BELZONA 1131
FN10015

Product Specification Sheet

1. PRODUCT NAME
Belzona® 1131
A metal repair compound with self lubricating properties for use on low friction surfaces subject to intermittent contact where specific loads are low.

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 silicon steel alloy blended with graphite and high molecular weight reactive polymers and oligomers. When cured, the material is fully machinable and possesses self lubricating properties and porosity.

Applications
Sleeves
Bushings
Shafts
Slideways
Low friction surfaces

4. TECHNICAL DATA
Base Component

Appearance	Paste
Color	Dark gray
Gel strength at 68°F (20°C)	150 - 350 g/cm QH
Density	1.84 - 1.90 g/cm³

Solidifier Component

Appearance	Paste
Color	Black
Gel strength at 68°F (20°C)	80 - 160 g/cm QV
Density	1.32 - 1.38 g/cm³

Mixed Properties

Mixing Ratio by Weight (Base : Solidifier)	4 : 1
Mixing Ratio by Volume (Base : Solidifier)	3 : 1
Mixed Form	Paste
Peak Exotherm Temperature	279 - 307°F (137 - 153°C)
Time to Peak Exotherm	20 - 28 mins.
Slump Resistance	nil at 1.0 inch

• ***Shelf Life:***
Separate base and solidifier components shall have a 5 year shelf life when stored between 41°F (5°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 15 minutes.

• ***Volume Capacity:***
The volume capacity is 35.1 in³ (575 cm³) per kg.

• ***Cure Time:***
Will be reduced for thicker sections and extended for thinner applications. At a thickness of approximately ¼ 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, after 2 - 4 hours of applying **Belzona® 1131,** the material may be post-cured by heating at 140°F (60°C) - 212°F (100°C) for a period of 4 - 24 hours.

Generally, the higher the post cure temperature, the higher the properties attained.

• ***Abrasion Resistance:***
Taber
Tested dry with CS17 grinding wheels and 1 kg load, volume loss is typically 95 mm³ per 1,000 cycles.

Tested wet with H10 grinding wheels and 1 kg load, volume loss is typically 994 mm³ per 1,000 cycles.

• ***Adhesion:***
Tensile Shear
When tested in accordance with ASTM D1002, using mild steel, degreased and grit blasted to a 3 - 4 mil profile, typical value will be 2800 psi (19.3 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: 1770 psi (12.2 MPa)

• ***Chemical Resistance:***
Once fully cured, the material will demonstrate excellent resistance to most commonly found inorganic acids and alkalis at concentrations up to 20%. The material is also resistant to hydrocarbons, mineral oils, lubricating oils and many other commonly found chemicals.

For specific chemical resistance data please refer to product data M509.

• ***Compressive Yield Strength:***
When tested in accordance with ASTM D695, typical values obtained will be 10,800 psi (74.5 MPa).

• ***Flexural Strength:***
When tested to ASTM D790, typical values obtained will be 7,650 psi (52.7 MPa).

CURE TIMES

TEMPERATURE	41°F (5°C)	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	4 hrs	3 hrs	2¼ hrs	1¾ hrs	1 hr	¾ hr
Machining and/or light loading	6 hrs	4 hrs	3 hrs	2 hrs	1½ hrs	1 hr
Full mechanical or thermal loading	4 days	2 days	1½ days	1 day	20 hrs	16 hrs

• ***Hardness:***

Shore D

The hardness of the material when tested to ASTM D2240 is typically 87.

Barcol

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

• ***Heat Distortion Temperature:***

When tested in accordance with ASTM D648 (264 psi fiber stress) typical values obtained will be

140°F (60°C)	ambient cure
216°F (102°C)	post cure

• ***Heat Resistance:***

For many typical applications, the product is thermally stable to 392°F (200°C) dry and 212°F (100°C) wet.

• ***Impact Strength:***

Izod reverse notched impact strength is typically 0.455 ft.lbs./in. (24.5 J/m).

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® 1131 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.

11. APPROVALS/ ACCEPTANCES

U.S.D.A.

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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Repair • Protect • Improve

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