Belzona 1391T

BELZONA®
Repair • Protect • Improve

INSTRUCTIONS FOR USE

1. TO ENSURE AN EFFECTIVE MOLECULAR WELD

i) METALLIC SURFACES - APPLY ONLY TO BLAST CLEANED SURFACES

a) Brush away loose contamination and degrease with a rag soaked in **Belzona® 9111** (Cleaner/Degreaser) or any other effective cleaner which does not leave a residue e.g. methyl ethyl ketone (MEK).
b) Select an abrasive to give the necessary standard of cleanliness and a minimum depth of profile of 3 mils (75 microns). Use only an angular abrasive with low chloride content.
c) 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
d) After blasting, metal surfaces should be coated before any oxidation or contamination of the surface takes place.

SALT CONTAMINATED SURFACES
NOTE: SALT CONTAMINATED SURFACES
The soluble salt contamination of the prepared substrate, immediately prior to application, shall be less than 20mg/m² (2µg/cm²).
Metal surfaces that have been immersed for any periods in salt solutions e.g. sea water, should be blasted to the required standard, left for 24 hours to allow the ingrained salts to sweat to the surface, then washed prior to a further brush blast to remove these. This process may need to be repeated several times to ensure complete removal of the salts. Salt removal aids are commercially available that will assist and speed salt removal. Contact Belzona for best recommendation.

ii) SURFACES ALREADY REBUILT WITH BELZONA® 1111, BELZONA® 1311 OR BELZONA® 1511

a) Allow the **Belzona® 1111** or **Belzona® 1311** to cure for at least 2 hours and **Belzona® 1511** to cure for at least 6 hours.
b) Carefully flash blast using a moderate blast pressure and fine grit to produce a frosted appearance with a target profile of 1.5 mils (40 microns). Remove debris and degrease with **Belzona® 9111** or any other effective cleaner which does not leave a residue e.g. MEK.
c) Coating should take place before any contamination of the surface takes place.

2. COMBINING THE REACTIVE COMPONENTS

Transfer the entire contents of the Solidifier container into the Base container. Mix thoroughly together to achieve a uniform material free of any streakiness.

1. MIXING AT LOW TEMPERATURES
To ease mixing when the material temperature is below 50°F (10°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® 1391T** must be used within the times shown below:

Temperature	50°F (10°C)	68°F (20°C)	86°F (30°C)
Use all material within	90 min.	45 min.	22 min.

3. MIXING SMALL QUANTITIES
For mixing small quantities of **Belzona® 1391T** use:
8.5 parts Base to 1 part Solidifier by weight
4 parts Base to 1 part Solidifier by volume

4. VOLUME CAPACITY OF MIXED BELZONA® 1391T
32.6 cu.in. (535 cm³) per kg.

3. APPLYING BELZONA® 1391T

FOR BEST RESULTS
Do not apply when:
i) The temperature is below 50°F (10°C), above 104°F (40°C) or the relative humidity is above 85%.
ii) The substrate temperature is less than 5°F (3°C) above dewpoint.
iii) Rain, snow, fog or mist is present.
iv) There is moisture on the metal surface or is likely to be deposited by subsequent condensation.
v) The working environment is likely to be contaminated by oil/grease from adjacent equipment or smoke from kerosene heaters or tobacco smoking.

3.1 COVERAGE RATES

Recommended number of coats	2
Target thickness 1st coat	18 mils (450 microns)
Target thickness 2nd coat	18 mils (450 microns)
Minimum total DFT	24 mils (600 microns)
Maximum DFT (2 coats)	48 mils, (1200 microns)
Maximum system DFT in stripe coat or repair areas	70 mils, (1750 microns)
Practical coverage rate 1st coat	11 sq.ft (1 m²)/kg
Practical coverage rate 2nd coat	11 sq.ft (1 m²)/kg
Theoretical coverage rate to achieve minimum recommended system thickness	9.6 sq.ft. (0.89 m²)/kg

In practice many factors influence the exact coverage rate achieved. On rough surfaces such as pitted steel and concrete the practical coverage rate will be reduced. Application at low temperatures will also reduce practical coverage rates further.

3.2 APPLICATION

a) Apply the **Belzona® 1391T** directly on to the prepared surface with a stiff bristled brush or with the plastic applicator provided.

b) As soon as possible after application of the first coat, apply a further coat of **Belzona® 1391T** as in (a) above.

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3.3 OVERCOAT TIMES

The **Belzona® 1391T** can be overcoated as soon as it is firm enough to do so. At 68°F (20°C) it will be possible to walk on the coating after 6-8 hours, but if access can be gained without walking on the first coat, overcoating can take place after as little as 3-4 hours. The maximum overcoat time is dependent on both temperature and humidity as set out below. After this time the surface must be grit blasted to achieve a frosted appearance with a minimum surface profile of 40 microns.

Temperature	<50%Relative Humidity	>50%Relative Humidity
Up to 20°C	24 hours	24 hours
Up to 30°C	24 hours	18 hours
Up to 40°C	12 hours	8 hours

3.4 REPAIRS

Within the overcoat window, any misses, pinholes or mechanical damage can be repaired by application of a further coat direct to the **Belzona® 1391T** surface. Outside of the overcoat window the surface of the **Belzona® 1391T** must be grit blasted or abraded to produce a frosted appearance free of all gloss before coating. A profile of 1.5 mils (40 microns) should be aimed for.

3.5 INSPECTION

a) Immediately after application of each unit, visually inspect for pinholes and misses. Where detected, these should be immediately brushed out.

b) Once the application is complete and the coating has hardened, carry out a thorough visual inspection to confirm freedom from pinholes and misses, and to identify any possible mechanical damage.

c) Spark testing can be carried out to confirm coating continuity. A DC voltage of 3,000 volts is recommended to confirm that a minimum coating thickness of 24 mil (600 microns) has been achieved.

3.6 DIFFERENTIATION BETWEEN LAYERS

Belzona® 1391T is available in blue and gray, to facilitate application and to prevent misses. In service the colour of the applied product may change.

3.7 CLEANING

Mixing tools should be cleaned immediately after use with **Belzona® 9111** or any other effective solvent e.g. Methyl ethyl ketone (MEK). Brushes, injection guns, spray equipment and any 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

The coating should be allowed to cure as detailed below :-

Temperature	Hard for inspection	Machining and/or light loading	Full mechanical/ thermal loading or water immersion
50°F/10°C	20 hours	32 hours	4 days
59°F/15°C	15 hours	24 hours	3 days
68°F/20°C	10 hours	16 hours	2 days
77°F/25°C	7½ hours	12 hours	1½ days
86°F/30°C	5 hours	8 hours	24 hours
104°F/40°C	3 hours	6 hours	18 hours

If the service temperature is above 140°F (60°C) post cure will generally be unnecessary as the coating will achieve full cure in service.

The coating should be post cured if :-

a) The service temperature is below 140°F (60°C).
b) The service temperature is achieved at a faster rate than 55°F (30°C) per hour.
c) If immediate exposure to aggressive media will occur.
d) If coated equipment is to be transported.
e) If coated equipment is not to be returned to service within 7 days.

POST CURE

If post-cure is required then allow coating to cure as detailed above before heating the coating as below.

Post cure temperature	Cure time
140°F (60°C)	16 hours
158°F (70°C)	8 hours
176°F (80°C)	4 hours
194°F (90°C)	2 hours
212°F (100°C)	1 hour

The post cure temperature should not exceed 212°F (100°C). Temperature should not be increased at more than 55°F (30°C) per hour.

HEALTH & SAFETY INFORMATION

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

ISO 9001:2008
Q 09335
ISO 14001:2004
EMS 509612

Manufactured under an ISO 9000 Registered Quality Management System

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