DE NEEF® Gelacryl Superflex

Gelacryl Superflex is a 2-component acrylic based resin developed for injection into pores, cracks, capillaries, voids and honeycombed concrete

Product Description

Gelacryl™ Superflex is a 2-component acrylic based hydrophilic resin, consisting of 2 components: a resin and an initiator which are pumped with a twin piston pump at a 1:1 ratio. Once polymerised, Gelacryl Superflex forms a resilient, highly elastic gel. Due to its exceptionally low viscosity and low surface tension, Gelacryl Superflex exhibits better penetration into cracks than water.

Resin : Gelacryl Superflex
Catalyst : TE 300
Initiator : SP 200
Decelerator : KF 500

Product Advantages

- Exceptionally low viscosity – penetrates cracks 0.1mm (0.004”).
- Post reaction expansion of up to 56%
- ANSI/NSF 61 Certified for use with potable water
- Non corrosive and non toxic
- Insoluble in water and petroleum based solvents once cured.
- Resistant to most acids and alkalis
- Excellent thermal resistance 40ºF - 160ºF
- Reaction time can be controlled

Applications

Superflex is designed for use in any below ground structure or any water retaining structure, where there is permanent moisture. Especially well suited for:

- Hairline & spider cracks in concrete
- Re-injection of failed polyurethane grout
- Expansion & moving joints
- Honeycombed concrete
- Curtain grouting
- Potable water applications

Properties

SUPERFLEX	
Viscosity at 77ºF	15-20 cps
Mixed Viscosity	6-8 cps
Appearance	Blue Green
Specific Gravity	1.17
Elongation at Break	300% (ASTM 638)
Post Reaction Expansion	56% at 90% Humidity
Permeability at 29 psi	3.53 x 10^{-9} cm/s

Note: The data shown above reflects typical results based on laboratory testing under controlled conditions. Reasonable variations from the data shown above may result.

Packaging & Handling

Superflex is packaged as a kit consisting of a of 5.6 gallons of grout (55/lb jerrican), 2 lbs. jar of SP-200 initiator*, and 28 oz. can of TE-300 activator. Shelf life for TE-300 activator is 6 months.

*Shipped: Oxidizer (shipped as haz-mat)

All components should be stored in a dry place at temperatures between 40°F and 80°F. Do not thin with solvents.

Warning! Do not let SP-200 and TE-300 come into contact with each other prior to field mixing. A poisonous gas may result! STORE COMPONENTS SEPARATELY FROM EACH OTHER

Installation Guidelines

Mixing:

In a clean pail pour desired amount of Superflex and add TE-300 in accordance with the Mix Ratio table to achieve the desired set time. Mix well. In a separate clean pail pour clean water of equal quantity to the amount of Superflex previously poured. Add SP-200 in accordance with Mix Ratio Table and mix well. If extended set times are required KF-500 (retarder) can be added to the resin side; please consult DE NEEF® Technical Service.

Pumping:

Gelacryl Superflex is pumped at 1:1 through a pump with all stainless steel wetted components. Always begin at the lowest pressure setting available on the pump and increase to the minimum pressure required to get desired resin flow.

Crack Injection:

For concrete crack injection applications consult DE NEEF® Standard Crack Injection Procedures. Due to the ultra low viscosity of the Superflex resin, larger cracks may require application of a surface seal such as hydraulic cement or epoxy.

Curtain Wall grouting:

For curtain grouting applications consult DE NEEF® Standard Curtain Grouting Procedures. Adjust set time to allow for permeation through soils surrounding the structure.

Confirm product performance in specific chemical environment prior to use.

Mix Ratios

REACTIVITY T° (F)	SUPERFLEX (GAL)	TE300 (OZ)	% TE300	WATER (GAL)	SP200 (OZ)	% SP200	GEL TIME (MIN)
41	5.6	32	4.5	5.6	40	5.4	1
41	5.6	32	4.5	5.6	24	3.2	2
41	5.6	32	4.5	5.6	16	2.1	3
50	5.6	22	3.1	5.6	32	4.3	1
50	5.6	22	3.1	5.6	16	2.1	2
50	5.6	22	3.1	5.6	8	1.1	3
59	5.6	18	2.6	5.6	24	3.2	1
59	5.6	18	2.6	5.6	16	2.1	2
59	5.6	18	2.6	5.6	8	1.1	3
68	5.6	14	1.9	5.6	24	3.2	1
68	5.6	14	1.9	5.6	16	2.1	2
68	5.6	14	1.9	5.6	8	1.1	3
77	5.6	18	2.5	5.6	18	2.5	0.5
77	5.6	14	2.0	5.6	14	2.0	1
77	5.6	10	1.5	5.6	10	1.5	3

Superflex is designed for use below ground or where there is permanent moisture. Gel time varies depending on the amount of acceleration and temperature. See chart above for time and temperature information. For concentrations above 3%, use TE-300 at 3% and increase SP-200 only. Adding excessive amounts of TE-300 can adversely affect the quality of the reacted gel. (All results above are based on 77ºF. Site trials should always be carried out to determine the gel time required.)

Limitations

Low temperatures will significantly elongate set times. For best results, bring product to a minimum temperature 50°F for a minimum period of 24 hours prior to use. If site temperatures are extremely low, material should be held in a warm area before and during use to maintain the products temperature. Allow no water into open containers. Do not apply when ice is present. DO NOT EXCEED 90ºF WHEN WARMING.

CAUTION – pH NOTICES

- Water used to activate grouts ("B" side of mix) must be in a range of pH 5.5 – 7 for optimum grout quality.
- Varying water pH will cause the reaction times to change.
- Groundwater should be in the range of pH 3-12.

Health and Safety

WARNING:

TE-300 and SP-200 are incompatible with aluminum. Do not use aluminum equipment in the presence of TE-300 and SP-200.

In the event of an EMERGENCY call:

CHEMTREC 800-424-9300.

Always use protective clothing, gloves and goggles consistent with OSHA regulations during use. Avoid eye and skin contact. Do not ingest. Refer to Safety Data Sheet for detailed safety precautions.

Field of Application

- Repairing water leaks in structures under permanent water pressure.
- Preventative waterproofing of structures under permanent water pressure.
- Water control during tunnelling operations.
- Curtain grouting.
- Waterproofing of underground structures in concrete or masonry (cellars, underground car parks, etc.).
- Sealing of cracks in concrete and rock formations.
- Waterproofing of tunnel liners.

Appearance

After curing, product turns into a flexible gel, which remains flexible under water.

GELACRYL SUPERFLEX RESIN	BLUE LIQUID
TE 300	Transparent liquid
SP 200	White salt
KF 500	Orange liquid

Product Advantages

- Gelacryl Superflex is injected with a twin piston, 1:1 ratio pump.
- The exceptionally low viscosity-Gelacryl Superflex penetrates into cracks 0.1 mm wide.
- Large post-expansion in contact with water: approx. 150%.
- Non-corrosive and non-toxic.
- Excellent adhesion to concrete.
- Has a very good chemical resistance to most acids, alkalis and micro-organisms (*).
- Polyacrylate resin, free of acrylamides.

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

Consumption

Has to be estimated by the engineer or operator and depends on width and depth of the cracks and voids to be filled.

Application

Consult the MSDS before mixing and/or handling.

- Gelacryl Superflex is developed to be used below ground or in conditions of permanent moisture.
- Gelacryl Superflex is typically injected into defective areas. Holes are drilled in the affected area at a 45° angle. Water can be forced into the hole to determine whether all cracks can be injected and if additional holes need to be drilled.
- Visible surface leaks should be sealed with a fast setting cement. Allow the cement to harden completely before injecting Gelacryl Superflex.
- Use standard packers or equipment according to local regulations.
- Gelacryl Superflex is then injected with a high pressure pump capable of 200 bars. This forces the Gelacryl Superflex deep into the structures and allows penetration of even the smallest cracks.
- When surface leaks show up during pumping, stop immediately and seal the leak by approved method.

1. Composition

- The injection grout needs to be prepared immediately before the injection. Do not dilute the resin to less than 20% solids when injecting.

COMPONENT 1	COMPONENT 2
Gelacryl Superflex	Water
TE 300	SP 200

- After preparation, the components are injected simultaneously at a ratio of 1:1.

2. Preparation

Component 1

- Gelacryl Superflex container. Add the required quantity of TE 300 catalyst to the Gelacryl Superflex resin. Gelacryl and TE 300 need to be thoroughly mixed.

Component 2

- SP 200 tank. The tank is first filled with the required quantity of water as the Gelacryl Superflex tank after which the SP 200 is added. The mixture is thoroughly mixed.
- Typically a 2% accelerator is used. At temperatures below 15 °C or in case of high water ingress, use 3-4% accelerator. This will give a normal gel time of 1-3 minutes which is appropriate for waterproofing active leaks.

3. Injection

- The injection work should be carried out with a twin piston, 1:1 ratio high pressure pump. Please read the relevant Technical Data Sheet. For injection procedure, please read the Injection Manual.
- Delayed gel times (for example for soil injections) can be reached by adding KF 500 decelerator. Contact our technical department for correct formulations.

T (°C)	PRODUCT	RESIN (l)	TE 300 (L)	WATER (l)	SP 200 (KG)	NO. OF CONTAINERS	GEL TIME
5 °C	GASF	42.00	1.90	42.00	2.25	5	1'
5 °C	GASF	42.00	1.90	42.00	1.35	3	2'
5 °C	GASF	42.00	1.90	42.00	0.90	2	3'
10 °C	GASF	42.00	1.30	42.00	1.80	4	1'
10 °C	GASF	42.00	1.30	42.00	0.90	2	2'
10 °C	GASF	42.00	1.30	42.00	0.45	1	3'
15 °C	GASF	42.00	1.10	42.00	1.35	3	1'
15 °C	GASF	42.00	1.10	42.00	0.90	2	2'
15 °C	GASF	42.00	1.10	42.00	0.45	1	3'
20 °C	GASF	42.00	0.80	42.00	1.35	3	1'
20 °C	GASF	42.00	0.80	42.00	0.90	2	2'

20°C	GASF	42.00	0.80	42.00	0.45	1	3'

Technical Data / Properties

PROPERTY	VALUE	NORM
Gelacryl Superflex		
Density	Approx. 1.17 kg/dm³	ASTM D-1638
Viscosity at 25°C	Approx. 15-20 mPas	ASTM D-1638
Solids	Approx. 45%	ASTM D-1010
Boiling Point	100°C	Test DNC
Solubility in water	100%	Test DNC
Catalyst TE 300		
Concentration	Approx. 85%	Test DNC
Initiator SP 200		
Density	Approx. 1.9 kg/dm³	ASTM D-1638
Solubility in water	Approx. 79%	Test DNC
Decelerator KF 500		
Concentration	10%	Test DNC
Dilution	Clean tap water	
Cured resin based on a 22% solids mixture		
Elongation at Break	300%	ASTM 638
Expansion in contact with water	Approx. 150%	Test DNC

Packaging

GELACRYL SUPERFLEX	
25 kg plastic jerry-can	
1 pallet	24 jerry-cans

TE 300	
25 kg plastic jerry-can	
1 pallet	24 jerry-cans

SP 200	
0.45 kg plastic bottle	
1 box	22 bottles
1 pallet	24 boxes

KF 500	
25 kg plastic jerry-can	
1 pallet	24 jerry-cans

Storage

Gelacryl Superflex, TE 300, SP 200 and KF 500 should be stored in a frost free environment under cover, clear of the ground, in the original closed packaging. Storage temperature must be below 35 °C.

Shelf life: 1 year.

Accessories

To be ordered separately

- IP 2C-200-A air driven twin piston pump.
- Packers and connectors.
  (Please consult the relevant Technical Data Sheet).

Health and Safety

Gelacryl Superflex is classified as irritating.

Always wear appropriate protective gear: rubber gloves, goggles and boots. In case of contact with the eyes, flush with water for 15 minutes. If swallowed, call a physician immediately.

For full information, consult the relevant Material Safety Data Sheet.

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GCP Applied Technologies Inc., 62 Whittemore Avenue, Cambridge, MA 02140 USA.

In Canada, GCP Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.
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