ADHESIVE

DURAL 618LV

LOW VISCOSITY EPOXY ADHESIVE

EUCLID CHEMICAL

PACKAGING
DURAL 618LV is packaged in 1 Litre kits

APPROXIMATE YIELD
50 Linear metres/litre, 20mm deep, 1mm wide

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

SHELF LIFE
24 Months if stored between 15°C to 30°C.

DESCRIPTION

DURAL 618LV is a 2-component, solvent-free structural epoxy liquid 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. Dural 618LV Adhesive meets ASTM C881 Types I and IV, Grade 1, Class B and C.

PRODUCT CHARACTERISTICS

FEATURES / BENEFITS
- Ultra low viscosity, long pot life
- Moisture insensitive
- Low temperature cure
- High modulus structural adhesive

PRIMARY APPLICATIONS
- 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

TECHNICAL INFORMATION

The following are typical values obtained under laboratory conditions. Expect reasonable variation under field conditions.

TYPICAL PROPERTIES	AT 25°C
Colour	Clear Amber
Consistency	Thin liquid
Volume Solids	100%
Number of Components	2
Mix Ratio By Volume (Base:Activator)	2:1
Pot Life	40 to 60 Minutes
Apply Over	Dust, dirt and water-free cracks
Apply By	Gravity pour or pressure inject
Initial Set	12 Hour at 25°C 20 Hours at 4°C
Service	24 Hours
Full Cure	3 Days
Application Temperature Range	4°C to 35°C
Maximum Service Temperature	>50°C
Compressive Strength	>60 MPa at 24 hours >73 MPa at 3 days
Concrete Bond Strength 12mm Rebar Pull-out Depth 126mm 16mm Rebar Pull-out Depth 160mm 20mm Rebar Pull-out Depth 200mm	Breaks concrete Bar failure at 50KN Bar failure at 92.6KN Bar failure at 140KN
VOC	4g/litre

DIRECTIONS FOR USE

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: Pre-condition material to between 10°C to 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 than can be placed in 30 minutes. To prepare an epoxy mortar, slowly add pre-packaged Stonhard 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 the next section.

METHODOLOGY FOR CRACK INJECTION:

INTRODUCTION: This methodology covers the surface sealing and injection of cracks in concrete structures using Dural 617NS and Dural 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 this crack by mechanical grinding or lightly sandblasting.
3. Using a masonry drill, drill a hole ± 8mm in diameter into the crack to a depth of ± 20mm. 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 ± 150mm centers
   b) Cracks bigger than 250 microns ± 250mm centers
5. Once all the holes are drilled, the setting of the nipples and surface sealing of the cracks can proceed.
6. A 6mm x 25mm standard grease nipple is used and this is set into position with Dural 617NS. Care must be taken to ensure that the Dural 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 ± 80mm wide with the Dural 617NS being applied 2mm thick directly over the crack. The Dural 617NS must be allowed to set before proceeding.

PRESSURE INJECTION:
1. The resin used for the injection process is Dural 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 Dural 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 Dural 618LV must be allowed to cure for ± 24 hours before removing the nipples and grinding the Dural 617NS flush with the concrete. Should it be necessary, the concrete can be touched up with Pro-Struct 511 Conseal.

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 berm 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 Dural 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 berms 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 backfill earth in position. The problem with this application is that the Dural 618LV tends to drain into the soil. This problem can be overcome by using Dural 617NS.

PRECAUTIONS / LIMITATIONS

- Application temperature of substrate to be 4°C and rising. Low temperatures adversely affect application spread rates and time to achieve bond.
- Hot temperatures decrease working time.
- Do not apply over wet surfaces.
- Do not thin with solvent.
- Use materials in strict accordance with the manufacturer's Safety Data Sheet.
- Protective clothing and equipment will significantly reduce risk of injury.
- Body coverage apparel, safety goggles and impermeable gloves are recommended.
- In case of contact, flush with copious amounts of water and seek medical attention.
- Dispose of waste materials and containers in strict accordance with Government regulations.