

Belzona 1391S



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® 1111** or **1511**. Before application of **Belzona® 1391S** these must be allowed to harden in accordance with the relevant Instructions For Use before grit blasting to create a frosted surface free from any gloss with a target profile of 40 microns.

All detail areas such as welds, brackets, baffles, deflectors etc. that cannot be effectively sprayed should be stripe coated with **Belzona® 1391T**. See relevant Instructions For Use for details re. overcoat times.

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.

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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 1 st coat	15 mils (375 microns)
Target thickness 2 nd coat	15 mils (375 microns)
Minimum total DFT	20 mils (500 microns)
Maximum total DFT	48 mils (1200 microns)
Practical coverage rate 1 st coat	25.8sq.ft. (2.4m ²)/litre
Practical coverage rate 2 nd coat	25.8sq.ft. (2.4m ²)/litre
Theoretical coverage rate to achieve minimum recommended system thickness	21.5sq.ft. (2m ²)/litre

Actual coverage rate obtained will vary according to equipment choice, application technique, component size and application environment. Interruption to application will significantly increase wastage.

Note

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

4.3 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

4.4 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 2,400 volts is recommended to confirm that a minimum coating thickness of 20 mil (500 microns) has been achieved.

4.5 REPAIRS

Within the overcoating window any misses, pinholes or mechanical damage can be repaired by application of **Belzona® 1391 or 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.

4.6 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 detailed below.

Temperature	Hard for inspection or dry heat post curing	Machining and/or light loading	Full mechanical, loading, immersion or pre-steam post curing
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.

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