DE NEEF® HA CUT AF

Next generation, non-phthalate , closed cell, 1-component, high performance, low viscosity, hydrophobic, hydro-active, rigid polyurethane injection grout for cutting off gushing water leaks with a high flow rate and/or high hydrostatic pressure

Product Description

In its uncured form, DE NEEF® HA Cut AF is a dark brown, non-flammable liquid without phthalate plasticisers. DE NEEF® HA Cut 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 DE NEEF® HA Cut Cat AF used) cures to a tough, 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.
- Non-phthalate resins, REACH compliant .
- Improved performance at temperatures below 5°C, no crystallisation of DE NEEF® 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).
- DE NEEF® HA Cut AF forms a rigid gasket with high strength in the joint or crack.
- Non-flammable, non-solvent formulation .
- 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 (*).
- KTW Potable Water approved.

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

Field of Application

- Designed for cutting off gushing water leaks with a high flow rate and/or high pressure.
- Used to block water leaks in diaphragm walls.
- Filling large voids such as rock fissures, crushed faults, gravel layers, joints, cracks and honeycombs in
- concrete structures that are not subject to settlement or movement.
- Pre-injections for waterproofing and consolidation in front of the TBM, with drill-and-blast and NATM
- under wet condition.
- In combination with cement and micro-fine cement for DE NEEF® Combi-Grouting and DE NEEF® Combi-Block techniques.
- For curtain injection into gravel for containing chemicals under wet or dry conditions.
- For screen injection behind porous structures when high velocity water streams are present.

Application

Before commencing the injection, consult the Technical Data Sheets and Safety Data Sheet (SDS) in order to be familiar with the materials at hand. Always shake DE NEEF® 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 DE NEEF® 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 DE NEEF® Washing Agent to lubricate and dry the system before injection. We recommend the use of pneumatic or electric 1-component pumps. 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 DE NEEF® Washing Agent. 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 according to local legislation.

3. Reactivity

REACTIVITY	% HA CUT CAT AF	START REACTION	END REACTION	FOAM FACTOR
At 5°C	2 3 5 10	Approx. 2'20" Approx. 1'40" Approx. 1'10'' Approx. 45"	Approx. 13'20" Approx. 11'00' Approx. 5'35" Approx. 3'05"	Approx. 15V Approx. 21V Approx. 22V Approx. 25V
At 10°C	2 3 5 10	Approx. 2'00" Approx. 1'20" Approx. 55" Approx. 40"	Approx. 11'30" Approx. 9'10' Approx. 5'00" Approx. 2'50"	Approx. 19V Approx. 21V Approx. 24V Approx. 28V
At 15°C	2 3 5 10	Approx. 1'40" Approx. 1'10" Approx. 50" Approx. 35"	Approx. 9'40" Approx. 7'45" Approx. 4'45" Approx. 2'35"	Approx. 20V Approx. 22V Approx. 25V Approx. 28V
At 20°C	2 3 5 10	Approx. 1'20" Approx. 1'00" Approx. 45" Approx. 30"	Approx. 8'00" Approx. 6'30" Approx. 4'35" Approx. 2'10"	Approx.20V Approx. 23V Approx. 27V Approx. 29V
At 25°C	2 3 5 10	Approx. 1'10" Approx. 55" Approx. 40" Approx. 30"	Approx. 7'35" Approx. 6'10" Approx. 4'00" Approx. 2'05"	Approx. 21V Approx. 24V Approx. 28V Approx. 30V
At 30°C	2 3 5 10	Approx. 1'00" Approx. 50" Approx. 35" Approx. 25"	Approx. 7'10" Approx. 5'35" Approx. 3'35" Approx. 1'55"	Approx. 22V Approx. 25V Approx. 29V Approx. 30V
At 35°C	2 3 5 10	Approx. 55" Approx. 45" Approx. 30" Approx. 20"	Approx. 5'40" Approx. 4'45" Approx. 2'55" Approx. 1'50"	Approx. 22V Approx. 25V Approx. 29V Approx. 30V

Packaging

DE NEEF® HA Cut AF

5kg, 25kg or 200kg metal drums

1 Pallet	180 x 5kg drum 24 x 25kg drum 4 x 200kg drum

DE NEEF® 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

Storage

DE NEEF® HA Cut 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.

Accessories

To be ordered separately

- DE NEEF® IP 1C - Manual hand pump.
- DE NEEF® IP 1C - Compact electric airless diaphragm pump.
- DE NEEF® IP 1C - Pro electric airless diaphragm pump.
- DE NEEF® Washing Agent
- Packers and connectors

Health and Safety

Read and understand the product label and Safety Data Sheet (SDS) for each system component. All users should acquaint themselves with this information prior to working with the products and follow the precautionary statements. Always wear protective clothing, gloves and protective goggles. SDSs can be obtained by contacting your local GCP representative or office.

Technical Data / Properties

Property		Value	Norm
DE NEEF® HA Cut AF resin			
Solids	%	100%	EN ISO 3251
Viscosity at 25°C	mPas	Approx. 200	EN ISO 3219
Density	kg/dm^3	Approx. 1.100	EN ISO 2811
Flash Point	°C	145	EN ISO 2719
DE NEEF® HA Cut Cat AF catalyst			
Viscosity at 25°C	mPas	Approx. 15	EN ISO 3219
Density	kg/dm^3	Approx. 0.950	EN ISO 2811
Flash point	°C	70°C	
Cured DE NEEF® HA Cut AF in confined conditions			
Density	kg/dm^3	Approx. 1.000	EN ISO 1183
Compressive Strength	MPa	Approx. 30	EN 12190
Flexural Strength	MPa	Approx. 16	EN 12190

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Last Updated: 2026-04-02