IPANOL LV

Multi Purpose Low Viscosity Epoxy System

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IPANOL LV

Moisture Insensitive High Modulus *Low Viscosity* Epoxy System

Product Data Sheet

Description:

IPANOL LV is a 100% solids, two component moisture insensitive epoxy system. **IPANOL LV** is used in situations requiring a high modulus of elasticity and a low viscosity.

Uses:

IPANOL LV is used as a penetrating sealer or primer for spalled concrete. **IPANOL LV** can be modified by mixing with aggregate to create a high performance epoxy repair mortar.

The physical characteristics of **IPANOL LV** permit uses in multi-purpose applications such as pressure injection of concrete cracks, sealing cracks in horizontal concrete (gravity fill) and anchoring applications such as bolt grouting.

Advantages:

- Very low viscosity
- Easy mixing ratio of 2 to 1 (A : B)
- Rapid 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
- Conforms with ASTM C881, AASHTO M235, Type I and IV, Grade 1, Class B & C.

Physical Properties:

Type:	Moisture Insensitive, 100% Solids, Hi-Mod, Low Viscosity		
Mixing Ratio:	Part A to Part B, 2 :1 by volume		
Viscosity:	175 to 250 cps		
Pot Life: Neat	20 to 30 minutes @ 75°F (23.9°C)		
Tack Free Time	40°F (4.4°C)	75°F (23.9°C)	90°F (32.2°C)
	14-16 hrs	2-4 hrs	1-1.5 hrs
Color:	Light amber		

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Bond Strength—Hardened concrete to hardened concrete		
2 day dry cure	ASTM C 882	3000 psi (20.7 MPa)
14 day moist cure	ASTM C 882	2300 psi (15.9 MPa)
Tensile Strength, psi	ASTM D 638	7000 psi (48.3 MPa) (14 days)
Tensile Elongation, % at break	ASTM D 638	1.9%
Water Absorption, 24 hours	**ASTM D 570**	**0.5% max.**
Compressive Strength	ASTM D 695, psi (MPa)	

	40°F (4.4°C)	75°F (23.9°C)	90°F (32.2°C)
16 hours		3,000 (20.7 MPa)	6,000 (41.4 MPa)
24 hours		5,000 (34.5 MPa)	8,000 (55.2 MPa)
3 Days	3,000 (20.7 MPa)	10,000 (69.0 MPa)	8,500 (58.6 MPa)
7 Days	8,000 (55.2 MPa)	11,500 (79.3 MPa)	10,400 (71.7 MPa)

Compressive modulus 3.5×10^5

Linear coefficient of shrinkage on cure ASTM D 2566 0.003 max.

Epoxy Mortar Properties:

Compressive Strength Mortar (1:5) - psi (MPa)

	40°F (4.4°C)	75°F (23.9°C)	90°F (32.2°C)
16 hours		5,000 (34.5 MPa)	5,800 (MPa)
24 hours		5,500 (MPa)	7,000 (MPa)
3 Days	5,000 (34.5 MPa)	6,800 (MPa)	7,500 (MPa)
7 Days	8,500 (58.6 MPa)	10,000 (69.0 MPa)	9,500 (MPa)

Compressive modulus 8.2×10^5

Tensile Strength, psi	ASTM D 638	7000 psi (48.3 MPa) (14 days)
Tensile Elongation, % at break	ASTM D 638	1.9%
Modulus of elasticity, psi	3.6×10^5	
Tensile Strength, psi	ASTM D 790	12,000 psi (MPa) (14 days)

Tangent modulus of elasticity in bending, psi 3.7×10^5

Surface Preparation:

All surfaces must be clean and free of dirt, dust, oil, grease, curing compound or any contaminants 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 most concrete surfaces it is recommended that the surface be sandblasted to remove laitance on top of the concrete, and on road surfaces to remove grease, dirt and oil deposited by vehicles. Sandblasting should completely clean the concrete and expose some aggregate. A minimum of $1/16^{th}$ inch of the concrete surface should be removed.

Prior to placing the first course of epoxy, the installer shall use the Test Method prescribed in ACI 503-R, Appendix A of the ACI Manual of Concrete Practice to determine the cleaning method. The method provides direction for the size of shot, flow of shot, forward speed of shot blast machine, and number of passes necessary. The method shall improve the surface to provide a tensile bond strength greater than or equal to 250 psi (1.7 MPa) or a failure rate of ¼ inch (6.4 mm) or more into the base concrete, over at least 50 percent of the test area.

Mixing Instructions:

Using a clean mixing container, slowly place 1 part by volume of component B into 2 parts by volume of component A. Mix thoroughly for 2 to 3 minutes with a mixing paddle on slow speed (250 rpm). Mix only the amount of product that can be placed during the working life of the product. Product working time will vary according to temperature.

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

Application:
Penetrating surface sealer\primer: Pour the mixed material directly onto the floor surface and allow to penetrate. Use a squeegee to remove excess material. For use as a primer, work mixed material into substrate using a stiff brush or broom.

To anchor bolts in concrete, use **IPANOL LV** neat, or mix with 1½ parts kiln dried No. 20 sieve aggregate (salt free) to 1 volume of mixed **IPANOL LV**.

Pressure injection of concrete can be accomplished using automated injection equipment or manual methods. Set injection ports according to equipment manufacturer's recommendations. Seal port locations with **IPANOL GEL** epoxy. Following complete cure of the epoxy sealant, inject ports with slow steady pressure until epoxy reaches next fitting. Close fitting and continue injecting along length of crack until fully sealed. If the epoxy penetrates to the other side of the wall or slab, repeat injection process along opposing side. After the **IPANOL LV** has completely cured, remove injection ports (direct flame method) and then patch injection holes using **IPANOL GEL.**

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.

Packaging:

3 Quart (2.8 L), 3 Gallon (11.4 L), 15 Gallon (56.9 L) Units

Coverage:

1 Gallon (3.8 L) of **IPANOL LV** yields 231 cubic inches. As a penetrating sealer or primer, this covers approximately 80 to 150 square feet (7.4 to 13.9 m^2) depending upon the porosity and texture of the surface. 1 gallon (3.8 L) of **IPANOL LV** when mixed with 3½ to 4 gallons (13.2 to 15.1 L) of loose oven dried aggregate yields 750 to 800 cubic inches (12.3 to 13.1 L) of epoxy mortar. 1 Gallon (3.8 L) of oven dried loose aggregate will yield approximately 360 cubic inches (5.9 L) of material for use in anchoring applications.

Some of above yield numbers don't make much sense.

Limitations:

IPANOL LV 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. Surface temperature changes affect the coefficient of expansion of exterior epoxy mortar/concrete applications. If **IPANOL LV** 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 (18.3°C) to 85°F (29.4°C) before using.

CAUTION – FOR INDUSTRIAL USE ONLY:

IPANOL LV 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. See MSDS for additional safety information.

WARRANTY

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