and fresh **Belzona® 4911** applied.

#### WHERE BELZONA® 4301 SHOULD NOT ADHERE

Brush on a thin layer of **Belzona® 9411** (Release Agent) and allow to dry for 15 - 20 minutes before proceeding.

### 2. COMBINING THE REACTIVE COMPONENTS

Transfer the entire contents of the Base and Solidifier tins on to the **Belzona® Working Surface**. Mix thoroughly together with a plastic spatula to achieve a uniform material free of any streakiness.

#### 1. MIXING SMALL QUANTITIES

For mixing small quantities of **Belzona® 4301** use:

- 2 parts Base to 1 part Solidifier by volume
- 2 parts Base to 1 part Solidifier by weight

#### 2. MIXING AT LOW TEMPERATURES

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

#### 3. WORKING LIFE

From the commencement of mixing, **Belzona® 4301** must be used within the times shown below.

Temperature	10°C (50°F)	20°C (68°F)	30°C (86°F)	40°C (104°F)
Use all material within	80 min	40 min	30 min	20 min

#### 4. VOLUME CAPACITY OF MIXED BELZONA® 4301

667 cm<sup>3</sup> / 40.7 in<sup>3</sup> per kg.

### 3. APPLYING BELZONA® 4301

#### FOR BEST RESULTS

##### Do not apply when:

- (i) The temperature is below 5°C (41°F) or the relative humidity is above 85%
- (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.

- a) Apply the **Belzona® 4301** directly on to the prepared surface with a short bristled brush or with the provided plastic applicator or spatula.
- b) Press down firmly to fill all cracks, remove entrapped air and to ensure maximum contact with the surface.
- c) Over cracks, gaps and holes, stipple in **Belzona® 9341** (Reinforcement Tape).
- d) Contour the **Belzona® 4301** to the correct profile with the plastic applicator.

Note - Below 10°C (50°F), the rate of cure is drastically reduced and some external heat source must be used to effect full cure. For application and cure at below 10°C (50°F), please contact your Belzona representative to discuss specific requirements.

If used as a pit filling material, subjected to constant immersion conditions, our best recommendation would be to overcoat **Belzona® 4301** with a fit-for-service coating. Refer to the relevant IFU for application details.

#### CLEANING

Mixing tools should be cleaned immediately after use with **Belzona® 9111** or any other effective solvent e.g. methyl ethyl ketone (MEK). 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® 4301** to solidify as below, before subjecting it to the conditions indicated:

Temperature	Dimensionally stable	Machining	Full chemical resistance
10°C/50°F	18 hours	24 hours	14 days
20°C/68°F	6 hours	12 hours	7 days
30°C/86°F	5 hours	10 hours	6 days
40°C/104°F	3 hours	6 hours	5 days

**NOTE:** Below 10°C (50°F) solidification times will be significantly extended and the resultant chemical resistance capability of the **Belzona® 4301** will be reduced.

### 5. POST CURE FOR OPTIMUM CHEMICAL RESISTANCE

Allow **Belzona® 4301** to solidify for 'Dimensionally stable', then force cure the product at 80°C (176°F) for 4 hours, to attain maximum chemical resistance properties.

### 6. APPLICATION OF A FURTHER LAYER OF BELZONA® 4301

Whenever possible, **Belzona® 4301** should be applied in a single layer to achieve the required thickness. **Belzona® 4301** can be overcoated as soon as it is firm enough to do so.

When overcoating with suitable Belzona products, the maximum overcoat time is 24 hours. After this time, the surface must be roughened by abrading or grit blasting to achieve a frosted appearance with a minimum surface profile of 40 microns before overcoating.

## HEALTH & SAFETY INFORMATION

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

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