

PRODUCT SPECIFICATION SHEET

BELZONA 4351

FN10087



GENERAL INFORMATION

Product Description:

A high performance, two-component, solvent free, static dissipative barrier coating with outstanding resistance to a broad range of chemicals.

APPLICATION INFORMATION

Cure Time

Allow to solidify for the times shown in the Belzona IFU before subjecting it to the conditions indicated.

Note: Below 59°F (15°C), solidification times will be significantly extended and the resultant chemical resistance capability of the **Belzona 4351** will be reduced.

For optimum results, **Belzona 4351** should be force cured at 180-210°F (80-100°C). This will ensure maximum chemical resistance.

Coverage Rate

Theoretical coverage rate is 31.0 sq.ft. (2.9m²)/kg at the recommended thickness of 10 mils (250 micron) per coat.

Application to rough or irregular surfaces may reduce this coverage by 20 - 25%.

Volume Capacity

44.5 cu.ins. (730 cm³) per kg.

Base Component

| | |
|--------------------------|-------------------------------|
| Appearance | Thixotropic liquid |
| Colour | Black |
| Gel Strength (paddle FF) | 140-210 g/cm |
| Density | 1.42 - 1.46 g/cm ³ |

Solidifier Component

| | |
|------------|-------------------------------|
| Appearance | Clear Liquid |
| Colour | Amber |
| Viscosity | 0.4 - 1 poise at 77°F (25°C) |
| Density | 1.02 - 1.04 g/cm ³ |

Mixed Properties

| | |
|--|-------------------------------|
| Mixing Ratio by Weight (Base : Solidifier) | 6 : 1 |
| Mixing ratio by Volume (Base : Solidifier) | 4.3 : 1 |
| Density | 1.35 - 1.39 g/cm ³ |
| Sag Resistance | > 30 mil (750 micron) |
| Time to Peak Exotherm at 68°F (20°C) | 30 - 45 minutes |
| Peak Exotherm Temperature | 320 - 374°F (160 - 190°C) |
| Useable Life at 68°F (20°C) | 20 - 25 minutes |

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

The tensile shear adhesion on grit blasted mild steel, as determined in accordance with ASTM D1002, will typically be:

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

Tensile Shear Adhesion
2400 psi / 16.5 MPa
2730 psi / 18.8 MPa

Pull Off Adhesion

The PosiTect dolly pull off strength on 10mm thick grit blasted mild steel, as determined in accordance with ASTM D4541 and ISO 4624, will typically be:

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

Pull off strength
>3070 psi / >21.2 MPa*
>4890 psi / >33.7 MPa*

*Failure of dolly adhesive

CHEMICAL RESISTANCE

This material offers excellent resistance to a broad range of chemicals particularly acids and alkalis.

Note: Chemical resistance ratings are assigned based on the ability of a Belzona product to resist chemical attack and/or protect the underlying substrate. Belzona cannot guarantee the purity of the chemical, appearance or colour stability following contact.

* For a more detailed description of chemical resistance properties, determined in accordance with ISO 2812-1, please refer to relevant Chemical Resistance chart.

COMPRESSIVE PROPERTIES

When determined in accordance with ASTM D695, typical values will be:

| | Compressive Strength | Proportional Limit | Youngs Modulus |
|-------------------------|-------------------------|-------------------------|---|
| 68°F/20°C cure & test | 102.5 MPa 14,871 psi | 90.5 MPa 13,124 psi | 1,590.3 MPa 2.31 x 10 ⁵ psi |
| 212°F/100°C cure & test | 123.7 MPa 17,944 psi | 102.0 MPa 14,788 psi | 1,488.3 MPa 2.16 x 10 ⁵ psi |

ELONGATION & TENSILE PROPERTIES

When determined in accordance with ASTM D638, typical values will be:

Tensile Strength
5,168 psi / 35.63 Mpa
6,463 psi / 44.56 Mpa

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

Elongation
0.58%
0.83%

68°F (20°C)
212°F (100°C)

Young's Modulus
1.24 x10⁶ psi / 8,545 MPa
1.08 x10⁶ psi / 7,476 MPa

68°F (20°C)
212°F (100°C)

FLEXURAL PROPERTIES

Flexural Strength

When determined in accordance with ASTM D790, typical values will be:

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

Flexural strength
7570 psi / 52.2 MPa
8340 psi / 57.5 MPa

Flexural Modulus

When determined in accordance with ASTM D790, typical values will be:

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

Flexural modulus
7.94 x 10⁵ psi / 5470 MPa
7.0 x 10⁵ psi / 4830 MPa

HARDNESS

Shore D & Barcol Hardness

The Shore D and Barcol hardness, when determined in accordance with ASTM D2240 and ASTM D2583, will typically be:

| | Ambient cure (68°F/20°C) | Post cure (212°F/100°C) |
|------------|--------------------------|-------------------------|
| Shore D | 82 | 84 |
| Barcol 935 | 78 | 83 |

Koenig Pendulum

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

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

Koenig Hardness
139
151

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HEAT RESISTANCE

Heat Distortion Temperature (HDT)

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

| Cure temperature | HDT |
|------------------|--------------|
| 68°F (20°C) | 113°F (45°C) |
| 212°F (100°C) | 185°F (85°C) |

Dry Heat Resistance

The indicated degradation temperature in air based on Differential Scanning Calorimetry (DSC) operated in accordance with ISO11357 is typically 392°F (200°C).

For many applications the product is suitable down to -40°F (-40°C).

Wet Heat Resistance

Suitable for service at temperatures up to 140°F (60°C) but refer to chemical resistance data for chemical contact limitations.

IMPACT RESISTANCE

Izod Pendulum

Izod impact strength, when determined in accordance with ASTM D256, will typically be:

| | Reversed notched Izod Impact Strength | Un-notched Izod Impact Strength |
|-----------------------------------|---------------------------------------|-----------------------------------|
| 68°F/20°C cure & test | 3.7 KJ/m ² 37.1 J/m | 3.4 KJ/m ² 42.7 J/m |
| 212°F/100°C cure & 68°F/20°C test | 4.6 KJ/m ² 46.2 J/m | 5.1 KJ/m ² 63.7 J/m |

SURFACE RESISTIVITY

Surface Resistivity

The surface resistivity of the cured coating applied to the following substrates and tested in accordance with ANSI/ESD S7.1 will typically be:

| | |
|---|--|
| Concrete: | 10 ⁶ - 10 ⁷ ohm/square |
| Concrete (using Belzona 4911 as Conditioner): | 10 ⁷ - 10 ⁸ ohm/square |
| Steel: | 10 ⁵ - 10 ⁶ ohm/square |

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).

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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 4351 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,
Claro Road, Harrogate,
HG1 4DS, UK

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

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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