

# Belzona 7111

FN10160



## INSTRUCTIONS FOR USE

### 1. PREPARATION

#### 1.1 SURFACE PREPARATION

APPLY ONLY TO CLEAN, FIRM, DRY SURFACES.

##### METAL SURFACES

Brush away any loose rust and/or flaking paint or other surface contaminants. Remove dirt, oil, or grease with **Belzona 9111** (Cleaner /Degreaser) or any other effective cleaner which does not leave a residue, e.g., methyl ethyl ketone (MEK).

Round off all sharp corners and edges of the baseplate potentially in contact with **Belzona 7111**.

##### CONCRETE SURFACES

Remove any flaking paint, tar, and other coatings, as well as any loose surface material. Allow new concrete to cure for a minimum of 28 days or until the moisture content is below 6% using a Protimeter.

#### 1.2 MACHINERY ALIGNMENT

Machinery alignment shall be carried out by specialists contracted by the asset owner or operator. Ensure information related to curing linear shrinkage of **Belzona 7111** is discussed, as shown below.

Curing Linear Shrinkage	Curing Temperature
0.16%	74 °F (23 °C)
0.83%	122 °F (50 °C)

#### 1.3 REQUIRED TOOLS AND PRODUCTS

Although each situation may be different, the following tools and products are referenced in this document and should be accounted for prior to commencement of the application.

- Belzona 7111**
- Belzona 9111** or **Belzona 9121**
- Belzona 4111** or **Belzona 4151**
- Belzona 8411** or **Belzona 9411**
- Belzona 8211**
- Chemical resistant coating (e.g., Belzona 4311)**, if needed
- Non-porous foam and wood/metal pieces
- Sealing/caulking compound or similar
- Electric hand mixer
- Surface thermometer
- Belzona bowls
- Solidifier reduction cup (provided with **Belzona 7111**)

#### 1.4 CHOCKING AREA PREPARATION

- Ensure a chocking plan for the machine is available, showing where the chocks and bolts will be located within the dam. An example of a chocking plan is shown in Figure 1.

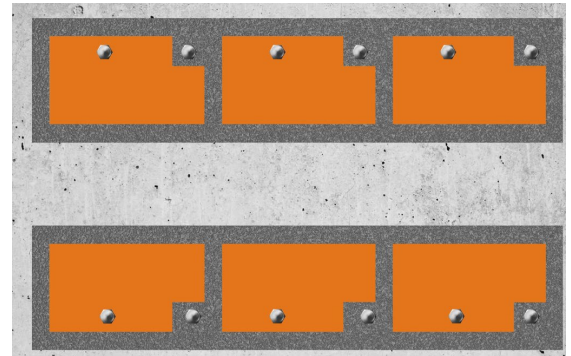


Figure 1 – Example of a chocking plan

- If bolts need to be installed, drill the bolt holes through the substrate using a template with the footprint of the machine or the machine bedplate itself. Ensure holes are large enough for the bolts to be positioned and anchored using any epoxy grouts such as **Belzona 4111** or **Belzona 4151**.
- Use non-porous foam for the back and lateral sides of each chock. To reduce heat generation, it is recommended that the area of each chock does not exceed 2 ft<sup>2</sup> (0.2 m<sup>2</sup>).
- Cut the foam pieces to the proper sizing allowing for at least a ¼ in. (6 mm) crush on the foam to avoid leakage of material.
- Install the foam pieces as shown in Figure 2 below.

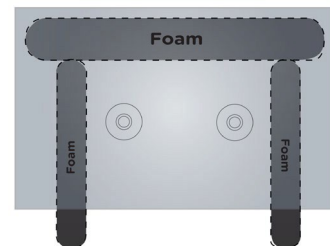


Figure 2 – Foam pieces being used for the back and lateral sides of the chock

- Isolate the bolts to prevent contact with **Belzona 7111** once poured, by using tape wrap, tube insulation, or simply impregnating them with **Belzona 8211**, as shown in Figure 3.

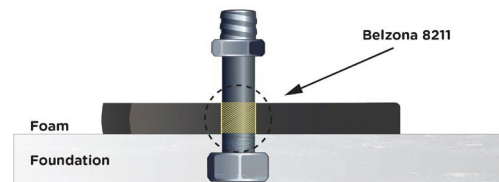


Figure 3 – Isolating the bolts using **Belzona 8211**

- g) At this point, the chocking area should be ready for the machine to be placed and aligned. Refer to 1.2 above.
- h) Use wood or metal for the front side of the dam. Cut the metal or wood piece so it is high enough to reach the top of the machinery baseplate when standing on the foundation.
- i) Apply a thin layer of release agent (**Belzona 8411** or **Belzona 9411**) onto all contact surfaces as a provision for future machinery removal.
- j) Allow release agent to dry for 15 – 20 minutes.
- k) Install the wood/metal piece recommended in h) above, approximately 1/2 to 3/4 in. (12 mm to 18 mm) out from the base plate to allow for overpour volume, as shown in Figure 4.

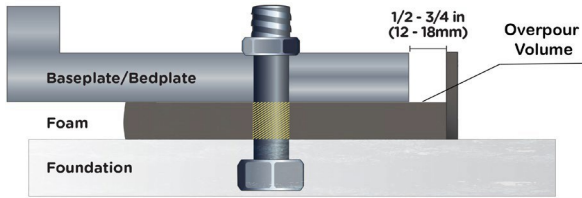
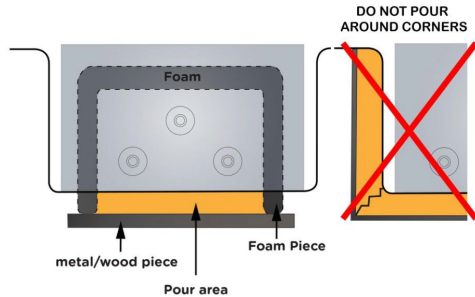


Figure 4 – Wood/metal piece being used in the front of the dam

- l) Install additional pieces of foam on each side of the overpour area of the dam to prevent product from overflowing.
- m) Seal the perimeter of the dam with caulk/mastic or silicone to prevent potential leaks of Belzona 7111 after pours.
- n) Visually inspect the perimeter of the dam for any potential leak points.

### CAUTION

When building the dam, bear in mind that it is not recommended to pour **Belzona 7111** by the corners of the machinery, as the product may crack due to potential stresses around sharp angles.



## 2. APPLICATION PROCEDURE

### 2.1 MIXING SMALL QUANTITIES

For mixing small quantities, refer to the weight mix ratio below. Use a spatula and mix for at least 3 minutes to achieve an even consistency.

Mixing Ratio	By Weight
Base: Solidifier	14.5: 1

### 2.2 MIXING COMPLETE UNITS

When mixing complete units, it may be required to reduce the amount of solidifier to avoid high exotherms. Use the provided cup to measure the required solidifier reduction. **DISPOSE of the reduced amount. Refer to Section 4 Solidifier Ratio Guide** to determine the correct amount of solidifier.

Once the solidifier has been reduced, pour the remaining contents of the solidifier container into the base container. Use a low-rpm mechanical hand mixer (e.g., 450 rpm) to mix both components. Keep the drill bit deep into the base container while mixing to avoid unnecessary incorporation of air. Mix thoroughly for at least 5 minutes until a uniform and streakiness-free material is achieved.

### 2.3 WORKING LIFE

From the commencement of mixing, **Belzona 7111** must be used within the times shown below.

Temperature	41 °F (5 °C)	60 °F (15 °C)	68 °F (20 °C)	86 °F (30 °C)	104 °F (40 °C)
Use material within	60 min.	45 min.	30 min.	15 min.	10 min.

### 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 and concrete 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.

### 2.4 APPLICATION

- a) Pour the mixed **Belzona 7111** into the dam immediately after mixing. Allow the product to flow freely across and underneath the equipment in a thin stream to avoid excessive bubbling, as shown below in Figure 5.

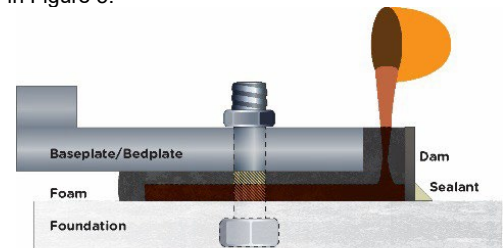


Figure 5 – Belzona 7111 being poured in a thin stream

- b) Overpour **Belzona 7111** so that the product level reaches at least half the thickness of the equipment baseplate.

- c) Always check for any potential leaks around the perimeter of the dam. If any, stop pouring **Belzona 7111** and quickly seal the leak point with a quick set caulking compound or similar product.

NOTE: **Regardless of temperature, minimum thickness on a single pour is ½ in. (12.7 mm).**

- d) Allow **Belzona 7111** to fully cure as in Section 3 below.  
 e) Remove the front metal/wood piece from the dam by carefully hitting it with a hammer or mallet. The repair should look as in Figure 6 below.

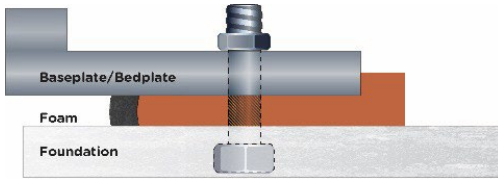


Figure 6 – Complete repair

- f) Smooth off the sharp edges of the product using a grinder, if needed.  
 g) Torque bolts as per manufacturer's specifications.

### 2.5 OVERCOAT TIMES

If multiple pours of **Belzona 7111** are required, the first pour should be allowed to cure for at least 5 hours before any additional material is applied. Similarly, if better chemical resistance is desired, **Belzona 7111** can be overcoated with solvent free epoxy-based coatings such as **Belzona 4311**.

The maximum overcoat time is dependent on both temperature and humidity, as shown below. If these times are exceeded, the surface must be manually sanded/abraded (e.g., 60 grit sandpaper) to achieve a frosted and free of gloss appearance.

Temperature Range	<50% Relative Humidity	>50% Relative Humidity
41 - 68 °F (5 - 20 °C)	24 hr.	24 hr.
68 - 86 °F (20 - 30 °C)	24 hr.	18 hr.
86 - 104 °F (30 - 40 °C)	18 hr.	8 hr.

## 3. CURING AND CLEANING

### 3.1 AMBIENT CURING

Allow **Belzona 7111** to solidify as below.

Temperature	41 °F (5 °C)	60 °F (15 °C)	68 °F (20 °C)	86 °F (30 °C)	104 °F (40 °C)
Cure Times	Post Curing	48 hr.	24 hr.	12 hr.	8 hr.

If desired, a hardness test can be carried out upon full curing of the material. A Shore D reading of 89 indicates that sufficient cure has been achieved.

### 3.2 POST CURING

This post-curing procedure should be followed when the ambient temperature is equal to or below 60 °F (15 °C).

- Allow **Belzona 7111** to ambient cure for at least 24 hours.
- Post cure the material using forced air heaters or heat lamps for at least 6 hr. at 104 °F (40 °C) or 4 hr. at 140 °F (60 °C).
- Allow **Belzona 7111** to cool down.

### 3.3 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. SOLIDIFIER RATIO GUIDE

The graph shown in Figure 7 should be used to determine whether solidifier reduction is required or not, and whether single or multiple pours of **Belzona 7111** should be carried out. The required reduced amount of solidifier is based on both the temperature of the machinery foundation and the thickness of the chock.

Example points on the graphs are provided.

- Use this graph when the machinery is made of steel and its foundation is made of either steel or concrete.
- Measure the temperature of the foundation and locate it on the graph along the horizontal axis (in °F or °C).
- Estimate the chock thickness and locate it on the graph along the vertical axis (in inch or mm).
- Intersect both lines and read description of region where the intersection point lands.
- Refer to some examples provided as follows.

Examples:

- Chock thickness of 2 in. (50 mm) / steel temperature of 77 °F (25 °C) – intersection within "Reduction Level 3" – Fill the reduction cup until Reduction Level 3 and discard.
- Chock thickness of 1 <sup>9</sup>/<sub>16</sub> in. (40 mm) / temperature of 60 °F (15 °C) – intersection within "No Solidifier Reduction" – Use all solidifier in its container.
- Chock thickness of ¾ in. (20 mm) / steel temperature of 50 °F (10 °C) – intersection within "Apply Heat" – Use all solidifier in its container. Allow product to cure (as in Section 3.1) and post-cure (Section 3.2).
- Chock thickness of 2 <sup>3</sup>/<sub>4</sub> in. (70 mm) / temperature of 86 °F (30 °C) – intersection within "Pour in Layers" – Choose number of pours and place on the graph. For example, two pours: 2 in. (50 mm) [first pour] and ¾ in. (20 mm) [second pour]. The first will fall under "Reduction Level 3" whereas the second pour will fall under "Reduction Level 1".

## 5. SHELF LIFE

Separate base and solidifier components of **Belzona 7111** have a shelf life of five (5) years from date of manufacture when stored in their original unopened containers between 41 °F (5 °C) and 86 °F (30 °C).

# Belzona 7111

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## INSTRUCTIONS FOR USE

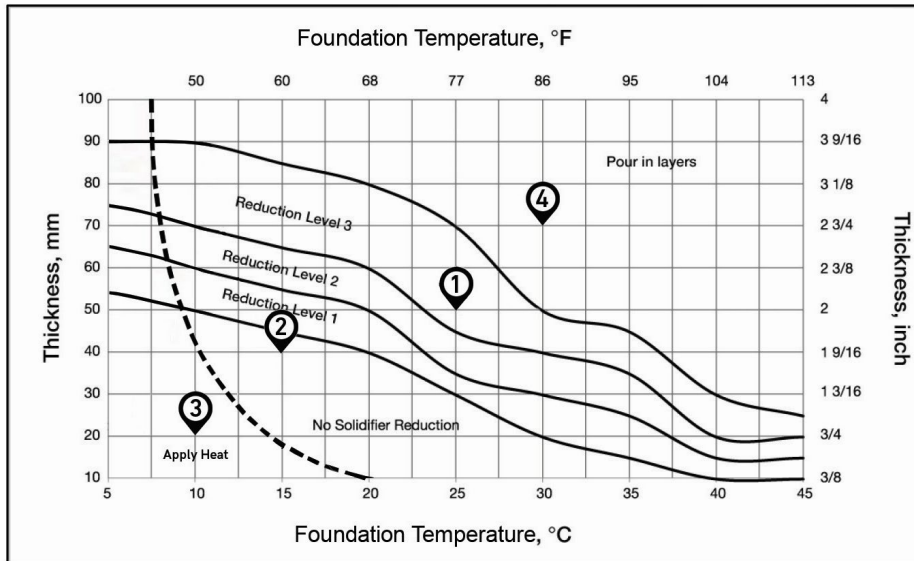


Figure 7 – Belzona 7111 Solidifier Reduction Graph

**DO NOT FORGET TO DISCARD REDUCED SOLIDIFIER IN CUP.**

### 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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