BELZONA 1521 Product Specification Sheet

1. PRODUCT NAME

Belzona® 1521 (HTS1)
Spray applied system for high temperature equipment handling water, aqueous solutions and hydrocarbons.

2. MANUFACTURER

Belzona Inc.
2000 N.W. 88th Court
Miami, Florida 33172

Belzona Polymerics Ltd.,
Claro Road, Harrogate,
HG1 4DS, England

3. PRODUCT DESCRIPTION

A two-component high temperature coating system designed to be applied by heated airless spray, to resist water, aqueous solutions and hydrocarbons up to a temperature of 302°F (150°C) and to exhibit excellent corrosion resistance at elevated temperatures.

When mixed and applied as detailed in the Instructions for Use leaflet the system is ideally suited for application to:

- Condensate return tanks
- Evaporators
- Oil/gas and oil/water separators
- Autoclaves
- Scrubber units
- Distillation units
- Regenerators
- Stripper towers

4. TECHNICAL DATA

Base Component

Appearance	Paste
Color	Grey
Density	1.95 -2.05 g/cm³

Solidifier Component

Appearance	Liquid
Color	Clear
Density	0.93 - 0.95 g/cm³

Mixed Properties

Mixing Ratio by Weight (Base : Solidifier)	20 : 1
Mixing Ratio by Volume (Base : Solidifier)	9.5 : 1
Mixed Form	Liquid
Sag	nil at 40 mil (1 mm)
Mixed Density	1.8 - 1.9 g/cm³

• Shelf Life:
Separate Base and Solidifier components will have a minimum shelf life of 3 years when stored in their original unopened containers between 32°F (0°C) and 86°F (30°C).

• Working Life:
Will vary according to temperature. At 68°F (20°C) the usable life of a 10 litre unit of mixed material is 40 minutes.

• Coverage Rate:
The **Belzona® 1521** shall be applied to achieve a minimum thickness of 20 mils (500 microns).
The theoretical coverage rate at 20 mils (500 microns) is 21.5 sq.ft. (2 m²)/litre. Refer to the Instructions For Use for practical coverage rate guidelines.

• Cure Time:
Allow the applied material to solidify for the times shown in the chart below before subjecting it to the conditions indicated.

* In certain instances it may be advantageous to post cure material prior to putting into service where chemical contact is involved. Refer to Belzona® for specific recommendations.

5. PHYSICAL/MECHANICAL PROPERTIES

• Abrasion Resistance:
Taber
The sliding abrasion resistance of the material when tested in accordance with ASTM D4060 under wet conditions using the Taber Abraser fitted with H10 grinding wheels and 1 kg load is typically:
770 mm³ loss/1000 cycles - 212°F(100°C) post cure

• Adhesion:
Tensile Shear
When tested in accordance with ASTM D1002, typical adhesion values to grit blasted mild steel are:

Post cure/ Test temperature	Adhesion
68°F (20°C)	2180 psi (15.03 MPa)
140°F (60°C)	1650 psi (11.38 MPa)
212°F (100°C)	1410 psi (9.72 MPa)

Pull Off Adhesion
When tested in accordance with ASTM D 4541/ ISO 4624, the pull off strength from grit blasted steel will be typically:

5260 psi (36.27 MPa)	68°F (20°C)
4370 psi (30.13 MPa)	212°F (100°C)

• Chemical Resistance:
The material will demonstrate excellent resistance to a broad range of chemicals.

For more specific information refer to Product Data M515 or contact Belzona®.

• Compressive Strength:
When tested in accordance with ASTM D695, typical values are:

Post cure/ Test temperature	Compressive Strength
68°F (20°C)	13,520 psi (93.22 MPa)
212°F (100°C)	10,840 psi (74.74 MPa)

CURE TIMES

TEMPERATURE	41°F (5°C)	50°F (10°C)	68°F (20°C)	86°F (30°C)	104°F (40°C)
Time until inspection	48 hrs	24 hrs	6 hrs	5 hrs	3 hrs
Time until full service	6 days	48 hrs	18 hrs	14 hrs	8 hrs
Time until dry post cure	48 hrs	24 hrs	6 hrs	5 hrs	3 hrs
Time until wet post cure	72 hrs	32 hrs	10 hrs	8 hrs	5 hrs

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• Explosive Decompression:
When tested to NACE TM 0185, using a seawater/hydrocarbon test fluid, the coating will exhibit no blistering after a 21 day immersion period at 248°F (120°C) and 70 bar pressure followed by decompression over 15 minutes.

• Flexural Strength:
When tested to ASTM D790, typical values are:

Post cure/ Test temperature	Flexural Strength
68°F (20°C)	6170 psi (42.54 MPa)
212°F (100°C)	3910 psi (26.96 MPa)

• Hardness:
Shore
When tested in accordance with ASTM D2240 at ambient temperatures the Shore D hardness of the material is typically:

86	68°F (20°C)
86	212°F(100°C)

Koenig Pendulum
When tested to ISO 1522 the Koenig damping time of the coating cured at 68°F (20°C) will typically be 126 seconds.

Barcol
Tested to ASTM D2583 the Barcol hardness will typically be:

92	68°F (20°C)
95	212°F (100°C)
96	302°F (150°C)

• Heat Distortion Temperature:
Tested to ASTM D648 (264 psi fiber stress), typical values are:

Cure Temperature	HDT after 7 days
68°F (20°C)	131°F (55°C)
212°F (100°C)	330°F (166°C)
356°F (180°C)	493°F (256°C)

• Heat Resistance:
Immersion resistance
The coating will resist water and hydrocarbon mixtures at temperatures up to 302°F (150°C). Note: the material is not recommended for dry applications at elevated temperatures.

Atlas Cell
When tested in accordance with NACE TM 0174 the coating will exhibit no rusting (ASTM D610 rating 10) or blistering (ASTM D714 rating 10) after 6 months immersion in de-ionized water at 203°F (95°C).

Steam-out Resistance
Once fully cured the coating will exhibit no blistering, cracking or delamination after 96 hours exposure to pressurised steam at 410°F (210°C).

• Low Temperature Thermal Shock:
Coated steel panels will exhibit no blistering, cracking or delamination after multiple cycles of rapid cooling from 212°F (100°C) to -76°F (-60°C).

• Thermal Cycling:
When tested in accordance with section 9 of NACE TM0304, the coating passed after 252 cycles between +140°F and -22°F (+60°C and -30°C).

• Thick Film Cracking:
When tested in accordance with Section 12 of NACE TM0104, the coating at three times recommended thickness, exhibited no cracking after 12 weeks immersion in seawater at 104°F (40°C).

6. SURFACE PREPARATION AND APPLICATION PROCEDURES
For proper technique, refer to the Belzona® Instructions For Use Leaflet which is enclosed with each packaged product.

Belzona® 1521 has been specifically designed to be applied using heated airless spray equipment.

7. AVAILABILITY AND COST
Belzona® 1521 is available from a network of Belzona® Distributors throughout the world for prompt delivery to the application site. For information, consult the Belzona® Distributor in your area.

8. WARRANTY
Belzona® guarantees this product will meet the performance claims stated herein when material is stored and used as instructed in the Instructions For Use Leaflet. Belzona® further guarantees that all its products are carefully manufactured to ensure the highest quality possible and tested strictly in accordance with universally recognized standards (ASTM, ANSI, BS, DIN, etc.). Since Belzona® has no control over the use of the product described herein, no warranty for any application can be given.

9. TECHNICAL SERVICES
Complete technical assistance is available and includes fully trained Technical Consultants, technical service personnel and fully staffed research, development and quality control laboratories.

10. HEALTH AND SAFETY
Prior to using this material, please consult the relevant Material Safety Data Sheets.

The technical data contained herein is based on the results of long term tests carried out in our laboratories and to the best of our knowledge is true and accurate on the date of publication. It is however subject to change without prior notice and the user should contact Belzona to verify the technical data is correct before specifying or ordering. No guarantee of accuracy is given or implied. We assume no responsibility for rates of coverage, performance or injury resulting from use. Liability, if any, is limited to the replacement of products. No other warranty or guarantee of any kind is made by Belzona, express or implied, whether statutory, by operation of law or otherwise, including merchantability or fitness for a particular purpose.

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