

Belzona Know-How

FOR REPAIRING LEAKING PIPEWORK

HEX-9

Common Problems

- Leaks caused by corrosion.
- Leaks due to fatigue cracking.

Set-up

All work should be carried out in strict accordance with the relevant Belzona® Instructions For Use.

Product selection should be made on the basis of the cause and nature of the damage, temperature and chemical resistance required.

Pipe repairs can be divided in to two categories:

a) Low Pressure Pipe Repairs

These are repairs to pipes operating below 100 psi. In these cases repairs are possible using a combination of a selected Belzona® material and **Belzona® 9341**.

b) High Pressure Pipe Repairs

These are repairs to pipes operating above 100 psi. In these cases Belzona® materials are used in conjunction with a suitable reinforcement patch - usually metallic. These patches will require prefabrication.

Preparation

Where possible, all cracks should be terminated by drilling small holes at the extremities. The crack is then vee-d out using grinding equipment.

Where liquids are flowing from damaged areas, efforts must be made to stem the flow by caulking or peening joints, seams and porous welds. Where there is a definite hole, then wooden or metallic bungs should be used.

An alternative method of temporarily staunching the flow of liquid is to mix an appropriate fast curing grade of Belzona® product and, when semi-cured, force it into the damaged area and hold until the product becomes dimensionally stable.

Having stopped the flow of any liquid, it is now possible to prepare the substrate surrounding the damage.

Firstly, wash down the area with **Belzona® 9111** in order to remove all dirt, grease and surface contaminants.

Roughen the area in the best manner possible, bearing in mind the pipe contents and any restrictions with regard to the use of

mechanical tools. As a general rule, the less effective the preparation the larger the prepared area should be, thus extending the bond area in order to compensate for lack of prepared surface profile (fig. 1).

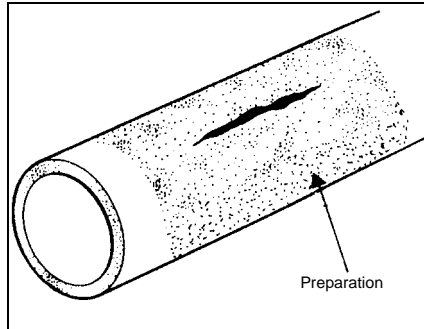


Fig. 1

In all circumstances, the prepared area should be clean (grease free), dry and as rough as possible under the prevailing conditions. Preparation must also extend to any preformed plates used.

Application

Mix the selected Belzona® material in accordance with the Belzona® Instruction For Use.

a) Belzona® Reinforced Repair

Apply a thin layer of Belzona® material to all prepared areas pushing it well into the prepared profile. Wet out a length of **Belzona® 9341** with mixed Belzona® material. The length of the **Belzona® 9341** must be at least twice the pipe circumference. Apply the tape, coated side down, to the repair and wrap firmly around the pipe until the Belzona® product is forced through to the outer surface (fig. 2). Apply a further layer of Belzona® product to completely seal the surface (fig. 3).

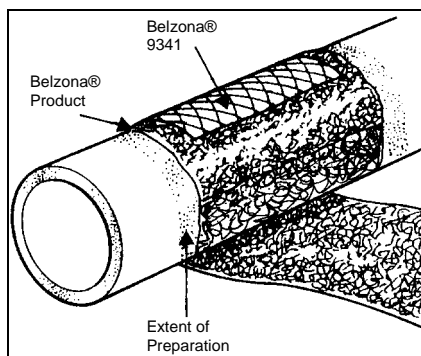


Fig. 2

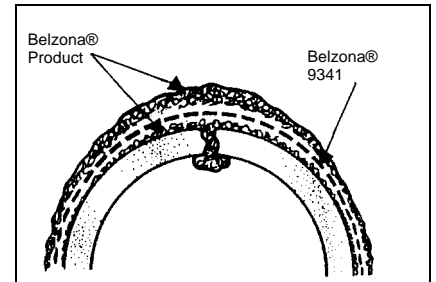


Fig. 3

b) Preformed Patch Repair

Apply a thin layer of Belzona® material to all prepared areas including the preformed patch, forming a peak towards the center.

Push the patch into position ensuring minimal air entrapment. Remove excess material immediately (fig. 4).

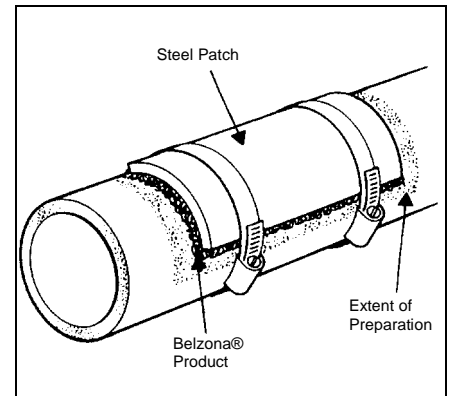


Fig. 4

Allow the Belzona® material to cure in accordance with the Belzona® Instructions For Use before returning to service.

Belzona® Technical Comparison:

Product	Consistency	Adhesion to Steel	Heat Resistance	Working Life at 60°F (15°C)	Full Mechanical Cure at 60°F (15°C)
Belzona® 1111	Paste	High	High	25 minutes	36 hours
Belzona® 1221	Paste	Very High	Medium	4 minutes	90 minutes
Belzona® 1121	Paste	High	Medium	60 minutes	36 hours
Belzona® 1831	Paste	High	Medium	25 minutes	72 hours

Belzona® System Selector:

Main System Requirement	Belzona® 1111	Belzona® 1221	Belzona® 1121	Belzona® 1831
General repairs	•			
Emergency repairs		•		
General repairs where ambient temperatures are high or longer working life is required			•	
Surface tolerant repairs				•

Recommended Equipment:

Mixing and application tools are included in each pack of Belzona®. Prior to carrying out the repair, however, it is important that all other necessary tools and equipment are available on site. Every situation will be somewhat different, but the basic requirements could include those shown to the right.	<ul style="list-style-type: none"> • Bungs/Plugs • Peening Tools • Hammers • Drills • Grinding Equipment/Files 	<ul style="list-style-type: none"> • Preformed Patches • Belzona® 9111 • Belzona® 9341 • Suitable Protective Clothing/Equipment
---	---	---

For more complete technical information, please refer to the appropriate Belzona Product Specification Sheet.
 For detailed instructions on surface preparation, mixing and curing, please refer to the appropriate Belzona Instructions For Use.
 Comprehensive Health and Safety information is provided with the product. For more information, please contact your local Belzona representative.

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.

Nothing in the foregoing statement shall exclude or limit any liability of Belzona to the extent such liability cannot by law be excluded or limited.

Copyright © 2011 Belzona International Limited.



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

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

