

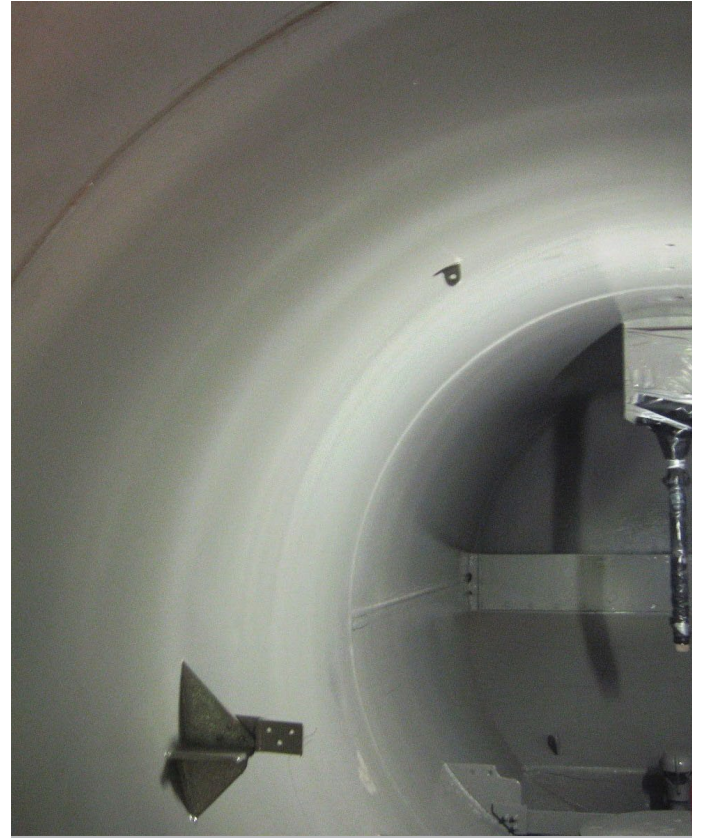
Belzona 1593

Hand Applied Coating for the Protection of Process Equipment Operating at Elevated Temperatures

Belzona 1593 is a two-part, solvent free epoxy based coating designed for continuous immersion in aqueous and hydrocarbon systems at operating temperatures up to 160°C (320°F). This coating provides excellent corrosion resistance at elevated temperatures and withstands a wide range of chemicals including hydrocarbons and amines.

With over a decade's experience in the development of high-temperature linings, Belzona 1593 represents the next generation of Belzona's 1500 Series. This brush applied material with a 24-hour overcoat window allows applications to be effectively and quickly completed, reducing downtime dramatically. After ambient temperature cure, its unique post-curing mechanism is activated at normal service temperatures, eliminating the need for separate post-curing processes and allowing a more rapid turnaround and return to service.

Belzona 1593 will outperform conventional Vinyl Ester Glass Flake (VEGF) coatings in terms of mechanical strength and adhesion, together with reduced shrinkage and VOC emissions. It bonds strongly to most metallic surfaces and presents an excellent retention of adhesion at elevated temperatures. This high performance coating is also resistant to steam-out process up to 210°C (410°F) and rapid depressurisation.



Application Areas for Belzona 1593:

- High temperature coating for oil and gas production equipment including separators, flare knock-out vessels and evaporators operating under immersion
- Corrosion protection against a variety of chemicals in equipment such as boiler vessels, condensers and heat exchangers operating at high temperature

Key Benefits of Belzona 1593:



Excellent resistance to corrosion and chemicals
Belzona 1593 provides long-term corrosion resistance even under immersed conditions at high temperature. This coating resists a wide range of chemicals including hydrocarbons and amines.



High temperature operation under immersed conditions

Designed to operate under continuous immersion in aqueous and hydrocarbon systems up to 160°C (320°F), Belzona 1593 provides long-term protection for high temperature equipment.



Minimised downtime

Belzona 1593 has a unique post-curing mechanism activated at normal service temperatures that eliminates the need for separate post-curing processes, reducing equipment downtime.



Simple and safe to use

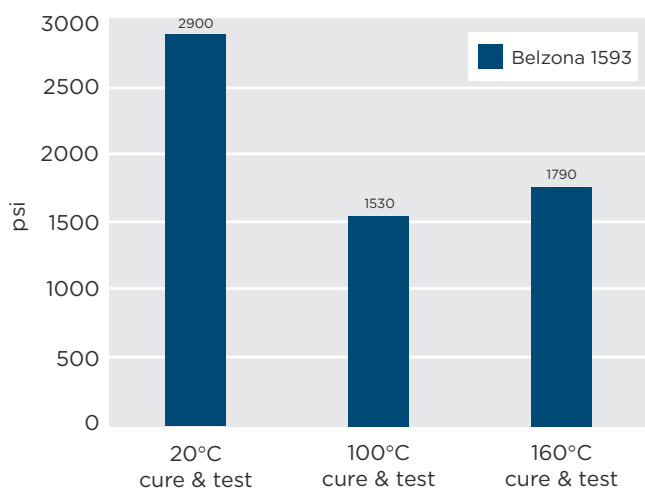
Belzona 1593 is easy to mix and apply without the need of specialist tools. This low VOC coating will also reduce health and safety risk.



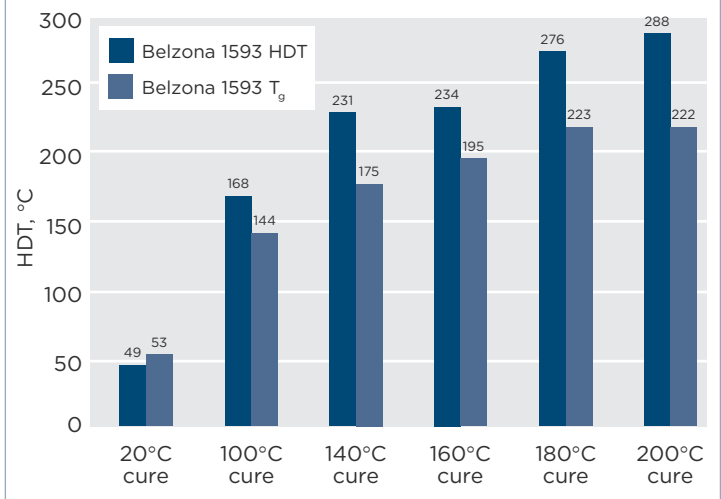
Excellent adhesion to all rigid metallic substrates
Belzona 1593 exhibits an excellent adhesion to metallic surfaces, and retains high levels of adhesion at elevated temperatures.

Belzona 1593

TENSILE SHEAR ADHESION (ASTM D1002)



HEAT DISTORTION TEMPERATURE AND T_g (ASTM D648 & ISO 11357-2)



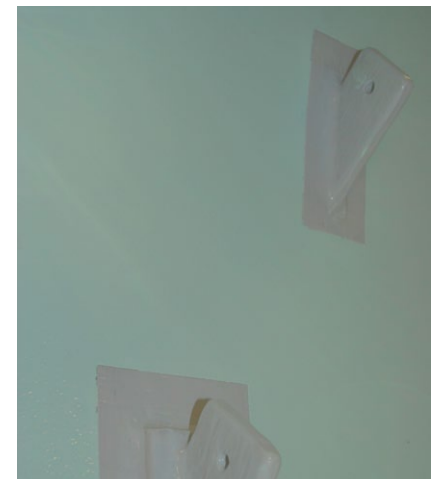
Test Data:

Atlas Cell Immersion Resistance (NACE TM0174)	No rusting (ASTM D610 rating 10) or blistering (ASTM D714 rating 10) after 6 months in continuous immersion in water at 160°C (320°F)
Tensile Shear Adhesion (ASTM D1002)	2900 psi (20.0 MPa) after 20°C (68°F) cure & test 1530 psi (10.6 MPa) after 100°C (212°F) cure & test 1790 psi (12.3 MPa) after 160°C (320°F) cure & test
Cathodic Disbondment (ASTM G42)	At 90°C (194°F), the average disbondment radius will typically be 0.209in/5.3mm
Steam-out Resistance	No failure after 96 hours exposure to pressurised steam at 210°C (410°F)
Chemical Resistance	Excellent chemical resistance to a wide range chemical substances including hydrocarbons and amines (MDEA, MEA). Please refer to Belzona 1593 Chemical Resistance Chart for more details.

Application Data:

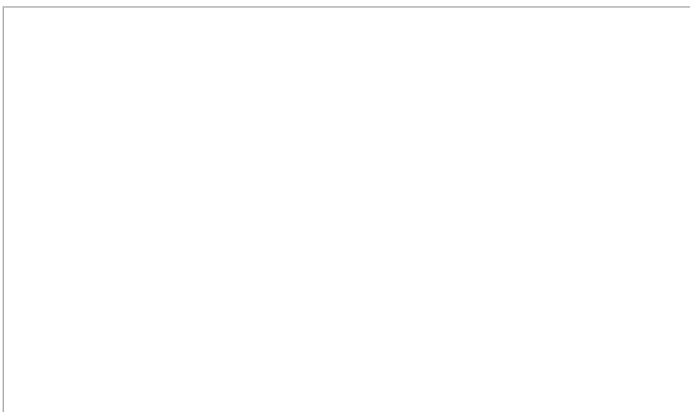
Unit Sizes	1 kg and 3 kg
Thickness	500µm (20 mils) minimum application thickness 750µm (30 mils) total target thickness
Mixing Ratio	5.6:1 by volume and 11:1 by weight
Usable life	45 minutes at 20°C (68°F)

* Please refer to Belzona 1593 Instructions for Use for more details.



The very light colours of Belzona 1593 allow easy visual inspection in vessels. This coating can also be High Voltage spark tested for holidays.

For more information, please contact your local Belzona representative:



QUALITY PRODUCTS - TECHNICAL SUPPORT
The Belzona product range is manufactured through stringent quality and environmental control guidelines complying with the internationally recognised requirements of ISO 9001:2008 and ISO 14001:2004.

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.



Belzona products are manufactured under an ISO 9000 Registered Quality Management System