

HPR-504-M

HPR-504-M is a high performance rapid curing moisture activated repair bandage, specifically developed for the repair of leaking pipes, which is activated by immersion in water.

HPR-504-M is ideal for pipe repairs to low pressure systems. As a general guide, a repair built up to a thickness of approximately 12mm ($\frac{1}{2}$ ") will withstand a maximum service pressure of 10 bar (150 psi). Higher pressures up to 50 bar can be achieved by first applying a 'plug' of **HPR-527-M** as described herein, always at users discretion.

Product Features

- Easy to apply, requiring no special tools or equipment.
- Specially selected woven polyester fabric impregnated with a polyurethane resin which is activated by immersion in water.
- Ideal for repairing pipes operating at low pressures.
- Designed for use for repairs up to 400mm diameter.
- Can be used on a wide variety of surfaces, including all metals and many types of plastics.

Correct bandage size is relevant to pipe dimension (with holes approximately 3-6mm diameter).

Surface Preparation

All pressure should be removed from the pipe. For leaks where pressure cannot be removed, holes should be stopped using **HPR-527-M**. Remove all oil, grease, loose rust scale, sealant tape and paint from the repair area. Rough score a 10cm (4 inch) patch around the pipe centering on the leak site.

If the pipe is pitted with rust, surfaces must be wire brushed to remove the loose scale. If the surface is smooth, as with copper or stainless steel, surfaces should be roughened with a course file, rasp or saw blade. For plastic pipe, the external mold release must be removed. Abrade surfaces with coarse grit sandpaper. A saw blade may also be used to create a crosshatch pattern. This is particularly useful on polypropylene and PVDF piping.

Application Procedures

Before and during application, lightweight disposable gloves should be worn to protect the hands.

HPR-504-M is a single component material, which should be immersed in water and squeezed two or three times for about five seconds prior to use.

Remove roll from water and wrap quickly and tightly as follows.

Centre tape over leak site, wrap from bottom of roll, pulling firmly throughout application. After 5-7 plies, resin foam will come through the tape, which is desirable and aided by pulling tightly. Continue until entire roll is applied, building to a minimum thickness of 12mm ($\frac{1}{2}$ "), use a second roll if necessary. Firmly press and smooth end of roll into wrap in the direction of application. Wet gloves in water, smooth and firmly press the wet resin back into the wrap.

When used in conjunction with a 'plug' of **HPR-527-M** repair please follow the instructions - Knead a bead of putty in a gloved hand and flatten out into a disc centrally over the hole pressing gently and feathering the edges. Leave to semi-harden (full cure 20 minutes) before applying the tape, although the tape may be applied immediately if necessary.

KEEP HANDS MOVING QUICKLY AND WET GLOVES FREQUENTLY TO AVOID STICKING

Continue rapid hand movement pressing and polishing resin in motions around and parallel to the pipe. Continue process

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until resins are no longer tacky. The repair should now have a smooth, hard surface and an enamel-like appearance with no fabric protruding through the surface.

NOTE: If a thicker application is needed, spend a little less time finishing the first roll and immediately begin the application of the next. Finish the final roll as if a single roll application.

Physical Constraints

Colour	Cream
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The Correct Bandage Size for Pipe Diameter	
Bandage Size	Pipe Nominal Diameter
50mm X 1.7m	>100mm
50mm X 3.6m	>200mm
75mm X 3.6m	>300mm
100mm X 3.6m	>400mm

Volume Solids	100%
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Drying & Cure Times at 20°C (68°F)	
Useable Life	2-3 minutes
Initial Set	5 minutes
Full Mechanical Cure	30 minutes

Maximum Heat Resistance	270°C (500°F)
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Maximum Service Pressure	10 bar (150 psi) - ½ inch / 12mm thick repair 27.5 bar (400 psi) – 1 inch / 25mm thick repair
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Shelf Life
Use within 2 years of manufacture date. Store in original sealed containers at temperatures between 5°C (40°F) and 30°C (86°F).

Technical Data Sheet

Physical Properties

Flexural Strength ASTM D 790	32Mpa (4640 psi)
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Tensile Strength ASTM D 6382	19Mpa (2740 psi)
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Shore D Hardness ASTM D 2240	82
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Adhesion (Bond Strength)	14Mpa (2000 psi)
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Chemical	Resistance
Citric Acid <10%	R
Crude Oil	R
Diesel	R
Formic Acid <10%	R
Zinc Chloride	R
Phosphoric Acid < 10-20-75%	R
Potassium Carbonate	R

Key: R – Resistant for continuous immersion.

Health And Safety:

As long as normal good practice is observed **HPR-504-M** can be safely used. Protective gloves should be worn during use. A fully detailed Material Safety Data Sheet is either included with the material or is available on request.

Legal Notice:

The information provided in this Technical Data Sheet is intended as a general guide only and should not be used for specification purposes. The information is given in good faith but we assume no responsibility for the use made of the product or this information because this is outside the control of PJPC LTD. Users should determine the suitability of the product for their own particular purposes by their own tests.

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