

# PIONEERING INDUSTRIAL REPAIR AND PROTECTION SINCE 1952

Polymeric Engineering Composites and Protective Coatings









# WELCOME TO BELZONA

Repair • Protect • Improve

Belzona is a world leader in the design and manufacture of polymeric repair composites and protective coatings for machinery, equipment, buildings and structures.

*“Replacing worn or deteriorated equipment and structures is an expensive waste of precious resources. Since its inception, Belzona has been developing innovative products to repair and protect machinery and buildings against wear and corrosion. Let us show you how we can help your business save time and money by choosing to repair or protect your property instead of replacing it.”*

**Joel Svendsen**

*President of the Belzona Group*





# GLOBAL PRESENCE - LOCAL SUPPORT

Founded in 1952, Belzona is one of the few global designers and manufacturers of polymeric composites and coatings that offer top quality materials combined with the technical know-how, expertise and service required to meet the demands of a variety of industries.



We specialise in cold-applied, solvent-free materials to offer a solution to an extensive range of engineering challenges and repair situations. From full turnkey systems to simple in-situ repairs, our innovative materials provide the answer to a variety of industrial issues, including erosion, corrosion, chemical attack, abrasion and wear, water penetration and weathering. Such is the performance of our materials, many are now specified for the protection of new equipment.



Our strategically located manufacturing facilities and over 140 stocking Distributorships around the world allow Belzona to serve our customers in every region. This, combined with a strong focus on Research and Development and unmatched technical support, service and training, makes Belzona a true global solution provider.

- Innovative Research and Development team
- 24 hour technical support and on-site assistance
- Online and practical training programmes
- Quick, simple and easy application methods





## CORPORATE OFFICES

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### **Belzona Polymeric Ltd**

Harrogate, UK  
t: +44 1423 567641

Our Head Office is based in Harrogate, UK. Since opening in 1992, the building hosts our main manufacturing centre, our Research and Development laboratory, a state-of-the-art training facility and acts as the hub for technical support throughout Europe and Africa.

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### **Belzona Inc**

Miami, FL, USA  
t: +1 (305) 594-4994

We moved our US headquarters from New York to Miami in 1992, to better support a fast-growing Latin American market alongside our North American operations. Our Miami facility houses a manufacturing centre and a brand new Research and Development laboratory.

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### **Belzona Asia Pacific**

Chonburi, Thailand  
t: +66 38 491031

Our Asia Pacific office is located in the region of Laem Chabang in Thailand. Opened in 2005 as a local support centre, it has expanded into a highly developed training facility since moving to its current location in 2011 and also hosts our Asia Pacific Technical Support team.

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### **Belzona Canada**

Ontario, Canada  
t: +1 (905) 737-1515

Our Canadian office opened in Richmond Hill, Ontario, in 2009, in response to a huge increase in demand from across the country. It now serves as our centre for operations in Canada, offering local technical and training support to this key market throughout the year.



# BELZONA THROUGH THE YEARS

Our knowledge and expertise spans over several decades



*Northern Metalife Limited, established in Elland, United Kingdom in 1952*

## 1952

Originally named Northern Metalife Limited, Belzona was founded by Danish entrepreneur Jorgen Svendsen (1921-1999).

The company, established in Elland, West Yorkshire, United Kingdom, specialised in the flame spraying of steel with zinc to provide corrosion protection.



*Belzona Metal, the predecessor to our bestseller Belzona 1111 (Super Metal)*

## 1957

The company moved to Harrogate, North Yorkshire, United Kingdom, where it pioneered the development of innovative polymer technology that has revolutionised the ways in which repair and maintenance procedures are carried out within industrial and commercial facilities, with substantial investment in research, development and manufacturing.



*Harrogate headquarters, United Kingdom, in 1957*

## 1960s

The Belzona company was formed specifically to market a range of metal repair materials. As a result, Belzona Metal was born, the predecessor to our now popular bestseller Belzona 1111 (Super Metal).

## 1961

From a newly opened office in Copenhagen, Denmark, Belzona began the appointment of a European Distributor Network.



*Belzona New York research facility in 1975*

## 1979

The distinctive packaging affectionately named *'The Module'* was launched. The Base of Belzona products are generally sold in the orange module and the Solidifier in the black one.



*Opening of the Belzona Institute of Applied Molecular Technology in 1982*

## 1970s

Belzona became a global company. Jorgen began the appointment of independent Distributors from South America and Asia. This expansion of sales continued into North America, where a state of the art office, manufacturing and research facility was built in New York in 1975.



*Distinctive packaging affectionately named 'The Module' launched in 1979*





## 1980s

This decade saw the expansion of Belzona, with the official opening of the Belzona Institute of Applied Molecular Technology in 1982 and significant developments in product development and sales literature to exceed the ever-increasing industry demands.



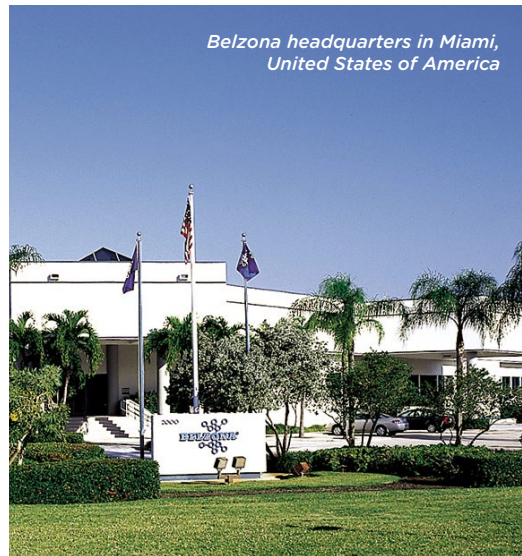
*Belzona took a major step forward with the development of high temperature linings*

## 2005

As part of Belzona's mission to encourage strong and steady growth among its Distributorships and to enhance our market potential and visibility within the Asia Pacific region, Belzona opened a support centre and training facility in Pattaya, Thailand.



*Belzona support centre in Pattaya, Thailand*



*Belzona headquarters in Miami, United States of America*

## 1994

Belzona took a major step forward with the development of high temperature lining systems for erosion and corrosion protection.

## 2003

Joel Svendsen, the son of Jorgen, took over the company in 2003. Joel, like his father, is a keen entrepreneur with strong business drive. Under his leadership, Belzona is now a truly international organisation, with the Belzona family spirit growing ever stronger.

## 2011

In an effort to develop global application standards, Belzona introduced its Validated Training Programme, designed to provide Distributors and Contractors with the know-how to consistently perform high quality applications.



*Belzona's Validated Training Programme*

## 1990

Belzona's headquarters in Miami were opened following the transfer of the original New York headquarters.

## 1992

Belzona moved into the new Belzona Technology Centre in Harrogate, which were officially opened on 4<sup>th</sup> July 1992.



*Belzona Technology Centre facilities in Harrogate, United Kingdom in 1992*

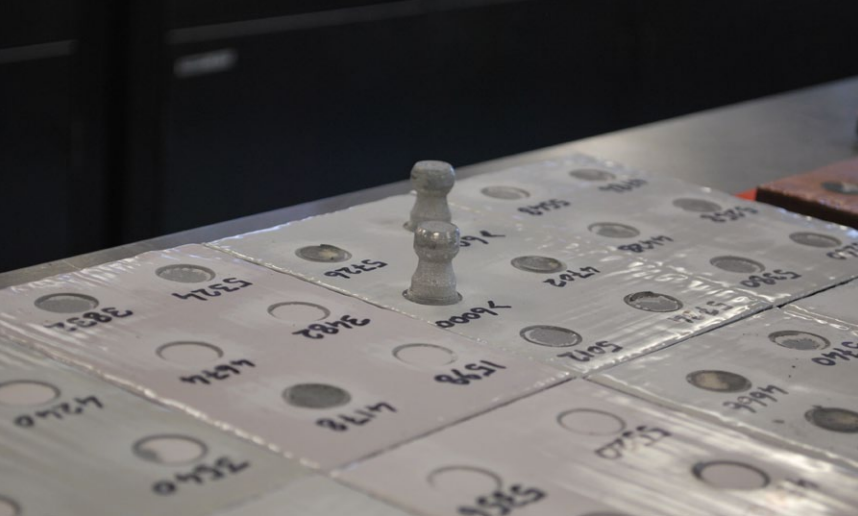
## 2015 ONWARDS

Belzona's continued investment in Research and Development and strong commitment to training and support, means the organisation is constantly evolving to adapt to an ever changing industrial environment and meet increasing customer requirements.



*Continued investment in R&D*





# INVESTMENT IN RESEARCH AND DEVELOPMENT

Research and Development is at the core of our business. Our world-class Chemists and Technicians are constantly developing and refining cutting-edge technology to ensure we remain a truly market-led organisation at the forefront of our industry.

Belzona materials and services are manufactured and delivered in accordance with the ISO 9001:2008 quality management and ISO 14001:2004 environmental management standards. The ISO 9001:2008 certification ensures our customers receive consistent, high quality products and services, helping us to effectively meet their needs and requirements.



## RESEARCH

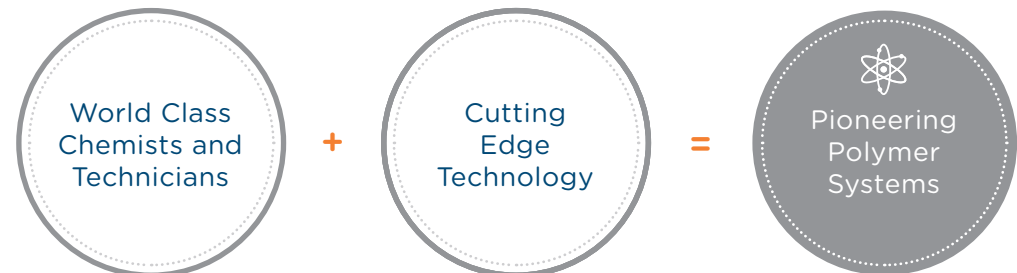
Thanks to experience gained over the course of six decades, we have been able to hone the Research and Development process so that, before we even begin the development of a new project, rigorous field research is undertaken.

We work closely with industry professionals to understand what materials will benefit them and which properties will maximise the ease of application and performance of any new material, allowing us to respond with relevant and ground-breaking technologies.

## DEVELOPMENT AND TESTING

Belzona materials are subjected to stringent independent and in-house testing. Numerous tests are conducted to continuously measure and perfect the properties of our systems. These tests measure properties such as reactivity, hardness, heat, corrosion, chemical and abrasion resistance among others.

Through these tests, performed in our ISO 9001 audited laboratory to recognised standards as well as by external partners, we are able to produce innovative materials that cater to a wide variety of application and in-service conditions.







AS PIONEERS OF COLD-APPLIED CORROSION PROTECTION, WE ARE CONSTANTLY STRIVING TO DEVELOP THIS TECHNOLOGY AND CREATE NEW SOLUTIONS FOR A VARIETY OF PROBLEM AREAS, NO MATTER HOW HARSH OR CHALLENGING.

Belzona Research and Development Director

# SOLUTIONS FOR INDUSTRY

When equipment and structures in any industry experience routine or unexpected maintenance, Belzona understands the determining factors for selecting a solution - how it will affect disruption to plant operation and, above all, downtime.

Our materials offer simple, safe and effective means to assist with these concerns by:

- ✓ **Simplifying maintenance procedures** by eliminating the need for disassembly, welding, post weld heat treatment and other hot work
- ✓ **Reducing downtime** by providing rapid cure and easy to apply materials
- ✓ **Decreasing maintenance and replacement costs** through increased asset availability and reliability
- ✓ **Enhancing safety** by facilitating in-situ cold work with solvent-free materials

Engineered to withstand the harsh operating environments found in industry. Belzona polymeric composites provide an alternative for almost any repair and protection need.







## OIL, GAS AND PETROCHEMICAL

Our high performance linings, coatings and wraps, as well as cold bonding compounds, provide long-lasting repair and protection of process vessels, pumps and pipework among other equipment, even in challenging environments where elevated temperatures, high pressure levels and aggressive chemicals are present.



## MARINE

Our durable solutions are proven by years of successful applications on ships and offshore structures suffering from extreme weather, salt water exposure and galvanic effects. From cavitation resistant coatings to cold bonding compounds, our materials are frequently used in repair and new construction situations.



## POWER

Belzona materials including high performance linings, paste grade composites and abrasion resistant materials, are used to combat many of the challenges found in the power industry, such as erosion-corrosion on fluid flow equipment, cavitation, aggressive chemicals, abrasion and oil leaks on transformers.



## MINING AND QUARRYING

In the extremely aggressive mining and quarrying environments where machinery and equipment suffer the constant effects of severe abrasion, corrosion, erosion and mechanical damage, Belzona materials offer rapid in-situ repair and maintenance solutions that allow production to continue with minimum disruption.



## FACILITIES MAINTENANCE

Belzona's range of materials for building fabric maintenance, including liquid-applied roofing membranes, and internal and external wall coatings, are extensively used for planned maintenance and emergency situations. Associated equipment such as pipework, ductwork and HVAC systems can also be repaired and protected.



## WATER AND WASTEWATER

Common problems affecting this industry, including erosion, corrosion, chemical attack and mechanical damage, can be successfully addressed with a Belzona cold-curing system. Concrete structures can also be repaired and protected with polymeric materials keeping downtime to a minimum.



## MANUFACTURING

Critical equipment and machinery commonly affected by wear, abrasion, corrosion and mechanical damage can benefit from our in-situ and cold-applied solutions, including rebuilding of shafts, hydraulic rams and bearing housings, and repair and protection of pumps and heat exchangers, among others.



## PULP AND PAPER

Solids handling equipment suffering from severe abrasion, attack from process chemicals and wear of mechanical components such as shafts are just a few problem areas in pulp and paper plants where Belzona materials have been used for decades to keep production and maintenance costs down.



## FOOD AND DRINK

Belzona works closely with food and drink companies around the world to keep machinery and equipment operational and maximise production. A wide number of our materials comply with international standards for contact with drinking water and incidental food contact, including WRAS, NSF and FDA.



## MILITARY

From maintenance of military facilities to repair and protection of transport and combat vehicles and warships, Belzona assists the military in maintaining their effectiveness by providing cold-applied and cold-curing composite materials for the repair of metallic and rubber components.

# OUR AREAS OF EXPERTISE

## MACHINERY AND EQUIPMENT

In service machinery and equipment is exposed to a variety of damage mechanisms that can severely affect their performance and reliability. Belzona materials are engineered to address the cause, not just the effects, of erosion, corrosion and physical damage. This ensures Belzona solutions provide advantages such as reduced downtime, cost saving, efficiency gains and improved safety.

As a result of over 60 years of continuous development, Belzona provides a complete range of innovative repair and protection systems for all types of machinery and equipment.

New equipment can also benefit from the application of a Belzona coating or lining system as an alternative to Corrosion Resistant Alloys (CRAs). Belzona systems have been developed to meet specific operation conditions including elevated temperature and pressure levels, contact with chemicals and handling of highly abrasive media.



### Repair, rebuilding, sealing and bonding

of rigid components damaged by erosion, corrosion or mechanical deterioration



### Coating, protection and upgrading

of rigid surfaces suffering general and localised corrosion, erosion, chemical attack, wear and cavitation



### Flexible repair and coating

of components and linings suffering from extreme erosion, abrasion and impact damage



### Securing and shimming

of machinery foundations and bases to endure vibration and physical shock



### Environmental protection

of machinery and structures against corrosion, weathering and chemical attack, and reduction of environmental impact



## BUILDINGS AND STRUCTURES

Buildings and structures are routinely subjected to a variety of physical and environmental damage. Harsh environmental impact, use of cleaning agents, and general day-to-day usage can lead to numerous problems such as water ingress, degradation, and chemical and bacterial attack.

In order to minimise disruption to the facilities' operations, personnel and members of the public, damaged areas not only require a solution that can be installed with minimal downtime and disturbance, but the repair must also ensure the substrate will remain protected for the long term.

Belzona polymeric repair composites and barrier coatings offer a fast application and curing times for a durable repair and protection of roofs, floors and walls.

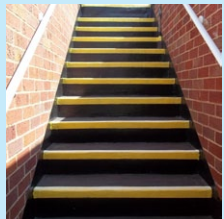
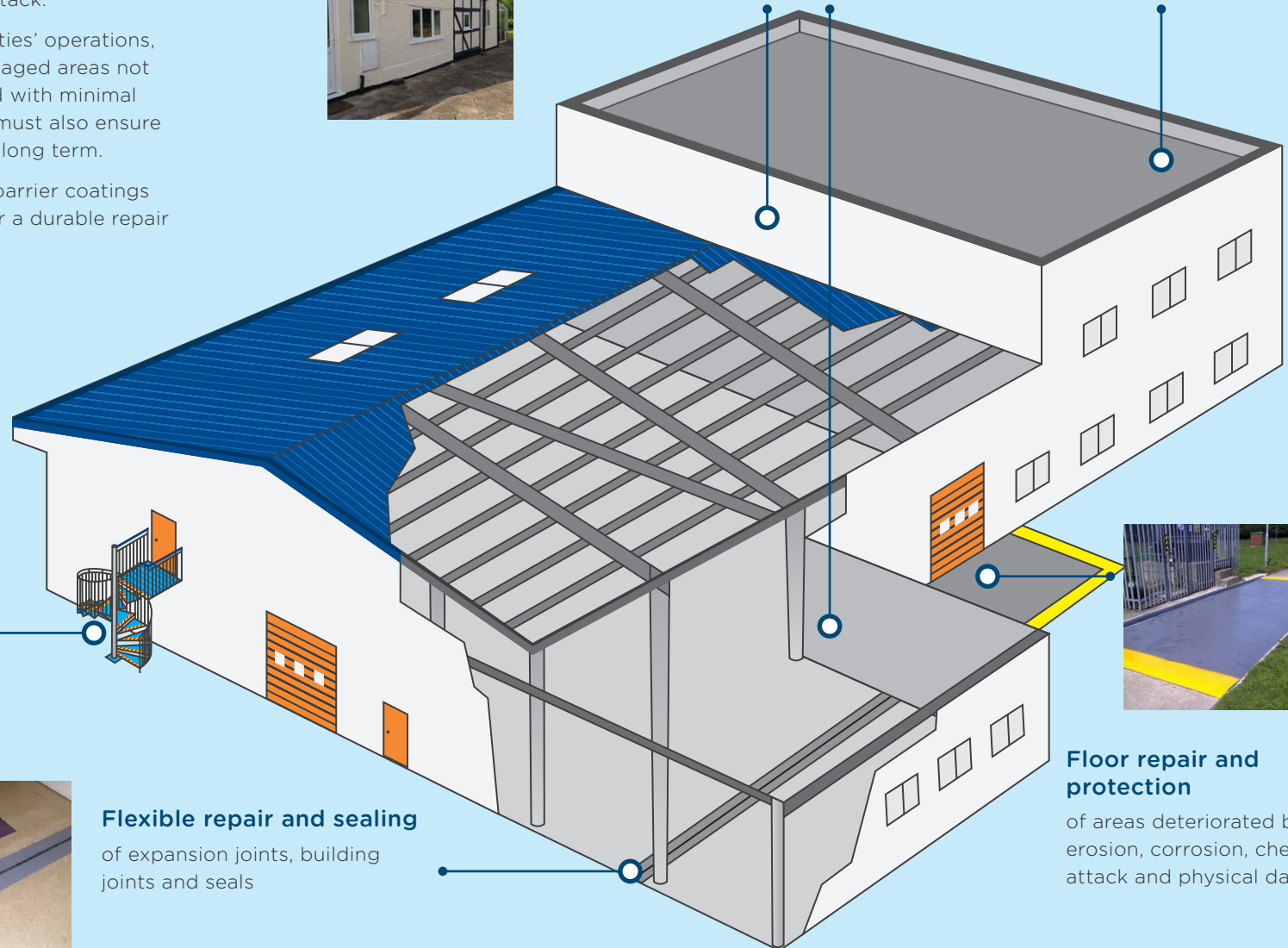


### Wall repair and protection

of concrete and stonework walls deteriorated by erosion, corrosion, chemical attack and physical damage

### Weatherproofing buildings, structures and insulation

in areas damaged by movement during warm and cold cycles, physical damage, rain and adverse weather conditions



### Slip reduction and positive grip systems

to minimise the risk of slippage in potentially dangerous areas such as ladder rungs, stair treads, ramps, walkways and areas around machinery



### Flexible repair and sealing

of expansion joints, building joints and seals



### Floor repair and protection

of areas deteriorated by erosion, corrosion, chemical attack and physical damage



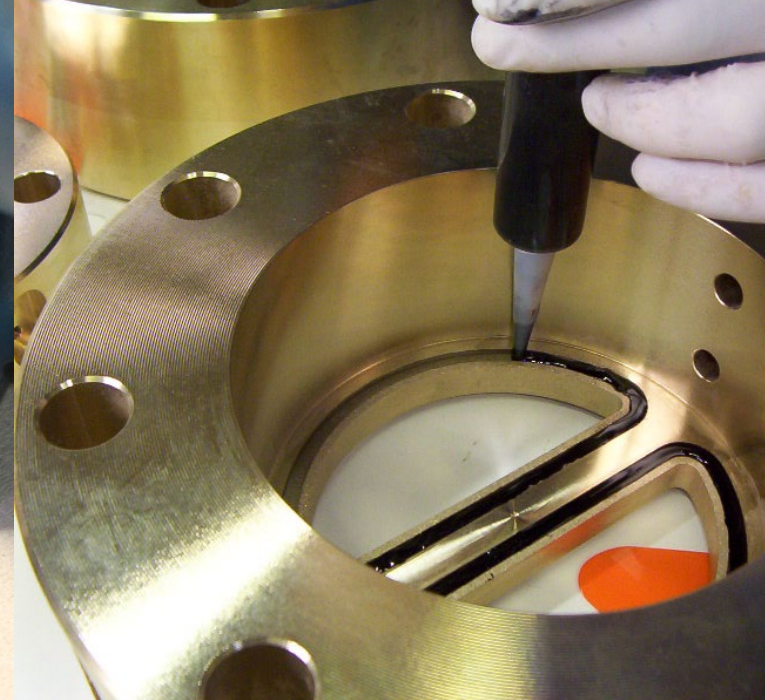
## OUR RANGE OF MATERIALS

In Belzona, we specialise in the repair, protection and prevention of erosion and corrosion damage with the use of polymeric repair composites and industrial coatings. As a result of our pioneering approach, we have developed an extensive range of materials to cover a wide variety of maintenance situations and operating environments.

Our materials are designed with the following features in mind, allowing us to provide our customers with benefits seldom found elsewhere:

- ✓ **Cold-applied and cold-curing materials** that do not pose the dangers of hot work
- ✓ **Solvent-free systems** that can be applied in confined spaces, reducing health and safety concerns and shrinkage issues after curing
- ✓ **Ease of application** with simple tools and procedures, allowing in-house repairs
- ✓ **In-situ repairs** which drastically reduce downtime by eliminating the need for component removal and transport





## ENGINEERING COMPOSITES

Corrosion resistant materials for the repair, rebuilding, sealing and bonding of rigid components without the need for hot work or specialist tools. These materials provide excellent adhesion to metals and many other substrates.

## PROTECTIVE LININGS

Polymeric coatings for the protection and upgrading of surfaces against the effects of erosion, corrosion, abrasion and chemical attack. Our wide range of linings cover an ample variety of service temperatures and operating conditions.

## FLEXIBLE POLYMERS

Rebuilding, coating and casting grade elastomeric materials for the repair of flexible components, coating and sealing where high elasticity and toughness is required. These durable composites are cold-applied with simple tools and cure at ambient temperatures.

## CONSTRUCTION POLYMERS

Polymeric composites for the repair and resurfacing of concrete, stonework and other cementitious surfaces providing high abrasion resistance and compressive strength. These non-porous materials allow for rapid application and curing times compared with traditional alternatives.

## ENVIRONMENTAL BARRIER POLYMERS

Polymeric coatings for the protection of equipment and structures and reduction of environmental impact, engineered to resist highly challenging environments such as exposure to a wide range of chemicals, temperatures and UV radiation.

## POLYMERIC MEMBRANES

Liquid-applied coatings for waterproofing and protection of roofs and insulation. These breathable membranes allow moisture in the substrate to evaporate whilst remaining watertight and their flexibility enables them to accommodate substrate movement.

## SAFETY SURFACING POLYMERS

Liquid-applied grip systems provide positive grip in risk areas such as steps, ramps and floors. Their hard-wearing properties and durability make them ideal for industrial and high traffic environments.

## BONDING, CHOCKING AND GROUTING COMPOUNDS

100% solids, cold-applied materials designed to endure the physical and thermal shock common to industrial and marine environments. Lloyds Register, DNV GL and ABS approved, these materials are formulated to achieve full contact with the surface, providing effective bonding, alignment and anchorage.



# GLOBAL APPLICATION STANDARDS

## PREQUALIFICATION

Belzona materials are subject to stringent independent and in-house testing, documented in the product specification sheets and chemical resistance charts. Testing is performed in our ISO 9001 audited laboratory to recognised standards, including ASTM and ISO.

Belzona products are approved by classification societies and companies from all around the world, including:

- Lloyds Register
- DNV GL
- ABS
- China Classification Society
- Russian Maritime Register of Shippers
- Korean Register
- WRAS
- Bureau Veritas
- NSF
- Germanischer Lloyd
- Statoil
- Thai Oil
- BP
- Chevron
- Esso
- Saudi Aramco
- Shell
- ExxonMobil
- Total
- York

In addition, our materials have received acknowledgements from the U.S. Navy and the U.K. Ministry of Defence.





## SPECIFICATION

Optimum materials and application procedures are selected to meet the specific design and operating conditions of the asset. Dedicated Belzona trained specialists coupled with round the clock head office technical support allow for the correct material and application procedure to be specified.

We also maintain a comprehensive database accessible by the global Belzona Distributor Network, which facilitates sharing of information and experience, assuring specification and application standards.

## APPLICATION

Application standards, including surface preparation, are an integral part of the success of solution implementation. Belzona recognises the need to set and monitor global application standards for the application of our materials.

Applications are undertaken by experienced and trained personnel. Belzona delivers training programmes with theoretical and practical courses, including on-site training programmes. Combining these training programmes with specific application specifications, method statements, quality control procedures and daily inspection reports, we strive to ensure application standards are maintained around the world.

## INSPECTION

Inspection service carried out by certified inspectors (e.g. NACE®) is available prior to, during and upon completion of the application to ensure Belzona systems are applied in accordance with our standards and client requirements.

Upon nearing the end of the system's expected service life, the asset is inspected again and appropriate action recommended, which may involve minor repair work or no action.





THE FORMAT OF EACH COURSE ENSURES THAT THE ATTENDEE RECEIVES THE INFORMATION REQUIRED TO MINIMISE THE RISKS OF AN APPLICATION FAILURE DUE TO INCORRECT APPLICATION PRACTICE, AND GIVES ATTENDEES THE KNOWLEDGE AND CONFIDENCE TO CARRY OUT SUCCESSFUL APPLICATIONS SAVING THEIR EMPLOYERS TIME, MONEY AND INCONVENIENCE.

Belzona Engineering Director



# OUR APPROACH TO TRAINING

Belzona believes in the value of knowledge and experience as a key element for maintaining our global application standards. We invest heavily in training for our Staff, Distributors, Consultants, Contractors and Customers, offering courses that meet recognised engineering standards to ensure that our solutions are correctly applied.

## THEORETICAL LEARNING

To maximise the time spent gaining hands-on experience, we have developed an online learning programme to allow attendees to understand the theoretical aspects and test their knowledge prior to visiting a Belzona Training Centre. These prerequisite, online modules ensure that each training course attendee is armed with the essential information prior to attending the course, allowing more time to be spent on practical application of the product range.

## PRACTICAL TRAINING

Held at one of our state of the art Global Training Centres, our practical training courses provide hands-on experience of Belzona materials under qualified supervision. Whether it is a storage tank, process vessel, pipe or pump application, we provide rigorous training programmes for all industrial areas.

To reserve your place on a training course, contact your local Belzona representative or email [training@belzona.com](mailto:training@belzona.com)

## VALIDATED COURSES

Belzona Validated Training Programme is currently available for:

- Spray and Hand Application of Belzona Linings
- Bonding and Injection
- Flange Face Forming
- Small Bore Nozzle Inserts
- Belzona SuperWrap
  - Installer
  - Supervisor
  - Designer
- Machinery and Equipment
- Buildings and Structures

In addition to the validated courses, we also operate regular awareness courses in various subjects and disciplines. These allow Contractors and Customers alike to gain insight into the fundamentals of polymer technology and the effective use of polymer based products.





ISO 9001:2008  
Q 09335  
ISO 14001:2004  
EMS 509612

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

UK • USA • Canada • Thailand



[www.belzona.com](http://www.belzona.com)