BELZONA® World leaders in the conservation of man-made resources and the environment

# PRODUCT SPECIFICATION SHEET
# BELZONA® 1131

## 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 4AY, 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 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, 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 (197 kgs/cm²).

### • *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.

### • *Compressive Yield Strength:*
When tested in accordance with ASTM D659, typical values obtained will be 10,800 psi (769 kgs/cm²).

### • *Flexural Strength:*
When tested to ASTM D790, typical values obtained will be 7,650 psi (538 kgs/cm²).

### • *Hardness:*
The hardness when tested to ASTM D2240 is typically 87 Shore D.

### • *Heat Distortion Temperature:*
When tested in accordance with ASTM D648 (264 psi fiber stress) typical values obtained will be 140°F (60°C).

**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 |

### • *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.

**Belzona Polymerics Ltd.,**
Claro Road,
Harrogate, HG1 4AY,
England.
Tel: +44 (0) 1423 567641
Fax:+44 (0) 1423 505967
E-Mail: belzona@belzona.co.uk

**Belzona Inc.,**
2000 N.W. 88 Court,
Miami, Florida 33172,
U.S.A.
Tel: +1 (305) 594 4994
Fax:+1 (305) 599 1140
E-Mail: belzona@belzona.com

**BS EN ISO 9002 : 1994**
**Certificate No. Q/09335**

**www.belzona.com**



Printed in England 4/03 UK