Hychem TL9

NOVOLAC EPOXY LINING

HYCHEM
Infrastructure

Product Description

HYCHEM TL9 is an epoxy coating with excellent chemical resistance to a wide range of chemicals varying from mineral acids to hydrocarbons, caustic solutions and aqueous salts. It has been specifically formulated for resistance to 98% sulphuric acid but is also suited to 30% hydrochloric, 40% phosphoric and 20% nitric acid solutions. The product is designed for use in a wide variety of industries

Where chemical spillage is commonplace as well as fluid containment in the water industry, power generation, pulp and paper, waste treatment etc. A primary use for HYCHEM TL9 is in the fertilizer industry, mineral processing and ammonium nitrate storage depots. The product is ideal for secondary containment of chemical storage of a large range of chemicals, especially strong caustic soda and concentrated sulphuric acid. It is not recommended for protection against strong organic acid solutions. HYCHEM TL9 whilst primarily designated for use with concrete structures is also suited to the protection of steel requiring protection against corrosive chemicals.

Typical Applications

- Food & beverage processing
- Mining
- Manufacturing
- Chemical storage areas
- Secondary containment
- Battery storage
- Metal plating

Technical Details

Product type	100% solids, epoxy novolac	Recoat time	Min 6 hours@25°C Max 24 hours@25°C
Mix ratio	3:1 Ratio (volumes resin to 1 volume hardener)	Application temperature	Min 10°C - Max 32°C
Compressive strength	65 MPa	Chemical exposure	7 days
Tensile strength	20 MPa	Cure time	24 hours
Elongation	10%	Pot life	60 min@10°C 30 min@ 20°C 15 min@30°C
Flexural strength	35 MPa	Hardness Shore D	70

Application Guidelines

Surface Preparation

Concrete

All concrete surfaces should be clean and free from contaminants such as curing agents and other coatings. Water content of the concrete should be such that it passes the plastic sheet test (ASTM D4263). The resultant surface to be coated must have a minimum surface tensile strength (ASTM 4541) of 2.1 MPa.

- Prepare the concrete surface by Abrasive Grit Blasting, Shot Blasting, Scarifying, Ultra High Pressure Water Jetting or Scabbling to provide the appropriate surface profile for optimum mechanical keying.
- The extent of surface preparation required is dependant upon but not limited to the thickness of the coating system to be applied. It is highly recommended surface preparation is carried out in accordance with industry standards and publications such as NACE 02203 item No. 22420 or ICRI Technical Guideline No. 03732.

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Steel
All steel surfaces need to be abrasive blast cleaned to a surface profile of a minimum of 75 microns and then coated with HYCHEM Metal Primer .

Priming

Apply a priming coat of E500P to the substrate. See E500P data sheet for details.

Mixing

Important – Do not mix more than can be adequately applied within 10 to 15 minutes

- Mix Hychem TL9 liquid components (Resin & Hardener) together using a helical mixer at a speed of 500 rpm until the mix becomes homogeneous (approx. 2 minutes)
- Move the mixer around from side to side and top to bottom and scrap the sides of the mixing vessel to ensure thorough mixing.

Applying

Smooth Finish

- Apply First Coat of Hychem TL9 using a short nap roller at a coverage rate of approx. 4m²/litre. Apply Second Coat of Hychem TL9 at a coverage rate of approx. 4m²/litre.

Non-Slip Finish

- Apply as above. Broadcast grit aggregate (size to suit anti-slip requirement) into the First Coat while it is still wet and allow to cure overnight.
- Sweep off loose quartz aggregate.
- Apply second coat of Hychem TL9 to seal the surface.

Slip Resistance is dependent on the size (grading) of aggregates used:

60 mesh Alumina - R 11

36 mesh Alumina - R 12

24 mesh Alumina - R 13

Heavy Duty Option

Hychem E900 may be used as a base layer to form a heavy duty coating providing greater protection from physical and chemical damage. See E900 data sheet for details.

Chemical Resistance

IMMERSION RESISTANCE @ 7 DAYS	% WT CHANGE	COMMENT
Water	0.2%	Excellent
98% Sulphuric acid	-1.5%	Very good
25% Sulphuric	0.2%	Excellent
20% Nitric acid	1.0 %	Very good
30% Hydrochloric	0.5%	Very good
50% Caustic soda	0.1%	Excellent

IMMERSION RESISTANCE @ 7 DAYS	% WT CHANGE	COMMENT
100% Xylene	0.3%	Excellent
Aliphatic hydrocarbons	0.1%	Excellent
100% Methylated spirit	8.0 %	Short term only
25% Ammonia	0.6 %	Excellent
25% Acetic acid	6.5%	Short term only
16% Sodium hypochlorite	0.9%	Excellent

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Colour

Hychem TL9 is supplied in grey. The the product is not colour stable under exposure to UV light.

Coverage

When applied at 4m^2/litre, a 6 litre kit will cover approximately 32m^2.

Clean up

Xylene or MEK can be used for cleaning tools and equipment before the mixed compound begins to harden.

Packaging

6 litre & 60 litre kits.

Warning Environmental Conditions

Temperature and the surrounding atmospheric conditions will play a part in the curing process of all epoxy products. Under conditions of low temperatures and high humidity the final cured surface finish can be adversely affected potentially resulting in poor gloss retention, discolouration over time, poor overcoatability and intercoat adhesion. Quite often these conditions will result in the formation of a white film over the surface often evident after contact with water. This chemical reaction with the atmosphere is commonly referred to as “amine bloom” or “amine blush”. If this occurs then the existing coating will need to be abraded to completely remove the affected surface to ensure the adhesion of subsequent applications. In some cases partial or complete re-priming may be necessary. To minimise an unsatisfactory cure the following indicative application conditions should be observed with respect to temperature and humidity levels.

21° C and less than 85% humidity

10° C and less than 75% humidity

Attention also needs to be paid to the substrate temperature which should be at least 3-5° C above the dew point during the curing phase. Industry standards recommend the accurate recording of environmental conditions such as substrate & air temperatures, humidity levels and dew point readings during both the application & curing processes. If in doubt consult the Hychem technical department for advice.

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