Product Specification Sheet
Belzona 5892
FN10193

GENERAL INFORMATION

Product Description:
Cost effective, two component, high temperature coating, suitable for continuous immersion in aqueous/hydrocarbon systems up to 203 °F (95 °C), also suitable for dry heat and steam-out up to 410 °F (210 °C), exhibits excellent corrosion resistance at elevated temperatures, and is resistant to a wide range of chemicals.

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:

- Boiler feed water systems
- Condensate tanks
- Condensers
- Evaporators
- Heat exchangers
- Hot water vessels
- Pipework and piping
- Separators
- Storage tanks

Application Information

Application Methods: Brush, heated airless spray (single component, plural component, spin spray)

Application Temperature: The application should ideally occur from 50 °F to 104 °F (10 °C to 40 °C).

Working Life: The working life will vary according to application temperature. The usable life of mixed material will typically be 40 minutes at 68 °F (20 °C). Consult the Belzona IFU for specific details.

Coverage Rate: Belzona 5892 should be applied in 2 coats to achieve a minimum thickness of 16 mil (400 µm). The theoretical coverage rate of Belzona 5892 is 27 ft^2/L (2.5 m^2/L) at 16 mil (400 µm). Refer to the IFU for practical coverage rate guidelines.

Cure Times:
Cure times will vary depending on the ambient conditions. Consult the Belzona IFU for specific details.

Base Component	
Appearance	Viscous liquid
Color	Grey or white
Viscosity at 70 °F (21 °C)	174.40 P
Density	1.57 g/cm^3

Solidifier Component	
Appearance	Clear mobile liquid
Color	Dark brown
Viscosity at 70 °F (21 °C)	17.33 P
Density	0.985 g/cm^3

Mixed Properties	
Mixing Ratio by Weight (Base: Solidifier)	5.8: 1
Mixing Ratio by Volume (Base: Solidifier)	3.5: 1
Mixed Form	Viscous liquid
Mixed Viscosity at 72 °F (22 °C)	102.4 P
Mixed Viscosity at 122 °F (50 °C)	4 – 8 P
Mixed Density	1.49 g/cm^3
Sag Resistance	> 20 mil (500 µm)
VOC Content (ASTM D2369/EPA Ref.24)	0.58% / 8.60 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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ABRASION

Taber
When tested in accordance with ASTM D4060 (1-kg load), the sliding abrasion of samples cured under the conditions stated below (per 1,000 cycles) will typically be:

CS17 Wheels (Dry)	44 mm^3 loss - 194 °F (90 °C) cure
H10 Wheels (Wet)	668 mm^3 loss - 212 °F (100 °C) cure

ADHESION

Cleavage Adhesion
When determined in accordance with ASTM D1062, the cleavage adhesion of Belzona 5892 applied onto grit-blasted mild steel and cured/tested under the conditions stated below, will typically be:

1,750 pli (306 N/mm)	72 °F (22 °C) cure & 72 °F (22 °C) test
1,610 pli (282 N/mm)	212 °F (100 °C) cure & 72 °F (22 °C) test
1,340 pli (234 N/mm)	212 °F (100 °C) cure & 212 °F (100 °C) test

Pull Off Adhesion
When tested in accordance with ASTM D4541/ ISO 4624, the pull-off strength of samples cured at 72 °F (22 °C) will typically be:

Dry concrete	515 psi (3.6 MPa)*
Mild steel	4,264 psi (29.4 MPa)

* Cohesive failure of substrate

Tensile Shear Adhesion
When determined in accordance with ASTM D1002, the tensile shear adhesion of samples applied on abrasive-blasted steel and cured under the conditions stated below will typically be:

1,434 psi (9.9 MPa)	72 °F (22 °C) cure
2,362 psi (16.3 MPa)	140 °F (60 °C) cure
1,983 psi (13.7 MPa)	212 °F (100 °C) cure

CHEMICAL ANALYSIS

Belzona 5892 has been independently analyzed for halogens, heavy metals, and other corrosion-causing impurities in accordance with ASTM E165, ASTM D4327, and ASTM E1479. Typical results are displayed as follows:

ANALYTE	TOTAL CONCENTRATION (ppm)
Fluoride	2
Chloride	6,588
Bromide	ND (<121)
Sulfur	9
Nitrite	3
Nitrate	3
Antimony, Arsenic, Bismuth, Cadmium Gallium, Indium, Lead, Mercury, Tin, Zinc	ND (<6)

ND: Not detected

CHEMICAL RESISTANCE

When fully cured, the material will demonstrate excellent resistance to a broad range of chemicals. For a more detailed description of chemical resistance properties, refer to relevant Chemical Resistance chart.

COMPRESSIVE PROPERTIES

Compressive Strength
When determined in accordance with ASTM D695, the compressive strength of samples cured at the conditions stated below and tested at 72 °F (22 °C) will typically be:

8,900 psi (61.4 MPa)	72 °F (22 °C) cure
14,344 psi (98.9 MPa)	212 °F (100 °C) post-cure

Compressive Modulus
When tested in accordance with ASTM D695, the compressive modulus of samples cured at the conditions stated below and tested at 72 °F (22 °C) will typically be:

2.0 x 10^5 psi (1.4 GPa)	72 °F (22 °C) cure
2.8 x 10^5 psi (1.9 GPa)	212 °F (100 °C) post-cure

CORROSION RESISTANCE

Cathodic Disbondment
When tested in accordance with ASTM G8 - Method B (impressed current system) at 72 °F (22 °C), the equivalent circle diameter (ECD) of cured samples of Belzona 5892 will typically be 0.23 in. (6.0 mm).

Salt Spray
Upon full curing at 72 °F (22 °C) for 7 days, Belzona 5892 will show no visible signs of blistering or corrosion after 2,000 hours of salt spray exposure in accordance with ASTM B117.

EXPLOSIVE DECOMPRESSION

When tested in accordance with NACE TM0185 under the conditions stated below and evaluated to the requirements of ASTM D7091, ASTM D714, ASTM D661, and ASTM D5162, the samples of Belzona 5892 showed no blistering, cracking, delamination, holidays, rusting, discoloration, or change in dry film thickness.

Test Temperature	70 °C (158 °F)
Test Pressure	1,015 psi (70 bar)
Gas Phase	99% CH_4 / 1% CO_2
Hydrocarbon Phase	Crude oil
Aqueous Phase	35 g/L saltwater
Duration	21 days
Decompression	Test pressure to 725 psi (50 bar) in 5 min. and to 15 psi (1 bar) in 10 min.

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FLEXURAL PROPERTIES

Flexural Strength
When tested in accordance with ASTM D790, the flexural strength of samples cured under the conditions stated below will typically be:

7,142 psi (49.2 MPa)	72 °F (22 °C) cure for 24 hours
10,424 psi (71.9 MPa)	212 °F (100 °C) post-cure for 1 hour

Flexural Modulus
When tested in accordance with ASTM D790, the flexural modulus of samples cured under the conditions stated below will typically be:

5.3 x 10^5 psi (3.6 GPa)	72 °F (22 °C) cure for 24 hours
6.1 x 10^5 psi (4.2 GPa)	212 °F (100 °C) post-cure for 1 hour

HARDNESS

Barcol
When tested in accordance with ASTM D2583 and using a Barcol impressor Model No. 935, the hardness of samples cured under the conditions stated below will typically be:

76	cured at 72 °F (22 °C) for 24 hours
86	post-cured at 212 °F (100 °C) for 1 hour

Koenig Pendulum
When tested in accordance with ISO 1522, the Koenig damping time of samples cured under the conditions stated below will typically be:

158 s	cured at 72 °F (22 °C) for 24 hours
187 s	post-cured at 212 °F (100 °C) for 1 hour

Shore D
When tested in accordance with ASTM D2240, the Shore D hardness of samples cured at the conditions stated below will typically be:

87	cured at 72 °F (22 °C) for 24 hours
90	post-cured at 212 °F (100 °C) for 1 hour

HEAT RESISTANCE

Glass Transition Temperature (T_g)
When tested to ISO 11357, the T_g of Belzona 5892 samples cured at the conditions stated below will typically be:

T_g	Cure Temperature
122 °F (50 °C)	72 °F (22 °C)
171 °F (77 °C)	140 °F (60 °C)
194 °F (90 °C)	176 °F (80 °C)
216 °F (102 °C)	212 °F (100 °C)
237 °F (114 °C)	248 °F (120 °C)
248 °F (120 °C)	302 °F (150 °C)

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

Immersion Resistance
For many typical applications the material is suitable for continuous immersion in aqueous solutions up to 203 °F (95 °C).

Steam-out Resistance
Samples of Belzona 5892 did not exhibit any blistering, delamination, rusting, or change in dry film thickness after 96 hours of cyclic steam-out at 248 °F (170 °C) and 410 °F (210 °C), each.

Dry Heat Resistance
The indicated degradation temperature in air based on Differential Scanning Calorimetry (DSC) operated in accordance with ISO 11357 is typically 446 °F (230 °C). The material will typically be stable under dry conditions at low temperatures down to -40 °F (-40 °C).

Resistance to Water Immersion
The coating showed no signs of blistering, delamination, or rusting after continuous immersion in artificial seawater at to 104 °F (40 °C) for 6 months.

IMPACT RESISTANCE

Izod Pendulum
When tested in accordance with ASTM D256, the impact (notched) resistance of samples cured under the conditions stated below will typically be:

1.09 ft-lb/in^2 (2.29 kJ/m^2)	72 °F (22 °C) cure for 24 hours
2.58 ft-lb/in^2 (5.43 kJ/m^2)	212 °F (100 °C) post-cure for 1 hour

Falling Weight
When tested in accordance with ASTM D2794, the direct falling weight impact resistance of samples cured under the conditions stated below will typically be:

13.8 in.lb (0.16 kg.m)	72 °F (22 °C) cure for 24 hours
21.7 in.lb (0.25 kg.m)	212 °F (100 °C) post-cure for 1 hour

TENSILE PROPERTIES

When tested in accordance with ASTM D412 (Die C), typical values of samples cured under the conditions stated below will be:

Tensile Strength	
3,063 psi (21.1 MPa)	72 °F (22 °C) cure for 24 hours
6,133 psi (42.3 MPa)	212 °F (100 °C) post-cure for 1 hour
Elongation	
0.6%	72 °F (22 °C) cure for 24 hours
1.9%	212 °F (100 °C) post-cure for 1 hour
Young's Modulus	
4.8 x 10^5 psi (3.3 GPa)	72 °F (22 °C) cure for 24 hours
3.8 x 10^5 psi (2.6 GPa)	212 °F (100 °C) post-cure for 1 hour

APPROVALS

Direct Food Contact (FDA)

Belzona 5892 meets extraction requirements as set out in 21 CFR 175.300 for a broad range of food types in Conditions of Use B, C, D, and E.

Contact Belzona for more details on these approvals or any other approvals or certifications not stated herein.

SHELF LIFE

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

PRODUCT SPECIFICATION SHEET
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WARRANTY

Belzona guarantees this product will meet the performance claims stated herein when material is stored and used as instructed in the Belzona Information for Use (IFU) 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, 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 5892 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 Polymerics Limited
Claro Road
Harrogate HG1 4DS
United Kingdom

Belzona, Inc.
14300 NW 60th Ave,
Miami Lakes, FL, 33014, USA

HEALTH AND SAFETY

Prior to using this material, please consult the relevant Material 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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