

# ATECH PLUS

Flooring Solutions

## CEMTHANE PU

### Polyurethane Concrete Flooring System

- High Temperature Resistance
- High Abrasion Resistance
- High Chemical Resistance
- Very Robust and Durable

#### Description

**CEMTHANE PU** is a polyurethane-concrete which is applied as a topping on concrete floors where difficult service conditions are the norm.

The system is based on a polyol resin, a urethane hardener and a cementitious quartz filler blend. The system is generally applied as a 4 mm self levelling topping which is broadcast with 2 mm of quartz aggregate to produce a 6 mm composite topping. For extreme service conditions such as continuous exposure to hot water over 90°. a 9 mm **CEMTHANE PU** topping is recommended. This system is trowel applied.

A **CEMTHANE PU** Flooring System, provides industrial floors with,

- 1) High thermal shock resistance
- 2) High resistance to organic acids such as acetic and lactic acids.
- 3) Excellent resistance to continuous exposure to hot water
- 4) High mechanical resistance to traffic, abrasion and impact
- 5) High resistance to dilute mineral acids such as nitric, hydrochloric, sulphuric and phosphoric acid
- 6) High resistance to vegetable and animal fats.
- 7) High resistance to petroleum oils and solvents.

#### Major Applications

**CEMTHANE PU** is primarily designed for applications in the food industry, where exposure to hot fats, hot water and organic acids is commonplace. It is also the product of choice for industries where floor damage due to high impact and wear is a common problem.

A **CEMTHANE PU** Floor is ideal in,

- Abattoirs and meat processing establishments
- Bakeries & snack food manufacturers
- Breweries, fruit juice, soft drink manufacturers and wineries
- Cold storage warehouses, coolrooms and freezers.
- The dairy industry, milk, butter, cheese and yoghurt products
- The edible oil industry, margarine and snack food manufacturers
- The sugar industry, refineries and confectionery producers.
- The chemical & mining industry, containment bunds in minerals processing and treatment plants

#### Chemical Resistance

**CEMTHANE PU** has excellent chemical resistance to a wide variety of chemicals. In particular it is superior to epoxies in areas exposed to organic acids such as acetic and lactic acids. There is also a superior resistance to phosphoric and nitric acids at concentrations up to 30%. Exposure to vegetable and animal fats is excellent but offers no extra benefit over epoxy toppings. Exposure to petroleum chemicals such as aromatic hydrocarbons, oils and fuels presents no problems, yet the product is not recommended for long term exposure to strong

solvents such as chlorinated hydrocarbons, esters, ketones or nitrobenzene.

#### Surface preparation

Surfaces to which **EPOFLOOR GPX** resin is applied need to be free of fats, oils and curing agents. Any surface laitence needs to be mechanically removed. Shot blasting or diamond grinding are the preferred techniques. Acid washing is a suitable alternative where a coating only is to be applied. For trowelled toppings the cohesive strength of the surface should be in excess of 1.5 MPa. Poorer preparation may result in cohesive failure of the underlying substrate.

#### Packaging

**CEMTHANE PU** is a 4 component product, comprising 1.8 Kg resin, 2.8 Kg hardener, 14 Kg filler and 1.4 Kg pigment concentrate. Total pack wt 20 Kg, equivalent to 11.2 litres made up volume per pack.

#### TECHNICAL PROPERTIES

##### Cured properties

Coefficient of expansion	14 x 10 <sup>-6</sup>
Elastic modulus	2-3000 MPa
Pot life @ 20 deg	20 min
Flexural strength	16-18 MPa
Compressive strength	42 MPa
Density	1.8 g/cc
Temperature resistance	-20 to 120°
Hardness (Shore D)	80 (7 days)

#### Substrate Preparation

The concrete substrate must be firm, clean and dry. The compressive strength shall be a minimum of 25 MPa and the surface tensile strength a minimum of 1.5 MPa. New concrete is to be a minimum of 28 days old and must have a maximum moisture content of 6%. The surface of the concrete is to be diamond ground or shotblasted to ensure a rough profile. Anchoring grooves are to be cut into the substrate at the edge of pours. The prepared surface is primed with EPOFLOOR GP-X Epoxy Primer and coarse 18-16 sand is sprinkled into the wet surface. Coverage of primer should be around 3 sqm/litre. The primer is allowed to cure for 24 hours.

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#### Application Guidelines

**CEMTHANE PU** can be applied to produce a number of surface finishes and to suit differing service environments.

- 1) A 6 mm self levelling topping comprising a 4 mm **CEMTHANE PU** Base, broadcast with 2mm of quartz aggregate and sealed with **CEMTHANE PU** Sealer.
- 2) A 6 mm self levelling topping comprising a 4 mm **CEMTHANE PU** Base, broadcast with 2mm of quartz aggregate and sealed with the **EPOFLOOR SL/SLF** epoxy sealing system.
- 3) A 6 mm self levelling topping, comprising a 4 mm **CEMTHANE PU** Base, broadcast with 2 mm of colored quartz aggregate and sealed with the **EPOFLOOR** Epoxy Glaze sealing system.
- 4) A 9 mm **CEMTHANE PU** topping applied by trowel with incorporated antislip aggregate. The aggregate to be added to the **CEMTHANE PU** is chosen to suit the antislip rating required with ratings of R11, R12 and R13 being available.

#### Mixing Instructions

Resin, hardener and pigment blend are to be mixed together for a period of 1.5 minutes. The 14 Kg of aggregate is then added to the mixed liquids and blended with a variable speed helical mixer mechanical stirrer at around 500 rpm. Ensure that all material on side of mixing vessel have been thoroughly incorporated. Apply this mix over an area of

2.5-3.0 m<sup>2</sup> at an average topping depth of 4 mm using an 8x8 mm knotted trowel. The wet topping is then rolled with a porcupine roller to remove entrained and entrapped air. Please note, the mix has a short pot life and must be applied within 10-15 minutes.

#### Self Levelling Topping

The applied topping is then broadcasted to a beach finish with the chosen aggregate, at a rate of approximately 5 Kg per/sqm. and is allowed to cure overnight. Once cured, the excess sand is removed by sweeping or vacuuming. The surface is now ready for sealing by the chosen method.

#### Trowelled Topping

As per the mixing instructions for the self levelling version the resin hardener and fillers are prepared for mixing. Prior to mixing the resin hardener/pigment blend add the additional fillers (Part D 14 kg) to the self levelling aggregate mix (Total

aggregate mix including self levelling fillers is 28kg). Mix liquids and pigment for a period of approx 1.5 minutes and then add the 28kg of fillers. Mix these items together for another 1.5 minutes ensuring all material on the side of the vessel has been thoroughly incorporated. Apply the mix over an approximate area of 2-2.5m<sup>2</sup>. It is recommended that the minimum thickness be 6mm for standard application and 9mm min for high water temperature resistance. (90°C up to 120°C.)

The surface is trowel applied with a bullnose/ flat trowel and can be gauged using 6mm or desired thickness metal flat bars. The distance between the flat bars is dependant upon the site conditions and the capabilities of the applicator. If a non slip surface is required the applicator will be required to broadcast the surface within 10 to 15 minutes of application. The coating is then allowed to cure overnight. The surface is then swept and vacuumed cleaned and the selected sealer is then applied per our recommendations.

#### Field Support

Field support where provided, does not constitute supervisory responsibility. Suggestions made by ATECH either verbally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they and not ATECH are responsible for carrying out procedures appropriate to a specific application.

#### Customer Responsibility

The technical information and application advice given in this publication is based on the best information available at time of print. As the information herein is of a general nature, no assumption can be made as to the products suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by Commonwealth or State Legislation. The owner, his representative or the contractor is responsible for checking the suitability of products for their intended use.

#### Safety Precautions

Epoxy products may cause allergic reactions through skin contact, goggles, protective gloves and overalls must be worn. Ensure that there is adequate ventilation and avoid breathing the vapour.



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