Straight pipe repair patch kit

Kit contents

Pre cut glass fibre sheet

Two part silicate resin bottles (Part A Silicate resin) (part B waterglass hardener)

Packer protection hose

Disposable ground sheet

Resin spreader

2x cable ties

Tie wires

Disposable gloves

Hardware Requirements

Air Compressor

Air-Rods

Packer

Flexible adaptor

Pressure Regulator

Airline

Rope

All Hardware is available from CIPP supplies Ltd

PPE and Safety information

Required PPE; Goggles

Disposable Gloves

Safety boots and Overalls

Do not eat, drink or smoke while handling contents

Ensure adequate ventilation of the working and preparation areas where possible

Uncured resin can be removed easily from skin with soap and water

Sensible precautions must be taken whilst handling resins

Resin information

Two variations of resin are available, Winter(W) and Summer(S)

Winter gives a shorter working and curing time, whilst the summer resin gives more working time and results in a longer curing time in the same conditions.

Working and curing times are only a guide, they are affected by both ambient and the resin temperatures.

Temperatures in the drainage system can be significantly different than the above ground ambient temperature.

Resins should be stored in dry conditions between 15-25*C

Technical Data Sheet LR Silicate Resin Type

Technical Sheet LR Silicate Resin Type W

Installation guide

Before undertaking the repair installation, check you have the required PPE and that safety precautions have been taken. Check expiry dates on the resins supplied. Be sure the affected section of pipe has been surveyed, cleaned and all relevant preparations have been made for the installation of the repair patch. All equipment should be checked to be in a safe and serviceable condition laid out and tested prior to mixing of resin.

STEP 1

Place ground sheet provided on the ground, if possible, in a dry, flat and level area. Keep packer on the ground sheet to prevent any damage or contamination of the packer. Lie packer alongside the packer sleeve provided and mark the required length for the packer being used (packer sleeves are provided in 2.0m lengths). Place packer inside the sleeve and secure at each end with the cable ties provided. Try to minimise the amount of air in the sleeve as this will make it easier to wrap the fibreglass around the packer later. Finally cut excess tie wrap tails.

STEP 2

Check and assess the ambient temperature to calculate working and cure times. Unfold the fibreglass sheet ensuring the shiny side is facing up and place on to the ground sheet.

Next mix the resin, take note of the time to keep track of your working time with the resin.

There are two ways of doing this;

Pour contents of Part B bottle (smaller bottle) into Part A bottle (larger bottle), replace cap securely and shake vigorously for approximately 1 minute, the resin should be a uniform caramel colour.

OR

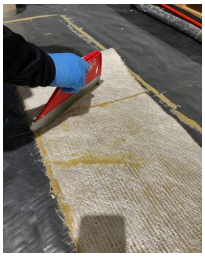
Pour contents of both bottles into suitably sized bucket and mix with a mixer or stirrer until a uniform caramel colour.


Pour half of the mixed resin onto the fibreglass sheet and use the spreader provided to evenly spread the resin, completely covering the fibreglass making sure to coat the edges and corners. Fold one side into the centre then fold the second side into the centre (slightly overlapping the first fold by approximately 20mm) and pour half of the remaining resin on spreading evenly. Turn over the fibreglass sheet and pour the remaining resin onto the final side and spread making sure all surfaces are completely covered and the fibreglass sheet is fully impregnated with resin. Turn fibreglass sheet over with the folded side facing up.

Any resin that runs onto the ground sheet can easily be scooped up and spread back onto the fibreglass.

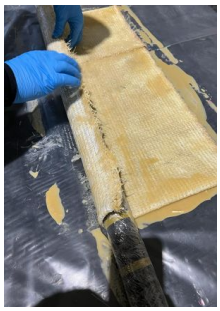
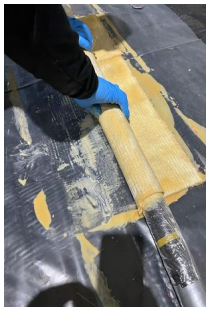
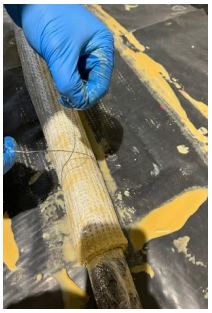
Don’t worry if there is excess resin as this will be forced into the fibreglass when packer is inflated.

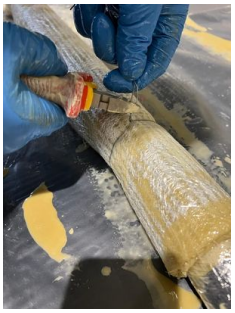





STEP 3

Fold the packer sleeve tightly around the packer. Lay the packer across the fibreglass sheet with each folded end of the sheet facing the ends of the packer, the fold should be vertical to the packer. Tightly roll the fibreglass sheet around the packer taking care not to roll the sleeve into the fibreglass sheet. Secure the fibreglass sheet to the packer using the wire provided. At approximately 25mm from the end of the fibreglass sheet, tightly wrap the wire around the fibreglass and packer securing with one and a half turns to secure the patch to the packer during installation. Snip off the excess wire. Alternatively, you can use the elastic bands provided.



STEP 4

Attach a rope to the eyelet on the end of the packer ready for extraction. Gently inflate the packer slightly being careful not to over inflate and brake the wires, this will minimise the risk of the fibreglass slipping on the packer. Carefully place the packer into the pipe trying to minimise contact with any surfaces on the way in. Attach air-rods to the packer and check all locking connections before commencing the push. Push the packer carefully to the required distance for the repair. Inflate the packer to the desired pressure. Never exceed maximum pressure of the packer!

STEP 5

Wait for the resin to cure. The time for this will vary depending on multiple factors (see resin information). Keep a constant watch over the pressure to make sure the desired pressure stays stable and consistent during the curing time. The excess resin left in the bottle/bucket will give an indication of the progress of the cure. However, it should be considered that the temperature may be different in the pipe which will affect the cure time. If there is any doubt the packer should be left in place as premature removal could cause a failure in the repair.

STEP 6

Lastly, when the cure is complete the packer should be deflated and removed using the rope attached earlier in the process. Remove the sleeve from the packer and dispose of in a responsible and appropriate manner along with the ground sheet and resin bottles. Finally a CCTV inspection should be carried out on the finished repair.

FIRST AID

SKIN CONTACT: Remove and wash off with soap and water

INHALATION: Immediately move to a well-ventilated area, rest and keep warm.

If respiratory difficulties arise, then seek medical attention.

INGESTION: Seek medical attention. Do not induce vomiting

EYE CONTACT: Hold eyelids apart and flush with water. Seek medical attention

This document is a guide only. Patch repairs should be only undertaken by a competent person and all practical precautions taken and considered before using this kit.

CIPP Supplies

LATERAL REPAIRS
OFFICIAL PARTNERS

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LATERAL REPAIRS

TECHNICAL DATA SHEET

LR Silicate Resin Type Waterglass (HARDENER)

Product LR Silicate Resin Type Waterglass (HARDENER)

Components	Density [g/cm³] (t = 23±2 °C)	Properties	Pot life / Product feature
„A" component: Na-waterglass (M≈2)	1,59±3%	fast-setting„ hard, high-strength, chemical resistant, abrasion resistant	~5 minutes, very fast, for Short-Liner (patch repair)
„B" component: isocyanate-containing blend	1,22±3%		

APPLICATION FIELDS OF THE SILICATE RESIN PRODUCTS

Depending on the composition and mixing ratio, workability and hardening times can be chosen in a wide range. Silicate resins are two-component (polyisocyanate - polysilicic acid) systems for the following construction works:

- Water insulation of engineering structures (e.g. pools, containers or secondary containers made of concrete or brick).
- Rehabilitation of industrial and communal wastewater facilities (e.g. surface protection of manholes, no-dig repair of sewer pipes with short or long packer).
- Thick, chemical resistant coatings on technical structures, such as metal or concrete containers.
- Glass fiber reinforced composites for various application purposes.

Characteristics of the Silicate resin components	Characteristic value
Flammability class of the „A" component (Na-waterglass)	non-flammable
Flammability class of the „B" components	flammable
Enclosed space flash point of „B" components	> 170 °C
Open space flash point of „B" components	> 200 °C
Non-volatile content of the "A" component (Na-waterglass) at 105 °C	≤ 50 m/m%
Non-volatile content of the „B" component at 105 °C	≥ 80 m/m%

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Essential characteristics of the hardened Silicate resin	Performance
Compressive strength	≥ 40 MPa
Flexural strength	≥ 20 MPa
Adhesion strength on C16 concrete surface	≥ 3,2 MPa (concrete failure)
Adhesion strength on non-glazed vitrified clay surface	≥ 1,5 MPa
Adhesion strength on hard PVC surface	≥ 1,5 MPa
Linear shrinkage	≤ 0,1%
Abrasion resistance (Taber-Abraser)	≤ 75 mg
Surface water uptake	≤ 24 g/m²•day
Frost resistance* (25 frost-thaw cycles)	resistant
Thermal resistance* in wet and dry air (at +80 °C)	resistant
Water vapor diffusion resistance, 5 mm layer thickness	$14•10^7 – 18•10^7$ m²•s•Pa/g
Water tightness (1 m water column, 24 hours)	watertight
Chemical resistance* tested for: communal waste water, 10% NaOH, 10% HCl, 10% H_2SO_4, saturated NaCl, 5% Na-hypochlorite, crude oil, vegetable oil. * The change of the tested properties may be maximum ±20% compared to the original condition.	resistant

MANUFACTURER'S DECLARATION

The performance of the Silicate resin lining and coating systems is valid if the following conditions are provided:

- The treated surface must be clean, and free of dust, oil, fat and loose particles.
- During proceeding, the material temperature shall be at least 5 °C, and the ambient temperature at least -5 °C. The instruction of the technical guidebook must be followed. The hardened resin coatings can be loaded in a temperature range between -15 °C and +80 °C.
- Lateral Repairs provides the clients with the technical guidebook of the Silicate resins.
- The hardened Silicate resin coatings do not produce emissions that are harmful for the health or for the environment.

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