

<b>Activiteit: Werkinstructie aanbrengen injectie bij lekkage</b>	<b>Object: Vloer tunnelmoot</b>	<b>WP(A):</b> WP-00053 - Realiseren team 2 onderzoeken	<b>Moment van uitvoering:</b> <b>Week xx 2023</b>
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**Afbeelding/tekening/schets:**

**Stap 1:** ingeval van vrijmaken ankerkop wordt er na locatie bepaling van anker en conus onderstaande stappen uitgevoerd

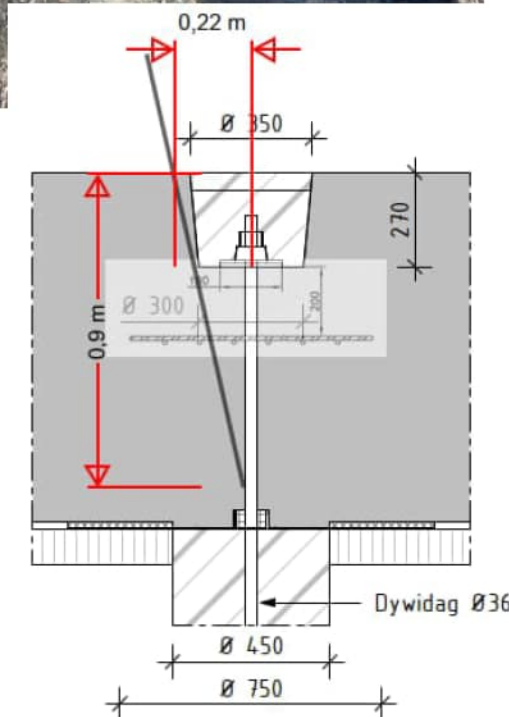
**Stap 2:** Aanbrengen boring tbv injectie (zie ook afbeelding rechtsonder)

- Uitvoering net naast de conus uitvoeren, zodat boring gedurende het verwijderen van de conus intact blijft
  - o  $\varnothing 12$  boring indien er met SDS geboord wordt ivm intact houden anker
  - o  $\varnothing 40$  boring indien er met diamant geboord word (indien dit nodig is zal dit door derden uitgevoerd worden)
- **Verwachte diepte boring ca 0,9 m**
- **Aanbrengen vulnippel**
- Let op vloerdikte varieert van 0,9 m (mt 10) tot 1,7m (mt 21)
  - o Mt 26 is 1,3 m dik (theoretisch)
- Let op op ca 0,47m onder constructieve beton zit nog wel een wapeningsnet  $\varnothing 12-100$ , hier mag gewoon door heen geboord worden.

**Stap 3:** Bij te groot waterbezwaar tijdens werkzaamheden wordt er door de aanwezig zijnde uitvoerder beslist een injectie aan te brengen door het reeds aangebrachte boorgat. Dit kan middels:

- PURINJECT 1C 115 ECO
- ACRYLINJECT R

Zie ook bijgevoegde specificatie, hierover wordt vooraf overlegt tussen uitvoerder en Soil-ID



**Veiligheid**

- Standaard PBM (schoenen, helm, oranje jas/hesje en oranje broek)
- Gehoorbescherming
- Veiligheidsbril

**Risico's**

**Wie doet wat**

Uitvoerder VSF begeleid  
Medewerker(s) **Soil-ID ( $\varnothing 12$  boring en aanbrengen injectie)**

**Benodigd materieel en materiaal**

- persstop diverse diameters
- injectie, zie ook bijgevoegd spec's

<b>Ondertekening</b>	<b>Eisen en keuringen:</b>	<b>Raakvlakken</b>	<b>Benodigde tekeningen</b>	<b>Maatvoering</b>
Opsteller Naam: [redacted] 5.1.2.e Mobiël: [redacted]	- Vast leggen toegepast injectie middel			o.b.v. locatie ....
Projectleider Naam: [redacted] Mobiël: [redacted]				
Uitvoerder Naam: [redacted] Mobiël: [redacted]				

One component, solvent free, polyurethane injection system ideally suitable for crack injection/water leaks in concrete and masonry structures. Reaction with water yields a semi-rigid polyurethane foam (slightly flexible). To be injected with a one-component pump. Use with 6 to 10% catalyst.

## HOW DOES PURINJECT 1C 115 ECO WORK?

Reaction with water yields a polyurethane semi-rigid foam (slightly flexible). The formation of CO<sub>2</sub> makes the foam penetrate very well into the cracks. The reaction speed can be adapted easily by varying the accelerator or catalyst content from 6% to 10%. The more catalyst is added, the faster the reaction velocity. The end product neither shrinks nor swells. A good compression strength is obtained in a very short time. Free expansion: +4000%.

## APPLICATION PRESCRIPTIONS

Shake the catalyst well. Mix the resin and the accelerator in a ratio of 6% to 10% in function of the desired reaction speed. For injection: use packers and a 1 component pump (manual or automatic). PURINJECT 1C 115 ECO is very hygroscopic and packed under dry atmosphere. Use opened containers as soon as possible or recap under dry nitrogen. Pumps should be cleaned with PURCLEAN, a cleaning product specially developed for cleaning of polyurethane injection pumps.

## TECHNICAL DATA

Physical characteristics of the uncured polyurethane prepolymer		
Subject	Value	Norm
Density	1,158 g/cm <sup>3</sup>	EN ISO 2811-2:2002
Viscosity	96 mPa.s	EN ISO 3219:1994
Isocyanate	18,1 M.-%	EN 1242:2006
Flash point	> 150 °C	
Colour	Brown	

Physical characteristics of the catalyst		
Subject	Value	Norm
Density	0,889 g/cm <sup>3</sup>	EN ISO 2811-2:2002
Viscosity	21 mPa.s	EN ISO 3219:1994
Flash point	> 150 °C	
Colour	Transparent	

## REACTION TIME

Quantity of catalyst	Reaction	Polymerisation
6%	15 seconds	70 seconds
8%	12 seconds	55 seconds
10%	9 seconds	45 seconds

Indication at 20 °C. Free expansion: 4000% of starting volume.

## PACKAGING

Standard packaging:

- 25 kg resin and 2,5 litre catalyst  
Pallet: 600 kg resin and 60 litres of catalyst
- 10 kg resin and 1 litre catalyst  
Pallet: 750 kg resin and 75 litres of catalyst

Other type of packaging available on request. Can be supplied under private label.

## STORAGE

To avoid problems, it is very important to understand that these materials are both temperature and moisture sensitive. Therefore, materials should be stored in an area with temperatures not exceeding 30°C or not lower than 10°C. The maximum shelf life is one year. All partly used drums should be covered by nitrogen and resealed to prevent the ingress of moisture.

## SAFETY AND HEALTH PRECAUTIONS

Do not breathe dust/fume/gas/mist/vapours/spray.  
In case of inadequate ventilation wear respiratory protection.  
Wear protective gloves/clothing and eye/face protection.  
**If in eyes:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
**If on skin or hair:** Take off immediately all contaminated clothing. Rinse skin with water/shower.  
For more information, consult the safety data sheet.

Methacrylate based injection system for sealing and consolidation works in presence of water.



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0370-CPR-2739  
EN 1504-5  
Concrete injection product

## APPLICATIONS

The ACRYLINJECT R system is used for sealing and consolidation works in presence of water. The substance is injected through packers or injection hoses. The low viscosity of the product assures high fluidity. It's a hydrophilic system with a controlled set time used in the following applications:

- Treatment of water infiltration and ground water ingress.
- Treatment of soils.
- Treatment of voids and cavities, in the form of sand grouts.
- Injection of water bearing cracks in concrete or masonry walls.
- Injection of (re-) injectable injection hoses.
- Injection of compartments in (PVC) liners.

## APPLICATION PRESCRIPTIONS

- **The following mixtures need to be prepared**  
Mixture 1: ACRYLINJECT R Resin (A1) + ACRYLINJECT catalyst (A2)  
Mixture 2: ACRYLINJECT Initiator (B1) + water (alternatively ACRYLINJECT Polymer (B2))  
The mixtures are then mixed in ratio of 1:1  
Prepare the mixture of components A1 and A2 and B1 + water in two opaque plastic containers each with a lid. Take an equal volume of each component and check the setting time of the mixture. Adjust the ratio if necessary. The mixture of component A1 and A2 is stable for at least a few hours, if kept covered in a cool and dry place even longer. The mixture of component B1 + water is stable for a few days below a temperature of 25°C.
- **Application**  
For slow setting one can use a mono-component pump. Only prepare amounts that can be injected before the gel sets by mixing one volume of components A1 and A2 and one volume of components B1 and water. For all types of setting, the use of a two component methacrylate pump is recommended. Both the mixtures are injected in a volume ratio of 1:1.
- **Handling**  
When handling the ACRYLINJECT R system, observe the recommendation set out in the MSDS sheets. Only stainless steel or plastic containers can be used (PVC, polyethylene, polypropylene). Avoid any contact between the A2 component or catalyst and the B1 component or initiator without having been diluted in their respective mixture (resin + cat and initiator + water). The mixtures have to be perfectly homogeneous before use. Do not add more than three volumes of water. Cleaning of equipment: water.

## HOW DOES ACRYLINJECT R WORK?

The ACRYLINJECT R system is a non-toxic aqueous solution of multifunctional methacrylates. The compound gels in a few seconds to a few minutes when an activator or initiator is added just before use. The final product is a soft and tacky crosslinked gel. In wet or dry conditions, the volume of the gel increases or decreases in a reversible manner assuring perfect waterproofing.

## PROPERTIES OF THE INJECTION FLUID

- **Composition**  
The standard injection fluid is obtained by mixing two mixtures in a ratio of 1:1. However depending on the conditions of the injected substrate the quantity of water present in the injection solution may be up to 3 times the volume of resin.
- **Viscosity**  
The viscosity of the ACRYLINJECT solution will depend on the temperature and dilution. It will remain constant up to the setting point.
- **Setting point**  
Gelling slows down at low temperature but still fast even below 0°C. In acid conditions the reaction is slowed down, while under alkaline conditions the reaction is speeded up. The presence of minerals and metals (specially iron and copper) may increase or decrease the rate of setting, depending on their concentration. When immersed in water the unconfined gel can absorb up to 2 times its own weight of water in a few weeks without cracking. Under humid conditions the volume of the gel will remain approximately constant. In the absence of water, the gel will slowly shrink, without cracking. These dimensional changes are reversible and do not degrade the gel. For better control of dry-wet cycles use ACRYLINJECT Polymer.

## TECHNICAL DATA

The ACRYLINJECT R system consists of three products:

- Component A1: ACRYLINJECT R resin.
- Component A2: ACRYLINJECT catalyst, a liquid activator for standard setting times between 10 seconds and 30 minutes.
- Component B1: ACRYLINJECT initiator, in powder form to be dissolved in water.

Characteristics	
Appearance	Orange liquid
Active content	42%
Water solubility	Soluble
pH	6,5-7,0
Density	1,2 kg/l
Viscosity at 20°C	33 mPa.s (EN ISO 3219)
Dry-wet cycles	Conform (EN 14498)

**REACTION TIME**

Initiator (B1) per 20 kg Water	Catalyst (A2) per 20 kg resin (A1)	Reaction time
0,5 kg	0,5 kg	6'01
0,5 kg	1,0 kg	1'15
0,5 kg	2,0 kg	0'35
0,8 kg	0,5 kg	4'35
0,8 kg	1,0 kg	1'05
0,8 kg	2,0 kg	0'25
0,8 kg	3,0 kg	0'15

Setting time at 20°C. Resin/water ratio of 1:1.

**PACKAGING**

- A1 component (resin): 20 kg pails
- A2 component (catalyst): 3 kg
- B1 component (initiator): 1 kg
- B2 component (polymer): 25 kg

Can be supplied under private label.

**STORAGE**

Store at a temperature above 0°C and below 25°C. Do not expose directly to light or sunlight. Storage in these conditions for min. 12 months.