

LOW VISCOSITY EPOXY ADHESIVE

**ULTRA LOW VISCOSITY, LONG POT LIFE
MOISTURE INSENSITIVE
LOW TEMPERATURE CURE
HIGH MODULUS STRUCTURAL ADHESIVE**

PRODUCT DESCRIPTION

A two-component, 100% solids structural epoxy adhesive used for deep penetration into hairline cracks, sealing and restoring the structural integrity of concrete. Material is pressure-injected or gravity-fed into fine cracks, or can be mixed with Graded Aggregate # 622 for making a patching mortar to fill up to 6mm wide cracks. Pro-Struct 618LV Adhesive meets ASTM C881 Types I and IV, Grade 1, Class B and C.

USES

- Pressure-injection cracks in structural concrete, masonry and wood.
- Sealing pipes, tunnels, cable vaults, tanks and basements.
- Seal concrete slabs from water and chlorides.
- Anti-dusting and case hardening concrete surface dressing.
- Installation of bolts, anchors, dowels and starter bars.
- Binder for epoxy patching mortar on horizontal surfaces.

INSTRUCTIONS

SURFACE PREPARATION: Surfaces must be clean, sound, dry or damp, but free of standing water. Exposed concrete surfaces must be sandblasted or chipped to show the well-bonded main aggregate in accordance with method 3 of "Surface Preparation Methods". Steel should be grit-blasted clean, free of rust, paint or foreign matter likely to affect the bond or performance of the repair.

MIXING: Precondition material to between 10°C and 23°C before using. Premix each component of the kit. Add the activator component to the base component and mix thoroughly for 3 minutes with a slow speed drill. Do not aerate or mix more material that can be placed in 30 minutes. To prepare an epoxy mortar, slowly add pre-packaged Pro-Struct 622 Dry-graded Aggregate to a kit of mixed resin and mix to a uniform consistency.

PLACEMENT: Refer to various methods specified for appropriate use. For crack injection refer to next page.

CLEAN-UP: Clean equipment immediately after use with Pro-Struct 105 Cleaner and rinse with clean water.

LIMITATIONS: Application temperature of substrate to be 4°C and rising. Low temperatures adversely affect flowability and time to gain strength. Hot temperature decreases working time. Do not apply over free standing water. Do not thin with solvent. Do not inject moving or leaking cracks. Minimum age of concrete must be 28 days.

CAUTION: Contains epoxy and amine resins. Product may cause skin irritation. Do not inhale vapours. Provide adequate ventilation. Protect against contact with skin and eyes. Wear rubber gloves, protective clothing and goggles. Prior to use, refer to Material Safety Data Sheet.

TYPICAL PROPERTIES AT 25°C

Colour	Clear Amber
Viscosity	Less than 200 CPS
Gel Time	60 Minutes
Coverage	1m ² /litre at 1mm thick
Bond Strength	> 14 MPa
Water Absorption	0,85%
Compressive Strength	> 73 MPa
Compressive Modulus	> 1500 MPa
Tensile Strength	> 51 MPa
Elongation of Break	3%
12mm Rebar Pullout (Embedment Depth 120mm)	Steel bar failure at 55 MPa
Heat Deflection	> 50°C
Solids Content	100%
Mixing Ratio by Volume	Base : Activator 2:1
Surface Temperature	4°C to 35°C
Shelf Life	18-24 Months

APPLICATION INSTRUCTIONS

These instructions are not intended to show product recommendations for specific service. They are issued as an aid in determining correct surface preparation, mixing instructions and application procedure. It is assumed that the proper product recommendations have been made. These instructions should be followed closely to obtain the maximum service from the materials.

SPECIFICATION FOR CRACK INJECTION

INTRODUCTION

This specification covers the surface sealing and injection of cracks in concrete structures using Pro-Struct 617NS and Pro-Struct 618LV.

METHOD A (By pressure injection) – Vertical Walls NIPPLE SETTING AND SURFACE SEALING

1. The crack must be inspected to ensure that it is clean and free of standing water.
2. Prepare a section of the concrete on either side of the crack by mechanically wire brushing or lightly sandblasting.
3. Using a masonry drill, drill a hole $\pm 8\text{mm}$ in diameter into the crack to a depth of $\pm 20\text{mm}$. Once hole is drilled, ensure that the crack can be seen at the bottom of the hole. This is important, as quite often the crack does not go straight back from the surface into the body of the concrete. One further point to remember is that all remaining dust from the drilling must be removed from the holes.
4. The spacing of the holes will depend on the width of the crack with the following parameters being used as a guide:
 - a) Cracks up to 250 microns: $\pm 150\text{mm}$ centers
 - b) Cracks bigger than 250 microns $\pm 250\text{mm}$ centers
5. Once all the holes are drilled, the setting of the nipples and surface sealing of the crack can proceed.
6. A 6mm x 25mm standard grease nipple is used and this is set into position with Pro-Struct 617NS. Care must be taken to ensure that the Pro-Struct 617NS does not restrict the resin path during the setting process.
7. The balance of the crack between the injection points must then be surface-sealed in a band $\pm 80\text{mm}$ wide with the Pro-Struct 617NS being applied 2mm thick directly over the crack. The Pro-Struct 617NS must be allowed to set before proceeding.

PRESSURE INJECTION

1. The resin used for the injection process is Pro-Struct 618LV. The material is supplied in two attached containers which are separated by prising off the upper tin. The contents of the smaller container must be poured into the larger container and mixed together for 3 minutes.
2. Once thoroughly mixed, the injection can proceed starting from the lowest point and working upwards.
3. The Pro-Struct 618LV can be injected with a pressure gun or hand-operated grease gun. Injection should proceed slowly and nipples above the injection point should be vented with a straight pin (dressmaker's type) to check resin flow.

4. As soon as the resin is seen to exit the next higher nipple, the injection must move to this point. The process should continue until the resin has spread along the length of the crack. It is normally a good practice to return to the lowest point and repeat the operation again to ensure that the crack is completely filled and all air displaced.
5. On completion of the injection process, the Pro-Struct 618LV must be allowed to cure for ± 24 hours before removing the nipples and grinding the Pro-Struct 617NS flush with the concrete. Should it be necessary, the concrete can be touched up with Pro-Struct 511 Con Seal.

METHOD B (By gravity feed) – Surface Beds CRACK PREPARATION

1. Remove loose particles of concrete and vacuum clean. Ensure that the crack is clean, sound and dry.
2. Form temporary burn on either side of the crack with a bead of silicone or quick setting cement grout. Allow sealant or grout to set.

GRAVITY INJECTION

1. Mix the Pro-Struct 618LV as detailed above and then transfer into suitable pouring container.
2. Slowly feed the liquid resin into the crack over the entire length and continue the process until the crack is filled.
3. Allow the resin to penetrate and settle for ± 1 hour and then top up the crack until the material is flush with the adjacent concrete surface.
4. Allow the resin to cure for ± 24 hours before removing temporary surface burns and lightly sanding or grinding the concrete to remove surface stains, etc.

GENERAL

The exact method of surface sealing will differ from application to application. However, suspended slabs are normally injected from the soffit with the top of the crack left open. Beams, columns and diaphragm walls should be sealed on all faces with nipples on one face only. Once again this can vary and will depend on the size of crack, etc. Injection work has been done on retaining walls with back-fill earth in position. The problem with this application is that the Pro-Struct 618LV tends to drain into the soil. This problem can be overcome by using Pro-Struct 617NS.

CAUTION: MAY CONTAIN FLAMMABLE SOLVENTS. KEEP AWAY FROM SPARKS AND OPEN FLAMES. IN CONFINED AREAS WORKMEN MUST WEAR FRESH AIRLINE RESPIRATORS. HYPERSENSITIVE PERSONS SHOULD WEAR GLOVES OR USE PROTECTIVE CREAM. ALL ELECTRONIC EQUIPMENT AND INSTALLATIONS SHOULD BE MADE AND GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. IN AREAS WHERE EXPLOSION HAZARDS EXIST, WORKMEN SHOULD BE REQUIRED TO USE NONFERROUS TOOLS AND TO WEAR CONDUCTIVE AND NONSPARKING SHOES



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