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IPANOL GEL

High Modulus Structural Adhesive Epoxy System

Product Data Sheet

Description:

IPANOL GEL is a 100% solids, two component moisture insensitive epoxy system. IPANOL GEL is used in situations requiring a high modulus of elasticity and a low sag mortar consistency.

Uses:

- IPANOL GEL can be used to create a repair mortar for vertical and overhead concrete repairs. The gel like consistency is excellent for applications where the glue line will not exceed 1/8 of an inch (3.2 mm).
- The physical characteristics of IPANOL GEL permit multi-purpose uses such as anchoring pressure injection ports for concrete repair, spackling, and anchoring applications such as bolt grouting.

Advantages:

- Non-sagging consistency
- Easy mixing ratio of 1 to 1 (A : B)
- Fast setting
- High early strength in 24 hours
- Insensitive to moisture before, during and after curing
- Provides excellent adhesion to many common structural materials
- Permits low-temperature curing to 40°F (4°C)
- Conforms with ASTM C881, Type I and IV, Grade 3, Class B & C., AASHTO M235-91

TECHNICAL DATA

Physical Properties:

Type:	Moisture Insensitive, 100% Solids, Non-Sag		
Tack Free Time:	40°F (4°C) 14-16 hrs	75°F (24°C) 2-4 hrs	90°F (32°C) 1-1.5 hrs



Tensile Strength, psi (MPa) ASTM D 638 (14 days)	7,200 (49.6)
Tensile Elongation, % ASTM D 638	1.85%
Packaging:	2 Quart (1.9 L); 2 Gallon (7.6 L) Units
Pot Life: Neat	30 minutes @ 75°F (24°C)
Mixing Ratio:	Part A to Part B, 1 :1 by volume
Viscosity ASTM D 2393:	Gel

Epoxy Mortar Properties

Compressive Yield Strength, psi (MPa) ASTM D 695

	<u>40°F (4°C)</u>	<u>75°F (24°C)</u>	<u>90°F (32°C)</u>
24 hours		5,800 (40.0)	7,000 (48.3)
3 Days	5,000 (34.5)	10,000 (69.0)	9,600 (66.2)
7 Days	9,000 (62.1)	10,500 (72.4)	9,600 (66.2)

Coverage:

1 Gallon (3.8 L) of **IPANOL GEL** yields 231 cubic inches (3.8 L) of epoxy adhesive. 1 gallon of **IPANOL GEL** when mixed with 1 gallon of loose oven dried aggregate yields 350 cubic inches (5.7 L) of epoxy mortar.

Surface Preparation:

All surfaces must be clean and free of dirt, dust, oil, grease or any contaminant that would adversely affect the bond. Surfaces must be structurally sound. All loose particles or soft unsound sections must be removed. Surfaces may be dry or damp but must be free of standing water.

On new concrete do not use a curing compound. If curing compounds have been used they must be removed.

On most concrete surfaces it is recommended that the surface be sandblasted to remove laitance on top of the concrete, and on road surfaces remove grease, dirt and oil deposited by vehicles. Sandblasting should completely clean the concrete and expose some aggregate. A minimum of 1/16th inch (16 mm) of the concrete surface should be removed.

Mixing Instructions:

Premix each component separately. Using a clean mixing container, slowly place 1 part by volume of component B into 1 part by volume of component A. Mixing containers should have a flat bottom and flat walls. Mix thoroughly for 2 to 3 minutes with a mixing paddle on slow speed (300 rpm). Mix only the amount of product that can be placed during the working life of the product. Properly mixed product will be uniformly gray in color, no streaking will be present. Product working time will vary according to temperature.

Do not thin **IPANOL GEL** with solvent. This will prevent proper curing and physical properties of the epoxy system will not be developed.

Application:

As a structural adhesive:

Apply **IPANOL GEL** as a neat material to the surfaces to be bonded. Thoroughly work into the substrates to ensure proper adhesion. Secure the bonding substrates into position and do not move them until the adhesive has cured. The glue line should not exceed 1/8 inch (32 mm) in thickness.

To anchor bolts or other embedments:

To anchor bolts in concrete, use **IPANOL GEL** neat, or mix with 1 1/2 parts kiln dried No. 20 sieve aggregate (salt free) to 1 volume of mixed **IPANOL GEL**. Mix until uniform in consistency. In vertical applications, use a long nozzle applicator to place epoxy at the base of the anchor hole and to avoid air entrapment. Maximum annular space beyond the bolt is to be 1/4 inch (6.4 mm). Typical bolt embedment is 15 times the bolt diameter.

To seal concrete cracks and set injection anchors:

Pressure injection of concrete using automated injection equipment or manual methods can be facilitated using **IPANOL GEL**. Spread **IPANOL GEL** into and over concrete cracks. Set injection ports according to equipment manufacturers recommendations. Seal port locations with **IPANOL GEL** epoxy. Following complete set of the epoxy sealant, inject ports along length of crack until fully sealed. After injection process is complete, remove injection ports (direct flame method) and then patch injection holes using **IPANOL GEL**.

Curing:

IPANOL GEL is self-curing

Clean-up:

Using appropriate safety methods and protective clothing, clean equipment and tools with xylene or toluene. Dispose of wash solvents according to all applicable waste disposal regulations.

Limitations:

IPANOL GEL is a high modulus epoxy system. In its neat form or with low levels of filler, the cured properties will produce a coefficient of expansion that is dissimilar to portland cement concrete. Surface temperature changes affect the expansion of exterior epoxy mortar/concrete applications. If **IPANOL GEL** is used as a mortar for concrete in exterior applications, this can cause stresses at the bond line during temperature changes.

Temperature must be at least 40°F (4.4°C) and rising during the 72 hour period starting at time of installation. For best use, epoxy materials should be stored at 65°F (18.3°C) for 24 hours prior to mixing. Lower temperatures will cause thickening and increased difficulty in mixing components. Condition materials to 65°F to 85°F (18.3°C to 29.4°C) before using.

IPANOL GEL is a vapor barrier and should not be applied where moisture vapor transmission is a concern or failure near the bond line may occur.

CAUTION – FOR INDUSTRIAL USE ONLY:

IPANOL GEL Epoxy System components contain alkaline amines. These materials are strong sensitizers and MAY CAUSE SKIN SENSITIZATION or allergic response ranging from a mild wheezing to a severe asthmatic type attack. Avoid contact with skin or eyes. IN CASE OF CONTACT immediately wash skin with soap and water. Flush eyes with water and obtain medical attention. Wear protective clothing, goggles for eyes and barrier cream on all exposed skin.

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