



# KISGEL P1

## Water-absorbing, Crosslinking Polymeric Gel for Preventive and Remedial Grout Injection

### DESCRIPTION

**KISGEL P1** is a one-component injection gel/chemical formulated from crosslinking polymeric and water-absorbing technology. It absorbs and reacts with water (from leakages in the structure) to form a chemically-resistant, resilient and tough gel-like material that instantaneously arrest water seepages. When cured, it has been proven to be resistant and remained undamaged by aggressive chemicals such as Xylene, Diesel and Sulphuric acid commonly found in tunnels and substructures. Furthermore, in the presence of these chemicals, it will retain its ability to expand and acts as an active plug in the cracks. The gel has also been tested for and subjected to heat of up to 70°C, with positive results of having very little effect and no signs of degradation.

Its absorption rate is extremely robust – it is possible to chemically-combine with water from a fraction (0.2 times and lower) to 10 times of its volume. The gel structure varies from a soft gel (in presence of higher amount of water - 10 times) to a resilient gel (water about 0.2 times), ensuring a complete sealing method that quickly stops water leakages and plugging the end with the use of only one single material.

Another important feature is its controlled and consistent gelation time with water, of about a minute upon contact. This will allow the resin to be injected and flowed into adjacent and connecting cracks which are not leaking yet, and sealed them even before they pose problem later.

Summing all the properties together, KisGel P1 sets itself apart from other repair materials as a lasting and easy-to-use solution for restoration or remedial work in structures with cracks of mild to serious leakages. It is applied with a single injection pump, such as KST P58. There is no need for complicated mixing of accelerators and catalysts in conventional acrylate-based gel materials.

### RECOMMENDED USE

- Concrete structures
- Diaphragm walls
- Leaking ceilings/floors
- Precast sections
- Subway stations
- Tunnel liners
- Tunnel segments

### ADVANTAGES

- Elastic
- Excellent adhesion to substrate
- Fast cure
- Highly consistent gelling time
- Highly penetrative
- Highly resistant to heat, chemicals and varying pH
- High resistant to seawater and aggressive ground water
- Reacts with free water from 0.2-10 times of its volume – making it ideal even for cracks with gushing water
- Simple and user friendly with no site mixing or use of sophisticated pumps
- Compliant to suitability test (SS 375) of use in contact with water intended for human consumption – for use of repair works in water retention tank of potable water.



## **PACKAGING**

KISGEL P1 is supplied in 20 kg per pail

## **APPLICATION GUIDELINES**

### a) Surface Preparation

- Inspect the cracks and voids of the structure and plan the best injection proposal based on placement of packers etc.
- Drill holes into the affected area.
- Use suitable packers to ensure KISGEL P1 can penetrate and function for its intended use.

### b) Mixing

- Using a high-pressure single injection pump, inject KISGEL P1. Shake the material before use. No mixing is required by the applicator.
- KISGEL P1 reacts rapidly with the presence of water, hence the pump machine should be dried and free from water to avoid choking the machine or the tubes. Gel time under normal temperature is about 30-120 sec upon contact with water. Solvent should be used to flush the machine and the tube before application or after the initial flushing of the cracks with water.

### c) Application

- Inject KISGEL P1 with a pump system capable of reaching 200-bar pressure.
- Observe for surface leaks during pumping, and stop the pumping once leak of material shows up.
- Seal the leak with approved method and material/s.

### d) Cleaning

- All tools and equipment should be cleaned and/or flushed with KISCLEAN ULTRA or solvent immediately after use.
- KISCLEAN ULTRA should be used for the final clean.

## **LIMITATION**

KISGEL P1 is not to be used for restoring structural integrity. Use KISEPO 20.

## **STORAGE**

KISGEL P1 is sensitive to moisture and must be sealed in original containers in a dry area. Storage temperature must be between 5°C and 30°C. A 12-month shelf life can be expected from date of manufacturing if recommended storage condition is respected.

## **HEALTH & SAFETY**

Refer to KISGEL P1 SDS for further information.



## **TECHNICAL PROPERTIES**

<b>KISGEL P1</b>	
Appearance	Brownish liquid
Viscosity at 25°C Brookfield dv sp.2 60rpm	300-400 cps
Density (Unreacted)	1.15 g/mL
Gel time (2-10 x water by volume) *in 100g and under lab condition	30-120 sec
Ability to combine with amount of water * clean or ground water	Up to 15 times by volume
<b>As a cured gel</b>	
Adhesion to concrete	0.61 N/mm <sup>2</sup>
Linear dimensional change after heat aging (70°C)	Minimal (<2.7%)
Resistant to chemicals - Physical damage (Expansion) 1) 10% Sulphuric Acid 2) Diesel 3) Water of pH 12 4) Xylene	1) No damage (127%) 2) No damage (12%) 3) No damage (181%) 4) No damage (210%)
Water absorption (after cured)	176 %
Potable water approval (SS375)	Complies
Reaction to fire	Will not ignite

### **IMPORTANT NOTES**

Any information and/ or specification contained herein is to the best of the company knowledge, true and accurate, it is always recommended that trial to be carried out to confirm suitability of use for all products, as no warranty is given or implied in connection with any recommendations and/or suggestions made by the company representatives, agents and/or distributors.

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