Product Specification Sheet
Belzona 5813
FN10215

GENERAL INFORMATION

Product Description:
A two-component, solvent free, ESD (Electrostatic Discharge) dissipative epoxy coating system applied by brush or spray to impart electrostatic control properties to a variety of substrates as well as providing excellent barrier coating properties

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:

- Storage tanks
- Floors
- Internal and external pipework
- Steel and concrete piling
- Work benches and shelving
- Chemical containment areas

APPLICATION INFORMATION

Application Methods: Brush, airless spray

Application Temperature: The application should ideally occur from 50 °F to 86 °F (10 °C to 30 °C).

Working Life: The working life will vary according to application temperature. The usable life of mixed material will typically be 1 hour and 30 minutes at 68 °F (20 °C). Consult the Belzona IFU for specific details.

Coverage Rate: Belzona 5813 should be applied in 2 coats to achieve a minimum thickness of 16 mil (400 µm). The theoretical coverage rate of Belzona 5813 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	Black
Viscosity at 70 °F (21 °C)	127 P
Density	1.55 – 1.65 g/cm^3

Solidifier Component

Appearance	Clear mobile liquid
Color	Dark brown
Viscosity at 70 °F (21 °C)	13 P
Density	1.01 -1.02 g/cm^3

Mixed Properties

Mixing Ratio by Weight (Base: Solidifier)	5: 1
Mixing Ratio by Volume (Base: Solidifier)	3: 1
Mixed Form	Viscous liquid
Mixed Viscosity at 70 °F (21 °C)	65 P
Mixed Density	1.46 – 1.50 g/cm^3
Sag Resistance	> 24 mil (625 µm)
VOC Content (ASTM D2369/EPA Ref.24)	3.92% / 58.0 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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ADHESION

Tensile Shear
When tested at 72 °F (22 °C) in accordance with ASTM D1002, the tensile shear of Belzona 5813 applied onto metallic samples abrasive-blasted to an average surface profile of 3 mil (75 µm) and cured under the conditions stated below will typically be:

Aluminum substrate	
2,470 psi (17.0 MPa)	72 °F (22 °C) for 7 days
2,620 psi (18.1 MPa)	212 °F (100 °C) for 7 days

Mild Steel	
2,740 psi (18.9 MPa)	72 °F (22 °C) for 7 days
2,910 psi (20.1 MPa)	212 °F (100 °C) for 7 days

Pull Off Adhesion
When tested at 72 °F (22 °C) in accordance with ASTM D4541/ISO 4624, the pull-off adhesion of Belzona 5813 applied onto metallic samples abrasive-blasted to an average surface profile of 3 mil (75 µm) and cured under the conditions stated below will typically be:

Concrete (Dry)	
> 800 psi (5.5 MPa)*	72 °F (22 °C) for 28 days
> 800 psi (5.5 MPa)*	212 °F (100 °C) for 2 days

Mild Steel	
4,430 psi (30.5 MPa)	72 °F (22 °C) for 28 days
4,960 psi (34.2 MPa)	212 °F (100 °C) for 2 days

* Cohesive failure within substrate

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

9,200 psi (63.4 MPa)	72 °F (22 °C) for 28 days
14,170 psi (97.7 MPa)	212 °F (100 °C) for 2 days

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

9.7 x 10^4 psi (688 MPa)	72 °F (22 °C) for 28 days
1.5 x 10^5 psi (1.0 GPa)	212 °F (100 °C) for 2 days

ELECTRICAL PROPERTIES

Surface Resistivity
When tested in accordance with ANSI/ESD S7.1/ ASTM F150, typical values of surface resistivity of Belzona 5813 samples cured at 72 °F (22 °C) for 14 hours will be:

Concrete substrate	10^6 - 10^8 Ω/sq.
Steel substrate	10^5 - 10^7 Ω/sq.

FLEXURAL PROPERTIES

Flexural Strength
When tested at 72 °F (22 °C) in accordance with ASTM D790, the flexural strength of samples cured under the conditions stated below will typically be:

3,600 psi (24.8 MPa)	72 °F (22 °C) for 28 days
4,220 psi (29.1 MPa)	212 °F (100 °C) for 2 days

Flexural Modulus
When tested at 72 °F (22 °C) in accordance with ASTM D790, the flexural modulus of samples cured under the conditions stated below will typically be:

1.2 x 10^5 psi (827 MPa)	72 °F (22 °C) for 28 days
1.5 x 10^5 psi (1.0 GPa)	212 °F (100 °C) for 2 days

HARDNESS

König Pendulum
When tested at 72 °F (22 °C) in accordance with ISO 1522, the König damping time of samples cured under the conditions stated below will typically be:

118 s	72 °F (22 °C) for 28 days
145 s	212 °F (100 °C) for 2 days

Shore D
When tested at 72 °F (22 °C) in accordance with ASTM D2240, the Shore D hardness of samples cured under the conditions stated below will typically be:

84	72 °F (22 °C) for 28 days
87	212 °F (100 °C) for 2 days

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HEAT RESISTANCE

Glass Transition Temperature (T_g)
When tested to ISO 11357-2, T_g of samples cured at 72 °F (22 °C) for 28 days will typically be:

126°F (52.4°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 104 °F (40 °C).

Immersion Resistance
For many typical applications the material is suitable for continuous immersion in aqueous solutions up to 122 °F (50 °C). Please consult Belzona for additional advice where immersed applications will operate close to 122 °F (50 °C).

Seawater Immersion
When tested in accordance with ISO 2812-2, no blistering, rusting, cracking, or delamination were observed after 6-month immersion in seawater at 122 °F (50 °C).

Dry Heat Resistance
The indicated degradation temperature in air based on Differential Scanning Calorimetry (DSC) operated in accordance with ISO 11357 is typically 320 °F (160 °C).

The material will typically be stable under dry conditions at elevated temperatures up to 300 °F (150 °C) and low temperatures down to -40 °F (-40 °C).

IMPACT RESISTANCE

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

2.66 ft-lb/in^2 (5.6 kJ/m^2)	72 °F (22 °C) for 7 days
2.28 ft-lb/in^2 (4.8 kJ/m^2)	212 °F (100 °C) for 2 days

TENSILE PROPERTIES

When tested at 72 °F (22 °C) in accordance with ASTM D638, typical values of samples cured under the conditions stated below will be:

Tensile Strength (Maximum)

1,580 psi (10.9 MPa)	72 °F (22 °C) for 28 days
2,360 psi (16.3 MPa)	212 °F (100 °C) for 2 days

Elongation

3.31%	72 °F (22 °C) for 28 days
1.63%	212 °F (100 °C) for 2 days

Young's Modulus

7.2 x 10^4 psi (496 MPa)	72 °F (22 °C) for 28 days
2.3 x 10^5 psi (1.6 GPa)	212 °F (100 °C) for 2 days

APPROVALS

Direct Food Contact (FDA)
Belzona 5813 meets extraction requirements as set out in 21 CFR 175.300 for a broad range of food types in Conditions of Use E and F.

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 five (5) years from date of manufacture when stored in their original unopened containers between 41 °F (5 °C) and 86 °F (30 °C).

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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 5813 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.

HEALTH AND SAFETY

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

MANUFACTURER/SUPPLIER

Belzona Limited
Claro Road
Harrogate HG1 4DS
United Kingdom

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

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.

Belzona products are manufactured under an ISO 9001 registered Quality Management System.