

# Belzona 5721 (580g Cartridge)

FN10237



## INSTRUCTIONS FOR USE

### 1. TO ENSURE AN EFFECTIVE MOLECULAR WELD

**BELZONA 5721 HAS BEEN SPECIFICALLY DESIGNED TO REPAIR AND PROTECT THE LEADING EDGE OF WIND TURBINE BLADES. BELZONA 5721 SHOULD ONLY BE APPLIED ONTO STRUCTURALLY SOUND SURFACES.**

#### SURFACE PREPARATION ONTO COMPOSITE BLADES

Removal of the gel coat is preferred in order to maximise the performance of the **Belzona® 5721**. On many blades the adhesion of the gel coat to the composite will be relatively poor. In this case, **it is recommended that the gel coat is completely removed**, and the surface prepared as follows:

- Roughen surfaces to completely remove the gel coat and abrade back to the composite avoiding exposing the fibres. This can be completed using a mechanical sander with coarse paper e.g. orbital sander. Alternatively, other power tools or frost-blasting technique can also be used.

#### PREPARING THE TRANSITIONAL AREA

- When applying as in a), a pre-determined section of the existing gel coat surrounding the application area must also be prepared to provide an overlap for the **Belzona® 5721**. This can also be completed using a mechanical sander with coarse paper e.g. orbital sander.
- Brush away loose contamination and if necessary degrease with **Belzona® 9111** (Cleaner/Degreaser) or any other effective cleaner which does not leave a residue e.g. methyl ethyl ketone (MEK).

#### ALTERNATIVELY, IF THE GEL COAT CANNOT BE REMOVED

- Where full removal of the gel coat is not possible, abrade the surface using a mechanical sander with coarse paper (P40-P80) e.g. orbital sander to completely roughen the surface.
- Brush away loose contamination, and if necessary, degrease with **Belzona® 9111** (Cleaner/Degreaser) or any other effective cleaner which does not leave a residue e.g. methyl ethyl ketone (MEK).
- Mask out the application areas using a suitable tape, not exceeding the prepared surface.
- Apply **Belzona® 2911** prior to overcoating with **Belzona® 5721**. A brush should be used as a stipple to ensure a practical coverage rate of 1.25 m<sup>2</sup> (13 sq.ft) per unit. **Belzona® 2911** application and cure conditions as follows:

The **Belzona® 2911** must be touch dry before overcoating with **Belzona® 5721**. At 50% relative humidity, the touch dry state will be achieved after the times given below:

Temperature	Touch Dry Time
10°C (50°F)	90 mins
20°C (68°F)	45 mins
30°C (86°F)	25 mins
40°C (104°F)	20 mins

For lower relative humidity, the touch dry times will increase, for higher humidity they will be reduced.

Remove tape once application of **Belzona® 2911** has been completed.

Under no circumstances should application of **Belzona® 5721** take place after the maximum overcoating time of 24 hours.

For optimum results, the best possible surface preparation should be achieved.

#### PIT FILLING

Where required, pitting should be smoothed out with **Belzona® 5711** mixed and applied in accordance with the IFU.

**Belzona® 5711** is quick curing and can be directly overcoated with **Belzona® 5721** in as little as 30 minutes at 20°C (68°F). In extreme environments e.g., 40°C (104°F) and >65% relative humidity, **Belzona® 5711** will require sanding prior to overcoating. Please refer to **Belzona® 5711** IFU for relevant overcoating times.

#### Defining the application area

Mask out the application area using a suitable tape dividing the area into manageable sections to allow for periodic removal of tape throughout the application process.

### 2. COMBINING THE REACTIVE COMPONENTS

For ease of mixing and application, **Belzona® 5721** is supplied in a 2-component cartridge with a static mixer. To preserve shelf-life and ensure product quality, the cartridge is packaged within a foam insert and sealed in a protective outer foil sachet. This sachet should not be opened until the product is ready to use.

- Open the foil sachet using the tear notch and remove the cartridge and static mixer from the foam insert.
- Insert the cartridge into the 2-component Battery Dispenser. In order to ensure successful application, Belzona exclusively recommend that the Cox ElectraFlow Dual Ultra 400 MR be used.
- To level the pistons, remove the screw cap from the cartridge, adjust dispenser to the required low speed setting and slowly extrude product until two consistent beads of base and solidifier are dispensed.
- Attach the supplied static mixer, ensuring it is tightly screwed into place.
- Extrude material through the static mixer and adjust speed to achieve the desired product output. Typically, this will be setting 3 and above on the Cox ElectraFlow Dual Ultra 400 MR dispenser.
- Product is ready to be applied.

#### 1. USE AT LOW TEMPERATURES

**Belzona® 5721** can be used down to 5 °C (41 °F), however, if desired to ease and speed up application, the cartridge can be warmed prior to use. To ensure sufficient working life, we recommend not exceeding 40 °C (104 °F).

#### 2. WORKING LIFE

Mixed material dispensed from the cartridge will have a working life as shown below:

#### Surface Skinning at 500 microns (20 mils) thickness

	30% RH	50% RH	65% RH	80% RH
5°C (41°F)	20 min	16 min	14 min	12 min
10°C (50°F)	18 min	14 min	12 min	10 min
20°C (68°F)	14 min	11 min	9 min	7 min
30°C (86°F)	11 min	8 min	6 min	4 min
40°C (104°F)	7 min	4 min	3 min	3 min

Note: **Belzona® 5721** can cure and block the nozzle if left for a prolonged period of time, (the Working Life table can be used as an initial guide). If blocked, the mixing nozzle should be replaced.

#### 3. VOLUME CAPACITY OF MIXED BELZONA® 5721

379 cm<sup>3</sup> (23.1 cu.in) per 580 g cartridge

### 3. APPLYING BELZONA® 5721

#### 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 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.
- (v) Wind speed is greater than 8 m/s (18 mph).

#### 3.1 COVERAGE RATES

Target thickness per coat	500 microns (20 mils)
Recommended minimum thickness per coat	400 microns (16 mils)
Recommended maximum thickness per coat	600 microns (24 mils)
Theoretical coverage rate per coat	1.3 m <sup>2</sup> (14 sq.ft.)/kg

For coating thicknesses greater than 500 microns (20 mils), multiple coats are required.

#### PRACTICAL COVERAGE RATES

Appropriate loss factors must be applied to the above coverage rates. In practice, many factors influence the actual coverage rate achieved. On rough surfaces such as pitted composite the practical coverage rate will be reduced.

#### 3.2 CARTRIDGE APPLICATION

##### a) FIRST COAT

- i) Apply beads of the mixed **Belzona® 5721** directly from the cartridge onto the prepared surface.
- ii) Spread out evenly over the application area using an appropriate finishing brush e.g. Wistoba 1035/75 at the recommended coverage rate.

If desired, an appropriate former e.g., closed-cell foam former, can be used to smooth the surface.

##### b) SECOND COAT

If required, apply a further coat of **Belzona® 5721** as in (a) above ensuring masking tape is reapplied before application. Under all application conditions, the minimum overcoat time will typically be 30 minutes. The first coat must not be left longer than 24 hours before overcoating. Should this occur, then the surface should be thoroughly abraded to remove gloss before commencing application.

#### NOTES

1. Do not apply **Belzona® 5721** outside of the prepared area.
2. Maintain a wet edge by constantly working away from the starting point.
3. Apply evenly over the surface and avoid disturbing the material during cure as the product will surface dry rapidly.
4. Higher humidity will cause the product to surface dry more rapidly.

5. Due to the fast cure nature of the product, the tape should be removed in sections as soon as possible after the application of the coating.
6. A new brush is required for each mix of **Belzona® 5721**. Brushes must also be discarded and replaced if the product begins to cure or skin on the bristles during use, as this will adversely affect application quality. Use the Application Time table for guidance.

#### INSPECTION

- a) During application visually inspect for pinholes and misses. Where detected, these should be immediately brushed out.
- b) Once the application is complete and the coating is dimensionally stable (refer to "Touch Dry" column in section 4), carry out a thorough visual inspection to confirm freedom from pinholes and misses, and to identify any possible mechanical damage. Repairs to be carried out as required.

#### CLEANING

Any tools should be cleaned immediately after use with **Belzona® 9111** or any other effective solvent e.g., Methyl ethyl ketone (MEK).

### 4. COMPLETION OF THE MOLECULAR REACTION

Film thickness and environmental conditions will affect the cure. For a 500 microns film, allow **Belzona® 5721** to solidify as below before subjecting it to the conditions indicated.

Temperature	Touch Dry (Overcoat)	Hard Dry (Movement and light loading)	Full Cure (Return to service)
5°C/41°F	30 - 45 mins	3 hours	6 hours
10°C/50°F		3 hours	6 hours
20°C/68°F		2 ½ hours	5 hours
30°C/86°F		2 ½ hours	5 hours
40°C/104°F		2 hours	4 hours

For thicker sections, cure times will be extended.

### 5. SHELF LIFE

**Belzona® 5721** shall have a shelf life of 3 years from date of manufacture when stored in the original unopened foil sachets between 5 °C (41 °F) and 30 °C (86 °F).

If any **Belzona® 5721** remains in the cartridge after use, the mixer should be removed, and the screw cap replaced to preserve shelf-life. The usability of remaining material will be dependent on storage conditions and the material should be checked for suitability prior to further use. Please contact Belzona for further information.

## HEALTH & SAFETY INFORMATION

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

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