BELZONA 1141
FN10016

Product Specification Sheet

1. PRODUCT NAME
Belzona® 1141 (Conductive Metal)
An electrically conductive metal repair and bonding system.

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 paste grade system based on a blend of electrically conductive fillers and high molecular weight reactive polymers and oligomers. When cured, the material is durable, fully machinable and electrically conductive.

Applications
Bonding continuity straps
Non-magnetic repairs.
Sealing anode clamps.
Bonding test leads.
Cosmetic repair to bronze castings.
Conductive irregular shims.

4. TECHNICAL DATA
Base Component

Appearance	Paste
Color	Copper
Density	1.90 - 1.94

Solidifier Component

Appearance	Paste
Color	Black
Density	1.42 - 1.46

Mixed Properties

Mixing Ratio by Weight (Base : Solidifier)	4.3 : 1
Mixing Ratio by Volume (Base : Solidifier)	3 : 1
Mixed Form	Paste
Slump	nil at 0.5 inch (1.27 cm)
Mixed Density	1.80

• ***Shelf Life:***
Separate base and solidifier components shall have a 5 year shelf life when stored between 32°F (0°C) and 86°F (30°C).

• ***Working Life:***
Will vary according to temperature. At 77°F (25°C) the usable life of mixed material is 25 minutes.

• ***Volume Capacity:***
The volume capacity of a 1.5 kg. unit of mixed **Belzona® 1141** is 51 cu.in. (833 cm^3).

• ***Cure Time:***
Will be reduced for thicker sections and extended for thinner applications. At a thickness of approximately 1/4 in. (6 mm), allow to solidify for the times shown in the chart below before subjecting it to the conditions indicated.

5. PHYSICAL/MECHANICAL PROPERTIES
Determined after 7 days cure at 77°F (25°C). Post curing the material with heat results in a more highly cross-linked polymer. For enhanced performance this material may be post-cured by heating to 212°F (100°C) for a period of up to 24 hours.

• ***Adhesion:***
Tensile Shear
When tested in accordance with ASTM D1002, using degreased mild steel, grit blasted to a 3 mil (75 microns) profile, typical values will be 1600 psi (11.0 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: 510 psi (3.5 MPa)

• ***Chemical Resistance:***
Once fully cured, the material will demonstrate excellent resistance to the following chemicals;
- 20% ammonia solution
- lime water
- 20% potassium hydroxide
- 20% sodium hydroxide
- propanol
- butanol
- ethylene glycol
- diethanolamine
- methylamine (25% in water)
- hydrocarbons
- mineral oils
- inorganic salts

• ***Compressive Strength:***
When tested in accordance with ASTM D695, typical values obtained will be 11,500 psi (79.3 MPa).

• ***Corrosion Resistance:***
Once fully cured, will show no visible signs of corrosion after 5,000 hours exposure in the ASTM B117-73 salt spray cabinet.

CURE TIMES

TEMPERATURE	50°F (10°C)	59°F (15°C)	68°F (20°C)	77°F (25°C)	86°F (30°C)
Movement or use involving no loading or immersion	10 hrs	5 hrs	2½ hrs	2 hrs	1 hr
Machining and/or light loading	24 hrs	12 hrs	4 hrs	3 hrs	2½ hrs
Full electrical, mechanical or thermal loading	3 days	2 days	1 day	16 hrs	12 hrs
Immersion in chemicals	12 days	7 days	4 days	2½ days	1½ days

• ***Current Carrying Capacity:***
The fully cured material will be capable of carrying a maximum of 6A/cm² and up to 3A/cm² continuously.

• ***Hardness:***
Shore D
The hardness of the material when tested to ASTM D2240 is typically 85.

Barcol
Tested to ASTM D2583 the Barcol hardness will typically be:
82 - ambient cure
86 - post cure.

• ***Heat Resistance:***
For many typical applications, the product is thermally stable to 392°F (200°C) dry and 200°F (93°C) wet.

• ***Heat Distortion Temperature:***
Tested to ASTM D648 (264 psi fiber stress), typical values obtained will be
136°F (58°C) ambient cure
165°F (74°C) post cure

• ***Specific Resistance:***
At 68°F (20°C) in air, and with current of 1 amp specific resistance will typically be 8.05 x 10^{-3} ohm.cm.

6. SURFACE PREPARATION AND APPLICATION PROCEDURES

For proper technique, refer to the Belzona® Instructions for Use leaflet which is enclosed with each packaged product.

7. AVAILABILITY AND COST

Belzona® 1141 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 Belzona® 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 recognised 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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ISO 9001:2008
Q 09335
ISO 14001:2004
EMS 509612
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Repair • Protect • Improve

Printed in England Publication No. 13-09-13