HYCHEM TL5 EPL

Extended pot life high-build coating

DATA SHEET

HYCHEM
INFRASTRUCTURE SOLUTIONS

HYCHEM TL5 EPL is a chemically resistant high-build epoxy coating designed for use in environments where exposure to water, salt solutions, alkali and dilute mineral acids is required. The product is designed for applications of up to 6mm+ using wet on wet spray technique, but can also be trowelled in small areas where spray application is unsuitable.

HYCHEM TL5 EPL is based on the same resin as HYCHEM TL5 but uses a slower hardener system to allow a longer work time. This change in hardener results in equally good sulphuric acid resistance compared to TL5.

AREAS OF USE

HYCHEM TL5 EPL is designed for use in:

1. **The waste water industry:** Pipes, manholes, pump stations, drop structures, detention tanks and treatment plants.
2. **The mining industry:** Lining of walls in ammonium nitrate storage warehouses.
3. **The food industry:** Lining of bunds, pits, drains and effluent channels.
4. **The petroleum industry:** Corrosion protection of both concrete and steel assets.

FEATURES AND BENEFITS

- Designed as a high build coating via a plural spray system
- Can be applied by brush, roller or trowel to small areas
- Long pot life, good application times
- High acid resistance
- High caustic resistance
- High fat resistance
- Good hydrocarbon resistance
- Good intercoat adhesion
- Bonds to damp concrete
- High impact strength

LIMITATIONS

HYCHEM TL5 EPL is not suitable for use with concentrated sulphuric (98%), 30% plus nitric acid, 10% plus acetic acid and 20% plus phosphoric acid. For exposure to these materials, contact the HYCHEM technical department.

TYPICAL PROPERTIES

Appearance	Resin: white paste Hardener: black paste Mixed: grey paste	
Mix ratio	2 parts Resin to 1 part Hardener by volume	
Specific gravity	Resin: 1.25 Hardener: 1.05 Mixed: 1.2	
Working time @20°C	40 minutes	
Gel time @20°C	60 mins	
Tack free time	8 hours	
Cure schedule @20°C		
6 hour cure	30	Shore D
8 hour cure	60	Shore D
24 hour cure	75	Shore D
7 day cure	80	Shore D
Cured performance		
Compressive strength	70 MPa	
Tensile strength	20 MPa	
Bond strength	3.8 MPa (concrete failure)	
Intercoat adhesion @24 hours	8 MPa substrate failure	

ISSUE NUMBER 120516

CHEMICAL RESISTANCE

HYCHEM TL5 EPL is formulated to have good resistance to dilute sulphuric acid. Immersion in the chemical results in a minimal absorption of 0.5% after 6 months exposure.

Organic acids	
Acetic acid 10%	Good
Lactic acid 10%	Good
Citric acid 15%	Very good
Mineral acids	
Hydrochloric acid 20%	Excellent
Sulphuric acid 20%	Excellent
Nitric acid 20%	Good
Phosphoric acid 20%	Good
Caustic materials	
Sodium hydroxide 20%	Excellent
Ammonium hydroxide 20%	Very good
Oxidizing materials	
Sodium hypochlorite 12%	Good
Hydrogen peroxide 10%	Good
Salts	
Ammonium nitrate	Excellent
Ammonium sulphate	Excellent
Ammonium phosphate	Excellent
Sodium chloride	Excellent
Ferric chloride	Excellent
Hydrocarbons	
Unleaded petrol	Good
Kerosine	Good
Turpentine	Good
Toluene	Fair
Xylene	Good
Oxygenated and chlorinated solvents	
Acetone	Limited to spillage
Methyl ethyl ketone	Limited to spillage
Methylene chloride	Poor
Carbon tetrachloride	Limited to spillage

APPLICATION GUIDELINES

Surface preparation

Prior to the application of TL5 EPL, the substrate must be thoroughly prepared.

- The concrete substrate must be firm, clean and dry with a minimum compressive strength of 25 MPa and a minimum surface tensile strength of 1.5 MPa.
- New concrete must be allowed to cure for a minimum of 28 days.
- Remove all surface laitance, contaminants, existing coatings, curing compounds and any weak or loose materials.

All organic matter, weak surfaces and poorly consolidated material must be removed. This is ideally carried out by water blasting with equipment delivering a minimum of 4,000 psi for new concrete.

Cleaned, badly deteriorated surfaces are often ready for coating, providing a natural undulating profile. Cleaned, new concrete surfaces tend to produce a plethora of blow holes which when coated give rise to coating blisters.

Correct treatment of this problem involves a number of issues.

Firstly, coating application must take place when substrate temperatures are falling and must not occur under direct sunlight.

Secondly, concrete porosity needs to be sealed with a coat of HYCHEM E500P primer or Hychem E300.

Thirdly, visible blowholes can be sealed with a thixotropic paste such as HYCHEM E500T. This can be applied as a surface screed or merely used to plug individual blow holes.

Application of the subsequent HYCHEM TL5 EPL should be after the screed has surface hardened and within a total period of 24 hours. In most existing concrete structures after adequate preparation, TL5 EPL does not always require the use of a primer.

Pre-conditioning product

It is important to note that even when the application environment is warm, products which have been stored in cold or cooler conditions should always be pre-conditioned ideally to 20–25°C to ease mixing, application and help avoid other potential issues such as amine bloom or blushing.

Applying a cold product in a warm environment is not recommended.

Coating application

Due to the rapid cure and resultant short potlife, it is recommended that the material is applied using a plural component airless spray with static mixing head. Consult your spray unit supplier for detailed specifications.

Applying HYCHEM TL5 EPL to small surfaces areas, this can be carried out by a trowel.

COVERAGE AND SPREAD RATE

With correct choice of equipment, the coating can be applied at 65 sqm/hour at a coating depth of 3mm, using a volume output of 200 litres/hour.

HYCHEM

Head Office
Unit 1, 30 Bluett Drive, Smeaton Grange NSW 2567
T 02 4646 1660 **F** 02 4647 3700 **E** admin@hychem.com.au **W** www.hychem.com.au

ISSUE NUMBER 120516

INSPECTION

A detailed inspection test plan will be agreed upon depending on the application type. Testing for example of adhesion and shore hardness might be carried out.

CLEAN UP

Clean equipment with epoxy diluting solvents such as Xylene. Hard, cured material will need to be mechanically removed. Use soap and water to wash hands.

PACKAGING

Hychem TL5 EPL is available in 60 litre kits, 2 x 20 litre resin and 1 x 20 litre hardener.

HEALTH AND SAFETY INFORMATION

Epoxy resin products are skin sensitizing and can have a caustic reaction. Read MSDS Data Sheet prior to use. Wear protective gloves, clothing and protective eyewear when using. Wash hands before eating and avoid breathing vapours.

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.

Attention also needs to be paid to the substrate temperature which should be at least 3°C and preferably 5°C above the dew point during the curing phase.

Industry standards recommend the accurate recording of times and dates, batch numbers, consumption rates and environmental conditions including substrate and air temperatures, humidity levels and dew point readings during both the application and curing processes. Full material warranties cannot be provided unless all the relevant data has been recorded accurately.

If in doubt consult the Hychem technical department for advice.

HYCHEM

Head Office
Unit 1, 30 Bluett Drive, Smeaton Grange NSW 2567
T 02 4646 1660 **F** 02 4647 3700 **E** admin@hychem.com.au **W** www.hychem.com.au

ISSUE NUMBER 120516