Belzona 1391S

FN10033

BELZONA®
Repair • Protect • Improve

INSTRUCTIONS FOR USE

1. TO ENSURE AN EFFECTIVE MOLECULAR WELD

METALLIC SURFACES – APPLY ONLY AFTER BLAST CLEANING

a) Brush away any loose contamination and remove dirt, oil, grease etc., with **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 SP10
Swedish Standard SA2½ SIS 05 5900
d) After blasting, metal surfaces should be coated before any contamination of the surface takes place.

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.

2. PIT FILLING & STRIPE COATING

All welds should be prepared to NACE SP0178 Grade C or better. Deep pitting and rough welds should be smoothed out with **Belzona® 1511** mixed, applied and overcoated in accordance with the relevant IFU.

All detail areas such as welds, brackets, baffles, deflectors etc. that cannot be effectively sprayed should be stripe coated by brush with **Belzona® 1391T.**

3. COMBINING THE REACTIVE COMPONENTS FOR HEATED AIRLESS SPRAY

Only commence mixing once the spray equipment has been assembled and thoroughly tested - see "Instructions for spraying Belzona solvent free coatings".

WORKING LIFE
From the commencement of mixing, **Belzona® 1391S** must be used within the times shown:

Temperature	68°F (20°C)	86°F (30°C)	104°F (40°C)	122°F (50°C)
Use all material within	45 mins.	35 mins.	25 mins.	15 mins.

4. APPLYING BELZONA® 1391S

FOR BEST RESULTS
Do not apply when:-
i) The substrate 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 or grease from adjacent equipment or from smoke from kerosene heaters.

4.1 EQUIPMENT REQUIRED

Belzona® 1391S must be sprayed using heated airless equipment. Either a single airless pump or plural equipment capable of metering accurately and mixing the two components can be used. See **"Instructions for spraying Belzona solvent free coatings".**

Mix ratio	**4:1 by volume**
Tip Temperature	**104-122°F (40-50°C)**
Tip pressure (minimum)	**2500 psi (172 bar)**
Tip size 17-23 thou	**(0.43-0.58mm)**
DO NOT THIN	
Cleaning solvent	**Belzona® 9121, MEK or Acetone**

4.2 COVERAGE RATES

Recommended number of coats	2
Target thickness 1st coat	15 mils (375 microns)
Target thickness 2nd coat	15 mils (375 microns)
Minimum total DFT	20 mils (500 microns)
Maximum total DFT	48 mils (1200 microns)
Theoretical coverage rate 1st coat	28.7 sq.ft. (2.67 m²)/litre
Theoretical coverage rate 2nd coat	28.7 sq.ft. (2.67 m²)/litre
Theoretical coverage rate to achieve minimum recommended system thickness	21.5sq.ft. (2m²)/litre

4.3 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 steel the practical coverage rate will be reduced. Application at low temperatures will also reduce practical coverage rates further.

Note
Total system thickness in stripe coat or repair areas should not exceed 70 mils (1750 microns).

4.4 OVERCOAT TIMES

The **Belzona® 1391S** 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 brush blasted to achieve a frosted appearance free of gloss with a minimum surface profile of 40 microns.

Temperature	<50% Relative Humidity	>50% Relative Humidity
Up to 68°F (20°C)	24 hours	24 hours
Up to 86°F (30°C)	24 hours	18 hours
Up to 104°F (40°C)	12 hours	8 hours

4.5 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 is dimensionally stable, carry out a thorough visual inspection to confirm freedom from pinholes and misses, and to identify any possible mechanical damage.

c) Spark testing in accordance with NACE SP0188 can be carried out to confirm coating continuity. A voltage of 3kV is recommended to confirm that a minimum coating thickness of 20 mil (500 microns) has been achieved.

4.6 REPAIRS

Within the overcoating window any misses, pinholes or mechanical damage can be repaired by application of **Belzona® 1391T** direct to the **Belzona® 1391S** surface. Outside of the overcoating window, the surface of the **Belzona® 1391S** must be abrasive 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.

4.7 COLOUR

Belzona® 1391S is available in different colours to facilitate application and to prevent misses. These colours are for identification only and there will be some variation between batches. In service the colour of the applied product may change.

4.8 CLEANING

Mixing tools should be cleaned immediately after use with **Belzona® 9111** or any other effective solvent e.g. MEK or Acetone. Brushes, spray equipment and other application tools should be cleaned using a suitable solvent such as MEK or Acetone.

5. COMPLETION OF THE MOLECULAR REACTION

The coating should be allowed to cure as follows:

Ambient temperature	Time until inspection	Time until full service	Time until post-cure (if required)	
			Dry	Wet
50˚F (10˚C)	32 hrs	96 hrs	32 hrs	60 hrs
68˚F (20˚C)	10 hrs	48 hrs	10 hrs	24 hrs
86˚F (30˚C)	8 hrs	20 hrs	8 hrs	14 hrs
104˚F (40˚C)	4 hrs	14 hrs	4 hrs	8 hrs

Coated equipment can be transported after the material has achieved the ‘inspection’ level of cure.

Post-cure will generally be unnecessary as the coating will cure sufficiently at ambient temperature with full cure achieved in service. However, post-cure may be desirable to facilitate faster cure and quicker return to service (see below).

5.1 POST-CURE

If post-cure is desirable, the coating should be heated to between 122˚F (50˚C) and 212˚F (100˚C) for a minimum of 1 hour.

The coating should be allowed to cure as detailed in the above table prior to a dry (e.g. hot air) or wet (e.g. steam and liquid media) post-cure. Wet post-cure can typically be achieved during return to service, provided that the temperature ramp rate does not exceed 54˚F (30˚C) per hour.

5.1.1 POST-CURE FOR CHEMICAL CONTACT

Post-cure requirements for optimal chemical resistance will vary depending on service conditions. For general guidance please refer to the Chemical Resistance Chart (CRC). For specific applications please contact your Belzona representative to discuss requirements.

HEALTH & SAFETY INFORMATION

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

Belzona products are manufactured under an ISO 9001 Registered Quality Management System

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