PRITHVI PU-CEM 100

Category: Polyurethane Cementitious Floor Coating Topcoat

1. PRODUCT DESCRIPTION

Prithvi PU-Cem 100 is a premium polyurethane cementitious topcoat material designed for flooring systems with a thickness of 2–5 mm. It delivers exceptional durability, chemical resistance, and thermal performance, making it suitable for heavy-duty industrial and commercial applications. With a seamless and hygienic finish, Prithvi PU-Cem 100 ensures a long-lasting, easy-to-maintain surface that withstands harsh operating conditions, including heavy traffic, chemicals, and thermal shock.

2. RECOMMENDED USES / APPLICATIONS

- Industrial flooring for manufacturing plants, heavy-duty production facilities, and workshops
- Food and beverage processing environments such as dairies, breweries, meat processing units, and bakeries
- Chemical and pharmaceutical plants withstanding exposure to aggressive chemicals and high hygiene requirements, with no deterioration such as cracking, flaking, peeling, blistering, or softening, and no change in colour
- Cold storage and freezer rooms, performing exceptionally well across a temperature resistance range of –40°C to 130°C
- Heavy traffic areas including warehouses, logistics hubs, and loading bays subjected to forklifts and vehicular traffic
- Commercial kitchens and cafeterias requiring a durable, hygienic, slip-resistant surface
- Heavy-duty parking and loading zones
- General industrial production floors and hygienic workspaces

3. KEY FEATURES & BENEFITS

- Durable Performance: Excellent resistance to abrasion, impact, and mechanical loads, ensuring a long service life
- Chemical Resistance: Protects against a wide range of chemicals, including acids, alkalis, oils, and solvents
- Thermal Stability: Performs reliably under extreme temperatures, including thermal cycling, ideal for cold storage and hot processing zones
- Hygienic Surface: Seamless, non-porous finish resists microbial growth and is easy to clean, meeting stringent hygiene standards
- Abrasion and Slip Resistance: Ensures safety and durability in high-traffic areas
- Moisture Tolerance: Performs well in damp conditions, suitable for substrates with residual moisture
- Aesthetic Finish: Available in a variety of colours to suit industrial and commercial design needs
- Quick Application and Curing: Minimizes downtime during installation, ideal for fast-paced environments

4. PHYSICAL & CHEMICAL PROPERTIES

PROPERTY	TYPICAL VALUE	TEST METHOD / STANDARD
Appearance	PU concrete, seamless finish	—
Colour	As per RAL Classic	Visual

PROPERTY	TYPICAL VALUE	TEST METHOD / STANDARD
Specific Gravity / Density (kg/L)	≥ 1.9 kg/L (≥ 1900 kg/m³)	BS 6319: Part 5
Volume Solids (%)	100%	ASTM D5201
pH (if water-based)	Not applicable (non-water-based system)	—
Theoretical Coverage	Installed at system thickness below	—
Recommended DFT (µm)	2,000–5,000 µm (2–5 mm)	—
Shelf Life	12 months, unopened containers	Internal
Type	PU Concrete	—
Compressive Strength	≥ 53 N/mm²	BS 6319: Part 2
Hardness (Shore D)	≥ 84	ASTM D2240
Flexural Strength	≥ 20 N/mm²	BS 6319: Part 3
Tensile Strength	≥ 9 N/mm²	BS 6319: Part 7
Abrasion Resistance (Taber CS17 wheel)	≤ 104 mg/1000 cycles, AR 0.5	ASTM D4060 / BS 8204-2
Impact Resistance	≥ 60 in.lbf	ASTM D2794
Concrete Adhesion	≥ 3 N/mm²	BS 6319: Part 2
Slip Resistance	≥ 40	ISO 13036
Curing Time at 30°C (Touch Dry / Light Traffic / Full Traffic)	10 hours / 20 hours / 7 days	—
Static Modulus of Elasticity	≥ 3.3×10^3 N/mm²	ASTM C 469
Poisson's Ratio of Material in Compression	≥ 96.7×10^3 N/mm²	ASTM C 469M
Dynamic Elasticity Modulus	≥ 6×10^3 N/mm²	ASTM C 579
Coefficient of Thermal Expansion	≥ 3.6×10^{-5} / °C	ASTM C 531
Fire Resistance Classification	Bfl-s1	ISO 13501-1
Surface Flame Spread Resistance	Class 2	BS 476
Thermal Conductivity	0.9 W/m°C	BS 874
Water Absorption	Nil	ASTM D 570

5. COMPOSITION / CHEMICAL BASE

Multi-part polyurethane cementitious (PU concrete) system, supplied in separate components (Part A, B, C, and D) with 100% solid content. Proprietary formulation ratios are not disclosed.

6. APPLICATION DETAILS

Mixing Ratio (Base : Hardener)	Multi-part kit — mix Part A with Part D and stir for 1 minute; pour into a larger vessel to incorporate Part B and Part C; mix with a spiral paddle in a slow-speed drill for 3 minutes until homogeneous
Pot Life	25 minutes at 25°C
Induction Time	Not applicable
Application Method	Applied with a trowel or depth-set rake to the desired thickness, then gently rolled with a spiked roller to release entrapped air and blend trowel marks; topcoat normally spread with a trowel and back-rolled with a 3/8" medium nap roller, taking care to minimize air entrapment from over-rolling
Thinner / Reducer	Not applicable (100% solids system)
Cleaning Solvent	Prithvi Coatings recommended cleaning solvent; hardened material must be removed mechanically
Number of Coats	Primer + Scratch Coat (broadcast with sand) + Topcoat system, as per floor design
Drying Time – Touch Dry	Surface dry: 1–2 hours; touch dry: 7–8 hours
Drying Time – Hard Dry	24 hours
Overcoating Interval (Min – Max)	At 30°C: touch dry 10 hours, light traffic 20 hours
Full Cure	7 days
Application Conditions	Not below 10°C ambient/substrate temperature; ambient relative humidity not exceeding 85%

7. SURFACE PREPARATION

- **General Requirement:** Substrate should have a surface tensile strength of at least 1.5 N/mm² and be hard, sound, and free of dust and other barrier materials such as paint, lime coatings, plaster, curing agents, laitance, oil, grease, wax, and polish
- **New Concrete Floors:** Must cure for at least 28 days with an effective damp-proof membrane below to prevent rising dampness; contaminated surfaces mechanically prepared by grinding, scarification, or shot blasting and vacuum cleaned; overwatered or weak concrete prepared down to sound, solid concrete; movement joints brought through to the finished surface and suitably sealed
- **Old Concrete Floors:** Existing floors requiring refurbishment must be prepared to ensure a strong adhesive bond; mechanical cleaning strongly recommended, particularly where oil/grease contamination or existing coatings are present; alternatively, blasting techniques can be used; new concrete slabs being renovated must cure for at least 14 days
- **Previous Coatings:** All previous floor coatings must be mechanically removed to the maximum extent possible; it is acceptable to re-lay on floor coating that has a firm bond (pull-out strength of 1.5 N/mm²)
- **Preferred Preparation Method:** Vacuum shot blasting is preferred; other methods such as air impact hammer (scabbler, provided the substrate is not damaged), concrete surface planer, grit blasting, wire brush scarifier, surface grinder, drum sander, and flame spaller can be satisfactory; chemical methods such as acid etching are not reliable and not recommended
- **Other Surfaces:** The coating may be used on other substrates; contact Prithvi Coatings for guidance

- **Priming:** All areas must first be primed with Prithvi PU-Cem Primer; one or more coats may be required depending on the condition and porosity of the concrete substrate; high-porosity substrates will show rapid suction and absorption after preparation; poorly primed surfaces may lead to blistering or pin-holing in the cured resin
- **Scratch Coat:** Mix Part A and Part B of the scratch coat in a clean bucket with an electric stirrer per the technical data sheet instructions; add the filler component and mix for two to three minutes until a homogeneous mass is obtained; starting at the far corner, apply the basecoat by trowel and roller and evenly broadcast sand for a firm grip with the topcoat, into the wet product, until all the basecoat is covered (except at the leading edge)
- **Mixing and Application:** Stir the individual contents thoroughly before mixing together; mix Part A with Part D and stir for one minute; pour into a larger mixing vessel to incorporate Part B and Part C; mix thoroughly with a spiral mixing paddle in a slow-speed drill for 3 minutes until a consistent, homogeneous mix is achieved; once mixed, the material will generate heat and lose working time if left in the mixing container or kept in bulk; apply to the prepared and primed surface without delay using a trowel or depth-set rake; gently roll with a spiked roller to release entrapped air and blend trowel marks; protect the work area from airborne debris during installation and initial curing
- **Limitations:** The product should not be applied at temperatures below 10°C or where ambient relative humidity exceeds 85%
- **Floor Joints:** All existing expansion or movement joints should be followed through the new floor surface; joint sealant and joint geometry should be compatible with the floor type, exposure conditions, and substrate movement characteristics — consult Prithvi Coatings for guidance
- **Maintenance:** Good housekeeping and regular cleaning are essential, particularly in areas subject to regular chemical spillage; spillages should not be allowed to dry, as this results in higher concentrations of chemicals that may lead to early failure; regular cleaning with a rotary scrubbing machine in conjunction with a water-miscible cleaning agent, or hot water washing at temperatures up to 50°C, is recommended

8. PACKAGING

Container Type	Multi-part kit
Kit Components	Base, hardener, and filler components supplied as a multi-part kit (Parts A, B, C, D); maximum shelf life of 12 months in unopened containers

9. STORAGE & SHELF LIFE

Store in accordance with national regulations, in a cool, well-ventilated area away from heat, direct sunlight, and sparks, and out of reach of children. Handle with care. Maximum shelf life is 12 months in unopened containers.

10. HEALTH, SAFETY & HANDLING

Observe reasonable care and ordinary hygienic principles, such as washing hands with soap and water before eating or smoking. Wear gloves, goggles, and a nose mask during application. In case of splashes on the skin, dampen a cloth with thinner and wipe the affected area, then wash with soap and water; the dried film is non-toxic. In case of contact with eyes, rinse with plenty of water and seek medical advice. In case of continuous exposure to vapour, the applicator should be moved to fresh air immediately. Refer to the Safety Data Sheet (SDS) for complete health, safety, handling and disposal information prior to use.

11. QUALITY & COMPLIANCE

- Mechanical performance tested to BS 6319 (Parts 2, 3, 5, and 7) for compressive strength, flexural strength, density, and tensile strength
- Hardness tested to ASTM D2240; abrasion resistance to ASTM D4060 / BS 8204-2; impact resistance to ASTM D2794
- Slip resistance tested to ISO 13036; concrete adhesion to BS 6319: Part 2

- Elastic and thermal properties tested to ASTM C469, C469M, C579, and C531
- Fire performance classified to ISO 13501-1 (Bfl-s1) and BS 476 Class 2 surface flame spread resistance; thermal conductivity per BS 874; water absorption per ASTM D570 (Nil)

DISCLAIMER