

PRODUCT SPECIFICATION SHEET

BELZONA 1391T

FN10034



GENERAL INFORMATION

Product Description:

A two component hand applied coating system designed to operate under continuous immersion at operating temperatures up to 266°F (130°C). Suitable for steaming out up to 410°F (210°C). Exhibits excellent erosion-corrosion resistance at elevated temperatures. Resistant to a broad range of aqueous solutions, hydrocarbons and process chemicals. Also used as a high strength structural adhesive for bonding or for creation of irregular load bearing shims with good electrical insulation characteristics. For use in Original Equipment Manufacture or repair situations.

Application Areas:

When mixed and applied as detailed in the Belzona Instructions for Use (IFU), the system is ideally suited for application to the following:

- Condensate extraction pumps
- Heat exchanger barrels
- Scrubber units
- Condensate return tanks
- Oil/gas and oil/water separators
- Calorifiers
- Evaporators
- Autoclaves
- Distillation units

APPLICATION INFORMATION

Working Life

Will vary according to temperature. At 68°F (20°C) the usable life of mixed material is 45 minutes.

Cure Time

Allow the applied material to solidify for the times shown in the Belzona IFU 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.*

Limitations of Use

Belzona 1391T should not be applied at temperatures below 50°F (10°C).

Volume Capacity

32.6 cu.in. (535 cm³)/kg.

Base Component

Appearance Paste
Colour Grey
Density 1.99 - 2.19 g/cm³

Solidifier Component

Appearance Liquid
Colour Blue or Violet
Density 0.97 - 1.01 g/cm³

Mixed Properties

Mixing Ratio by Weight (Base : Solidifier) 8.5 : 1
Mixing Ratio by Volume (Base : Solidifier) 4 : 1
Mixed Form Liquid
Sag Resistance nil at 30 mil (0.75 mm)
Mixed Density 1.79 - 1.95 g/cm³
VOC content (ASTM D2369 / EPA ref. 24) 0.70% / 13.08 g/L

The above application information serves as introductory guide only. For full application details including the recommended application procedure/technique, refer to the Belzona IFU which is enclosed with each packaged product.

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EXPLOSIVE DECOMPRESSION

No coating breakdown was exhibited upon inspecting after the following testing:

Explosive Decompression (NACE TM0185)

	Test 1	Test 2
Test duration	21 days	7 days
Temperature	248°F (120°C)	203°F (95°C)
Pressure	1,015 psi (70 bar)	3,000 psi (207 bar)
Gas Phase	10% CO ₂ , 90% CH ₄	5% H ₂ S, 8% CO ₂ , 87% CH ₄
Liquid Phase	50% Crude Oil, 50% Saltwater	40.2% MEG, 13.4% Heavy Diesel, 46.4% Formation Water
Decompression Rate	68 psi/min (4.7 bar/min)	1,000 psi/min (69 bar/min)

FLEXURAL PROPERTIES

The flexural strength, when determined in accordance with ASTM D790, will typically be:

5,700 psi (39.3 MPa)
7,100 psi (48.95 MPa)

Cure temperature
68°F (20°C)
212°F (100°C)

FOOD CONTACT

Direct Food Contact (FDA)
Meets extraction requirements as set out in 21 CFR 175.300 (paragraph c) for a broad range of food types in Conditions of Use A, B, C, and D (paragraph d).
Please contact Belzona for more comprehensive data.

Incidental Food Contact (USDA)
USDA compliant as an Incidental food contact surface.

HARDNESS

Shore D

When determined in accordance with ASTM D2240, typical values will be:

80
86

Cure temperature
68°F (20°C)
212°F (100°C)

79

Cure/test temperature
212°F (100°C)

Barcol Hardness

The Barcol hardness, when determined in accordance with ASTM D2583, will typically be:

	Ambient cure (68°F/20°C)	Post cure (212°F/100°C)
Barcol 934-1	12	30
Barcol 935	85	93

Koenig Pendulum

When tested to ISO 1522 the Koenig damping time of the coating will typically be:

166 seconds

68°F (20°C)

HEAT RESISTANCE

Heat Distortion Temperature (HDT)

Tested to ASTM D648 (264 psi fibre stress), typical values obtained will be:

127°F (53°C)
284°F (140°C)

Cure temperature
68°F (20°C)
212°F (100°C)

Atlas Cell Cold Wall Immersion Test

When tested in accordance with NACE TM 0174 procedure A, the coating will exhibit no blistering or rusting (ASTM D714 rating 10; ASTM D610 rating 10) after 6 months immersion in water at 266°F (130°C).

Immersion Resistance

Suitable for service at temperatures up to 266°F (130°C) but refer to chemical resistance data for chemical contact limitations.

Steam-out Resistance

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

Dry Heat Resistance

The indicated degradation temperature in air based on Differential Scanning Calorimetry (DSC) operated in accordance with ISO11357 is typically 482°F (250°C).

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IMPACT RESISTANCE

Impact Strength

The impact strength (reverse notched) when tested to ASTM D256 is typically:

0.46 ft.lbs./in (25 J/m)
0.56 ft.lbs./in (30 J/m)

Cure temperature

68°F (20°C)
212°F (100°C)

THERMAL PROPERTIES

Thermal Conductivity

When tested in accordance with ASTM E1461-13 at a temperature of 100°C (212°F), the thermal conductivity will typically be 0.478 W/m·K.

Low Temperature Thermal Shock

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

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THICK FILM CRACKING

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).

SHELF LIFE

Separate base and solidifier components shall have a shelf life of 3 years from date of manufacture when stored in their original unopened containers between 41°F (5°C) and 86°F (30°C).

WARRANTY

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

AVAILABILITY AND COST

Belzona 1391T 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.

MANUFACTURER / SUPPLIER

Belzona Limited,
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Belzona Inc.
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HEALTH AND SAFETY

Prior to using this material, please consult the relevant Safety Data Sheets.

TECHNICAL SERVICE

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

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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