Belzona 2221

(MP FLUID ELASTOMER)

BELZONA®
Repair • Protect • Improve

INSTRUCTIONS FOR USE

1. TO ENSURE AN EFFECTIVE MOLECULAR WELD

a) **SURFACE PREPARATION**

(i) Metallic Surfaces

Remove all loose surface contamination and degrease with **Belzona® 9111** (Cleaner/Degreaser) or any other suitable cleaner which does not leave a residue, e.g. Methyl ethyl ketone (MEK). Use a flame to sweat out oil from deeply impregnated surfaces.

Grit blast to a minimum 3 mil (75 microns) profile. Where blasting is not practical, thorough mechanical grinding may be considered, except for applications involving tensile loads, such as expansion joints, and all applications involving immersion and/or fluid flow.

(ii) Flexible Surfaces (e.g. rubbers)

NOTE : Belzona® 9111 can draw processing oils and waxes to the surface of some rubbers, particularly when new, which then impairs adhesion of **Belzona® 2221.** Test for this on a small area. If, on rubbing with a rag moistened with **Belzona® 9111,** a greasy film appears, the surface should not be degreased, but simply abraded.

Undercut fine edges with a sharp knife and scuff the surface with a rotary wire brush or suitable roughing tool.

Brush away loose contamination and degrease again with **Belzona® 9111.**

b) **CONDITIONING**

Immediately, apply a thin, even coat of **Belzona® 2911** (Elastomer QD Conditioner) or **Belzona® 2921** (Elastomer GP Conditioner) onto the surface. A brush should be used as a stipple to ensure a practical coverage rate of 13 sq.ft (1.25 m²) per unit, on steel and most metallic substrates. On well roughened rubber substrates this could be reduced by as much as 50%.

The Belzona® Conditioner must be touch dry before overcoating with **Belzona® 2221.** This will depend on the Belzona® Conditioner selected, prevailing temperature, relative humidity and substrate. At 68°F (20°C) and 50% relative humidity, the touch dry state will be achieved after the times given opposite when applied to a steel surface. These times may be extended when applied to rubber substrates.

Conditioner	Touch Dry	Max. Overcoating
Belzona® 2911	30 min.	4 hours
Belzona® 2921	2 hours	8 hours

Under no circumstances should application of **Belzona® 2221** take place after the maximum overcoating time.

NOTE: Belzona® 2911 has an 18 month shelf life from date of manufacture when stored at 41 - 77°F (5 - 25°C) and must be used before the stated “use by” date.

When using **Belzona® 2221** to overcoat a surface which has been treated with a **Belzona® 1000** Series product (except **Belzona® 1221** (Super E-Metal), the **Belzona® 1000** Series product must first be allowed to fully cure, the surface prepared as outlined in section 1 (a) (i), and **Belzona® 2911** or **Belzona® 2921** applied as outlined in section 1 (b).

Application of **Belzona® 2221** over **Belzona® 1221** can be carried out up to 4 hours after the application of **Belzona® 1221** without the need of any surface treatment other than removal of contamination. When overcoating **Belzona® 1221** after this time, the surface should be abraded, followed by conditioning as in Section 1 (b).

WHERE BELZONA® 2221 SHOULD NOT ADHERE

Brush on a thin layer of **Belzona® 9411** (Release Agent) and allow to dry for 15 - 20 minutes before proceeding to step 2.

2. COMBINING THE REACTIVE COMPONENTS

Complete mixing is the most important step in the use of **Belzona® 2221.**

a) Empty the entire contents of the Base and Solidifier containers into the mixing bowl provided.

b) Mix together for at least 2 minutes until the material is of an even color and consistency.

NOTES:

1. MIXING AT LOW TEMPERATURES

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

2. WORKING LIFE

From the commencement of mixing, **Belzona® 2221** must be used within the times shown overleaf.

Temperature	41°F (5°C)	59°F (15°C)	77°F (25°C)	86°F (30°C)
Use all material within	35 min.	20 min.	15 min.	10 min.

3. MIXING SMALL QUANTITIES

Whenever possible, complete units of **Belzona® 2221** should be mixed. Where small quantity mixes are required, mix

3.0 parts Base: 1 part Solidifier by Volume or
2.3 parts Base: 1 part Solidifier by Weight.

It is important that these mixing ratios are accurately adhered to. After using part of the Base component the lid should be replaced immediately to minimise the risk of skinning.

4. VOLUME CAPACITY OF MIXED BELZONA® 2221

40.28 cu.in. (660 cm³) per 750 g unit.

3. APPLYING THE BELZONA® 2221

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 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) **Resurfacing**

Apply the **Belzona® 2221** to the prepared surface with a stiff bristle brush or the plastic applicator provided to give a coverage rate of approximately 18.5 sq. ft. (1.75 m²) at 15 mil (0.0375 cm) thickness.

b) **Casting**

(i) Brush a thin coat of **Belzona® 2221** onto the inside of the mould previously treated with **Belzona® 9411.**
(ii) Pour the remaining **Belzona® 2221** into the mold, avoiding air entrapment and then remove any occluded air by vibrating the mold.

CLEANING

Mixing tools should be cleaned immediately after use with **Belzona® 9111** or any other effective solvent e.g. 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® 2221** to solidify as below before subjecting it to the conditions indicated:

	Movement or use involving no loading or immersion	Light loading	Full mechanical or thermal loading	Immersion in chemicals
41°F/ 5°C	10 hours	18 hours	3 days	10 days
50°F/10°C	6 hours	12 hours	2 days	7 days
59°F/15°C	4 hours	6 hours	1½ days	5 days
68°F/20°C	2 hours	4 hours	1 day	3 days
77°F/25°C	1½ hours	3 hours	18 hours	2 days
86°F/30°C	1 hour	2 hours	16 hours	1 day

These times are for a thickness of approximately 0.10 ins (0.25 cm); they will be reduced for thicker sections and extended for thinner sections.

5. STORAGE

Once opened, **Belzona® 2221** will have a limited shelf life of 6 months under normal conditions of storage in correctly sealed containers. A surface skin may result during this period but after removal the remaining material can be used in the normal way.

Containers must be stored in a dry environment at a temperature of not more than 77°F (25°C).

6. OVERCOATING

Application of subsequent layers of **Belzona® 2221** can be carried out up to 3 days after the previous application without need of any surface treatment other than removal of contamination.

Overcoating of aged or weathered **Belzona® 2221** is possible at any time after initial application, provided that the surface preparation techniques for flexible surfaces described in Section 1 are employed.

HEALTH & SAFETY INFORMATION

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

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