

Erosion-Corrosion Resistant Metal Repair Composite



BELZONA®
1311



Belzona 1311 (Ceramic R-Metal) is a repair composite designed for rebuilding and protecting metal against the effects of erosion and corrosion.

This cold-applied material benefits from excellent erosion resistance and can be used to restore equipment operating under immersion without the need for hot work.

Belzona 1311 demonstrates outstanding adhesion to a variety of substrates, allowing it to also be used as a high strength structural adhesive for metal bonding. For long-lasting performance, it can be overcoated with another of Belzona's 1300 Series materials.



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|----------------|--------------------------------|--|--|
| TECHNICAL DATA | Mixing ratio (base:solidifier) | 3 : 1 by volume | 5 : 1 by weight |
| | Working life | 15 minutes at 25°C (77°F) | |
| | Shelf life | 5 years | |
| | Dry heat resistance | 200°C (392°F) | |
| | Adhesion (tensile shear) | Mild steel: 20.7 MPa (3,000 psi) | Stainless steel: 19.0 MPa (2,760 psi) |
| | Compressive strength (yield) | 56.8 MPa (8,235 psi) at 20°C (68°F) cure | |
| | Volume capacity | 415 cm ³ (25.3 in ³) / 1 kg | 830 cm ³ (50.6 in ³) / 2 kg |
| | Heat distortion temperature | 51°C (124°F) at 20°C (68°F) cure | 89°C (192°F) at 100°C (212°F) cure |
| | Abrasion resistance | H10 - 194 mm ³ wet | CS17 - 25 mm ³ dry |

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|------------|------------------------------------|-------------|-------------|-------------|-------------|
| CURE TIMES | Temperature | 10°C (50°F) | 15°C (59°F) | 20°C (68°F) | 25°C (77°F) |
| | No loading or immersion | 3 hours | 2½ hours | 1¾ hours | 1 hour |
| | Machining and/or light loading | 4 hours | 3 hours | 2 hours | 1½ hours |
| | Full mechanical or thermal loading | 2 days | 1½ days | 1 day | 20 hours |
| | Immersion in chemicals | 4 days | 3 days | 2 days | 1½ day |

*Please consult the Product Specification Sheet (PSS) and Instructions for Use (IFU) for the latest technical data.



**EROSION
RESISTANT**



**CORROSION
RESISTANT**



**CHEMICAL
RESISTANT**



**EXCELLENT
ADHESION**



SOLVENT FREE

Key Benefits:

- **Erosion-corrosion resistance**

This metal repair composite offers outstanding erosion and corrosion resistance.

- **Excellent adhesion**

Belzona 1311 demonstrates excellent adhesion to a variety of metallic substrates.

- **Chemical resistance**

Belzona 1311 is resistant to a variety of chemicals, including hydrocarbons and process chemicals.

- **Solvent free**

This solvent-free solution does not shrink when curing and reduces health and safety risks in confined spaces.



Application Areas:

- **Rebuilding metal loss**

This metal repair composite can reverse the effects of metal loss on equipment and protect against further erosion.

- **Equipment under immersion**

Belzona 1311 can be used to repair equipment operating under immersion, including pumps and HVAC systems.

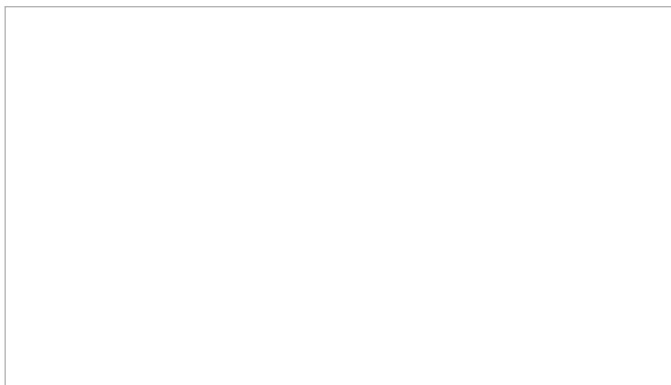
- **High-strength structural adhesive**

The adhesive strength of Belzona 1311 makes it suitable for use as a structural adhesive and for cold bonding purposes.

- **Load bearing shims**

Belzona 1311 can be used to create load bearing shims as it will not shrink.

For more information, please contact your local Belzona representative:



QUALITY PRODUCTS - TECHNICAL SUPPORT

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

Belzona has a global distribution network of over 140 Distributors operating in 120 countries. Local support is provided by a trained Technical Consultant who will diagnose the problem, recommend the solution and provide 24-hour, on-site application supervision and advice.