de neef®

# HA Cut™ CFL AF

## Next generation, phthalate free, closed cell, 1-component, high performance, low viscosity, hydrophobic, hydro-active, semi-rigid polyurethane injection grout for cutting off gushing water leaks with a high flow rate and/or high hydrostatic pressure in applications where both high strength and flexibility are required

### Product Description

In its uncured form, HA Cut™ CFL AF is a dark brown, non-flammable liquid without phthalate plasticisers. HA Cut CFL AF is a next generation 1- component injection resin with improved waterproofing and water cutting performance. When it comes in contact with water, the grout expands and quickly (depending on temperature and the amount of catalyst HA Cut Cat AF used) cures to a tough, semi-rigid, closed-cell polyurethane foam that is generally unaffected by corrosive environments.

### Product Advantages

- ADR free transport.
- Next generation resin with improved waterproofing performance.
- Improved cell structure of the cured compound resulting in better mechanical properties and durability.
- Phthalate free resins, REACH compliant.
- Improved performance at temperatures below 5 °C, no crystallisation of HA Cut Cat AF.
- Fast, Extra-Fast and Super Extra-Fast catalysts available for applications where the standard catalyst reaction speed is insufficient due to low temperatures or very high water flow (See respective Technical Data Sheet).
- HA Cut CFL AF forms a semi-rigid gasket with high strength and a small amount of flexibility in the joint or crack.
- Non-flammable, solvent free.
- User friendly: 1-component material.
- Controllable reaction times: by using catalyst curing times can be reduced.
- Cured compound is resistant to most organic solvents, mild acids, alkalis and micro-organisms (*).

(*) For chemical resistances please contact your local GCP representative.

### Field of Application

- Designed for cutting off gushing water leaks with a high flow rate and/or high hydrostatic pressure in moving or non-moving joints or cracks.
- Used to block leaks into diaphragm walls.
- Filling large voids such as rock fissures, crushed faults, gravel layers, joints, cracks and honeycombs in concrete structures that are subjected to small settlement or movement.
- For curtain injections behind tunnel segments.
- For screen injection behind porous structures when high velocity water streams are present.

### Application

Before commencing the injection, consult the Technical Data Sheets and Material Safety Data Sheet (MSDS) in order to be familiar with the materials at hand. Always shake the HA Cut Cat AF well before use.

**1. Surface Preparation**

- Remove surface contaminants and debris to establish the pattern of the crack or joint. Active leaking cracks larger than 3 mm need to be sealed with an approved method.
- Drill holes of the correct diameter for the selected packer. Drill at an angle of 45°. Preferably the holes should be drilled staggered around the crack to insure good coverage of the crack in case it is not perpendicular to the concrete surface.

- The depth of the bore should be approximately half of the thickness of the concrete. As a rule of thumb the distance of the drill point from the crack is half the wall thickness.
- Distance between holes can vary by 15 to 90 cm, depending on the actual situation.
- Insert the correctly sized packer into the hole up to 2/3 of its length. Tighten with a wrench or spanner by turning clockwise until sufficient tension has been reached to keep the packer in place during injection.
- Flush the crack with water before injecting with resin. This will flush out dust, debris and prime the crack for the injection resin and improve penetration of the product into the crack. Water in the crack will activate the resin.

**2. Resin and Equipment Preparation**

- Prepare the resin with the predetermined amount of catalyst. Shake HA Cut Cat AF well before use.
- No reaction with the resin will occur until the resin comes into contact with water.
- Protect the resin from water, since this will trigger a reaction in the container used and might cause the resin to harden or foam prematurely within the injection equipment.
- It is highly recommended to use separate pumps for the water and the resin injection to prevent cross contamination and blockages.
- The pumps should be thoroughly primed with Washing Agent Eco to lubricate and dry the system before injection. We recommend the use of pneumatic or electric 1-component pumps.

**3. Injection**

- Start the injection at the first packer.
- Start injecting at the lowest pressure setting of the pump. Slowly increase the pressure until the resin begins to flow. Pressures may vary from 14 bars to 200 bars depending on the size of the crack, the thickness of the concrete and the general condition of the concrete.
- A little leakage of resin through the concrete or crack is useful in showing the extent of resin travel. Large leaks should be plugged with rags, wait for the resin to set, then inject again.
- During the injection water will first flow from the crack, followed by foaming resin. After this, pure resin will flow from the crack.
- Stop pumping when the pure resin reaches the next packer.
- Move to the next packer and repeat the procedure.
- After injecting through a few of the packers, go back to the first one and re-inject with resin.
- After the resin injection, water can be re-injected into the ports to cure resin left behind.
- Let the resin cure thoroughly before removing packers. The resulting holes can be filled with hydraulic cement.
- When the injection is finished, clean all tools and equipment which have been in contact with the resin with Washing Agent Eco. This should be done within 30 minutes. Do not use solvents or other cleaning products since they give less positive results and can create hazardous situations.
- Products should be disposed off according to local legislation.

## Technical Data / Properties

| Property | Value | Norm |
|---|---|---|
| **HA Cut CFL AF** | | |
| **Uncured** | | |
| Solids | 100% | EN ISO 3251 |
| Viscosity at 25°C (mPas) | Approx. 350 | EN ISO 3219 |
| Density (kg / $dm^3$) | Approx. 1.075 | EN ISO 2811 |
| Flash Point (°C) | 140 | EN ISO 2719 |
| **HA Cut Cat AF** | | |
| Viscosity at 25°C (mPas) | Approx. 15 | EN ISO 3219 |
| Density (kg / $dm^3$) | Approx. 0.950 | EN ISO 2811 |
| Flash Point (°C) | 70 | |
| **Cured** | | |
| Density (kg / $dm^3$) | Approx. 1.000 | EN ISO 1183 |
| Compressive Strength (MPa) | Approx. 9.5 | EN 12190 |
| Flexural Strength (MPa) | Approx. 9 | EN 12190 |

**4. Reactivity**

| Reactivity | % HA Cut Cat AF | Start Reaction | End Reaction | Foam Factor |
|---|---|---|---|---|
| At 5°C | 2 | Approx. 3'20" | Approx. 18'30" | Approx. 12V |
| | 3 | Approx. 2'00" | Approx. 12'30'' | Approx. 15V |
| | 5 | Approx. 1'20'' | Approx. 8'00" | Approx. 17V |
| | 10 | Approx. 45" | Approx. 4'20" | Approx. 22V |
| At 10°C | 2 | Approx. 2'40" | Approx. 16'00" | Approx. 14V |
| | 3 | Approx. 1'35" | Approx. 11'30' | Approx. 18V |
| | 5 | Approx. 55" | Approx. 6'30" | Approx. 20V |
| | 10 | Approx. 40" | Approx. 3'50" | Approx. 25V |
| At 15°C | 2 | Approx. 2'15" | Approx. 14'15" | Approx. 16V |
| | 3 | Approx. 1'15" | Approx. 9'30' | Approx. 20V |
| | 5 | Approx. 50" | Approx. 5'45" | Approx. 22V |
| | 10 | Approx. 40" | Approx. 3'35" | Approx. 25V |
| At 20°C | 2 | Approx. 1'40" | Approx. 12'30" | Approx.17V |
| | 3 | Approx. 1'00' | Approx. 8'35" | Approx. 20V |
| | 5 | Approx. 45" | Approx. 5'00" | Approx. 23V |
| | 10 | Approx. 35" | Approx. 3'10" | Approx. 26V |
| At 25°C | 2 | Approx. 1'10" | Approx. 10'35" | Approx. 17V |
| | 3 | Approx. 55" | Approx. 7'45'' | Approx. 21V |
| | 5 | Approx. 40" | Approx. 4'40" | Approx. 24V |
| | 10 | Approx. 30" | Approx. 2'45" | Approx. 27V |
| At 30°C | 2 | Approx. 1'00" | Approx. 8'35" | Approx. 20V |
| | 3 | Approx. 50" | Approx. 6'45" | Approx. 22V |
| | 5 | Approx. 35" | Approx. 3'35" | Approx. 25V |
| | 10 | Approx. 25" | Approx. 2'25" | Approx. 28V |
| At 35°C | 2 | Approx. 55" | Approx. 7'25" | Approx. 21V |
| | 3 | Approx. 40" | Approx. 5'55" | Approx. 23V |
| | 5 | Approx. 30" | Approx. 3'05" | Approx. 25V |
| | 10 | Approx. 20" | Approx. 2'00" | Approx. 28V |

## Appearance

HA Cut CFL AF: Dark brown liquid.

HA Cut Cat AF: Red liquid.

## Consumption

Has to be estimated by the engineer or operator and depends on the size of the cracks and voids which need injecting, and on the expansion rate of the chosen resin.

## Storage

HA Cut CFL AF is sensitive to moisture and should be stored in original containers in a dry area. Storage temperature must be between 5°C and 30°C. Once the packaging has been opened, the useful life of the material is greatly reduced and should be used as soon as possible.

Shelf life: 2 years.

## Packaging

**HA Cut CFL AF**

5kg, 25kg or 200kg metal drums
1 Pallet: 180 x 5kg drum
24 x 25kg drum
4 x 200kg drum

**HA Cut Cat AF**

0.5 or 2.5L plastic bottle or 20kg metal drum
1 box = 8 x 0.5L
1 box = 5 x 2.5L
1 Pallet: 84 boxes with 0.5L bottles
40 boxes with 2.5L bottles
24 x 20kg metal drums

## Accessories

**To be ordered separately**

- IP 1C - Manual hand pump.
- IP 1C - Compact electric airless diaphragm pump.
- IP 1C - Pro electric airless diaphragm pump.
- Packers and connectors.

(Please consult the relevant data sheet).

## Health and Safety

HA Cut CFL AF is classified as harmful.

HA Cut Cat AF is classified as irritant.

In case of spills and accidents, refer to the Material Safety Data Sheet of the products or when in doubt contact your local GCP representative.

Always wear protective clothing, gloves and protective goggles when handling chemical products.

For full information, consult the relevant MSDS.

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