CIKOcem PUR-ETS

Heavy Duty Polyurethane-Cement Based Easy-Trowel Grade Floor Screed

Description

CIKOcem PUR-ETS is the new generation of polyurethane cement by CIKO ME, a self-smoothing seamless flooring system designed for heavy-duty industrial & commercial applications applied between 6 and 10 mm. CIKOcem PUR-ETS exhibits excellent resistance to thermal shock, impacts, abrasions, and chemicals.

The system product consists of liquid components [Parts-A], [Part-B] and powder components [Part-C] filler, [Part-D] colour pigment available in standard and various colours.

Benefits & Advantages

- Provides Seamless and textured finish having total thickness of 6 mm up to 10 mm.
- Easy to apply and install due to its flow proprietary.
- Withstand steam cleaning with a thermal shock (ΔT) up to 100°C at 6 mm thick and up to 140°C at 9 mm thick,
- Resistant to abrasions and physical impacts
- Resistant to wide range of common chemicals and detergents with non-staining effects.
- Provides a non-slip textured floor finish in both wet and dry conditions.
- Reduce the microbial growth leading to a hygienic medium.
- Non-taint having low VOC
- Retains physical properties through wide service temperature range from -40°C to 140°C, depending on total applied thickness

Application Areas & Uses

CIKOcem PUR-ETS is suitable to be applied in both Commercial and industrial buildings such as:

- Food Processing Plants
- Wet and dry process areas
- Hot and cold process and storage areas.
- Chemical process plants & laboratories

Physical properties

Form	Four components system Part A: Liquid (Resin) Part B: Liquid (Hardener) Part C: Powder Part D: Powder (Pigment)
Colour	Standard and various selected colours
Mixed Density (fresh)	2 ± 0.1 g/cm^3
Light Foot Traffic	18-24 hours
Shore D Hardness	75-80
Pot life	20 - 25 mins @ 25°C
	10 - 15 mins @ 35°C
Pull off Bond Strength to Concrete (C40) ASTM C1583	≥2.5 N/mm^2 (Concrete Failure) 7 days standard curing
	≥2.5 N/mm^2 (Concrete Failure) 7 days standard curing followed by thermal cycles
Water absorption coefficient due to capillary action BS EN 1015	0 mm penetration
	0.0003 kg/m^2.min$^{0.5}$
Modulus of Elasticity by flexure ASTM C580	(2.5-3) *10^3 N/mm^2 @ 14 day
Water absorption ASTM C413	0.01%
Thermal Compatibility with Concrete ASTM C884 (4 cycles, -40°C up to 100°C, 9 mm thick)	Pass (No delamination, no cracks and no sign of failure)
Thermal Compatibility with Concrete ASTM C884 (4 cycles, -40°C up to 60°C, 6 mm thick)	Pass (No delamination, no cracks and no sign of failure)
Linear coefficient of thermal expansion ASTM C531	Approx. 53.61*10^{-06}/°C
Flexural Strength ASTM C580	≥6.5 N/mm^2 @ 1 day
	≥9.5 N/mm^2 @ 7 days
	≥10 N/mm^2 @ 14 days
	≥11 N/mm^2 @ 28 days
Compressive Strength ASTM C579	≥20 N/mm^2 @ 1 day
	≥30 N/mm^2 @ 3 days
	≥35 N/mm^2 @ 7 days
	≥40 N/mm^2 @ 14 days
	≥45 N/mm^2 @ 28 days

Impact Resistance	No crack (4 kg, 50mm)
	Minor dent/impact with no sign of crack (4.75 kg, 250 mm)
Slip Resistance (Pendulum Test) BS EN 1341	65±3 PTV (R12) (Dry Condition)
	45±3 PTV (R11) (Wet Condition)

Chemical Resistance

CIKOcem PUR-ETS is resistant to a wide range of chemicals when tested in Accordance to ASTM D1308 at ambient conditions for a period of 14 days following the patching method. Specific data is available when requested to CIKO Technical Department.

Coverage / Yield

25 kg Kit of CIKOcem PUR-ETS yields between 12 L and 13 L of fresh materials that covers 2-2.15 m² @ 6 mm DFT.

The given coverage figures are theoretical; actual consumption depends on the floor condition, wastage, surface profile and finish.

The recommended total thickness depends on service requirements and conditions. Consult CIKO technical department.

Application instructions

Surface preparation

The concrete should be minimum cured for 7 days achieving a minimum compressive strength and pull off strength of 25 MPa and 2 MPa respectively. The concrete surface moisture content shall not exceed 10%. Early curing movement, shrinkage or cracking that may occur at later stages in the concrete in will be reflected through the final CIKOcem PUR-ETS flooring.

Concrete surfaces are to be mechanically prepared to remove laitance, curing compounds and contaminations to achieve a sound and rough surface. The recommended mechanical means are limited to shot blasting, grit blasting or scarification to achieve a concrete surface profile between CSP 4 and CSP 9 as per ICRI Technical Guideline.

To prevent lifting or delamination during curing time and under service conditions, keyways and anchor joints must be cut at all terminations, joints, columns, doorways, walls and drains. For further detailing of terminations and locking, refer to method statement.

All concrete irregularities such as cracks, holes control joints, expansion joints and terminations must be addressed and prepared prior to the application of the flooring. Consult CIKO technical service department for further support.

The final step in cleaning should be complete removal of all residues with an industrial vacuum cleaner.

The concrete surface should be free from dust and loose particles that may impede adhesion.

If installing of an integral cove such as CIKOcem PUR-COV or pre-casted CIKOcem PUR-SL is to be applied, the installation of the cove should be done prior to applying CIKOcem PUR-ETS to ensure a clean transition. Refer to technical data sheet and method statement for application instructions.

Mixing

CIKOcem PUR-ETS is a ready to mix four components material that requires the utilization of suitable heavy-duty high-speed drill-mixing paddle assembly to ensure a complete mix and to reduce the risk of introducing excessive air into the mixture.

Mix the liquid [part-A] in its original packing to achieve homogenous mixture, dispense the color pigment component [Part-D] whilst the mixer is in the running mode and further mix for 1 to 2 minutes until a well-blended homogeneous color mixture is achieved. Add [Part-B] whilst mixing for additional 1 to 2 minutes. Dispense gradually [part-C] and further mix for an additional of 2 to 3 minutes until all particles are wetted out and a homogenous and flow-able consistency is achieved.

Priming & Scratch Coat

Priming and scratch coat shall be done using CIKOcem PUR-SL, Properly mixed material should be spread over the prepared surface using steel trowel or scrapper maintaining the required thickness of 1 to 1.5 mm, broadcast CIKO ASG (0.5-1mm) or (0.3-0.5 mm) over the wet applied scratch coat to create a mechanical key bonding with body coat. Allow the material to cure for 18 to 24 hours. Remove all excess of unbonded CIKO ASG by vacuuming prior to overlay the body coat CIKOcem PUR-ETS.

Application of CIKOcem PUR-ETS

Immediately after mixing and within maximum 3 minutes, spread the mixed CIKOcem PUR-ETS onto the floor at the desired thickness using cam rake or pin screed rake. Lay abutting edges within 10 minutes to ensure a clean edge. Maintaining a wet edge is important in avoiding lines and ridges on the finished floor.

Back roll in two directions across slurry with a spiked roller to help settle and even out the finish, do not exert force while spike rolling as this might result in smooth finish when done at early stage or spike roller marks when done at late stages. Alternatively run a short nap high quality nylon roller to achieve a medium textured surface. Care shall be taken during spike rolling not to leave spike roller marks. This is strictly depending on placing time of material post mixing, ambient temperatures and ambient conditions. Generally, and under controlled temperature of 25°C the material will self-heal spike roller marks within maximum 15 minutes.

Recommendations

Mock-ups and field test areas are required in order to validate performance and appearance related characteristics to ensure system performance as specified for the intended use, and to determine approval of the coating system including but not limited to:

- Colour
- Inherent surface variations
- Wear and abrasion resistance
- Chemical resistance and stain resistance

Job site variability must be confirmed and assured including but not limited to:

- Surface preparation and profile
- Sunlight and exposure
- Relative humidity
- Dew point temperature
- Ambient and substrate temperature

During application of CIKOcem PUR-ETS products may lead to fisheyes, blistering, pinholes, wrinkling, or outgassing of air in the concrete and are not product defects. Priming, shading or evening application may be required. Refer to Precautions section for further details

CIKOcem PUR-ETS is recommended for professional use only.

Maintenance

The long-term performance, appearance, and life expectancy of wear surface products are critically dependent upon a good routine of cleaning and maintenance program where required and designed specifically for the installed wear surface. CIKO ME floor coating systems are nonporous, causing dirt and contaminants to remain on the surface. Recommend maintenance program consist of frequent and thorough cleaning utilizing a neutral pH cleaner.

Frequency of washing will vary depending on floor usage type, traffic and age.

Curing & Protection

Specific curing for the finished CIKOcem PUR-ETS is not required in normal condition. Protect the applied material for at least 24 hours from light foot traffic, water flow and water vapour condensate.

The applied floor can be put to service within 5 to 7 days depending on prevailing ambient temperatures and conditions

Cleaning

Used tools must be well cleaned with CIKOsol or CIKOsolvent 20 directly after usage.

Packaging

CIKOcem PUR-ETS is available in 25 kg kits consisting of Parts A, B, C and D.

Precautions

- At temperatures exceeding 35°C, the workability, pot life and self-healing properties of the mixed material is reduced and affected.
- Do not apply the material under direct sunlight. The cured material will colour fade when subjected to UV rays.
- During application, the relative humidity shall not exceed 75%, the use of dehumidifier equipment is required in condition where relative humidity is an excess of 75%.
- During and within 12 hours of application, ensure that the ambient and substrate temperatures are between 10^0C and 35^0C.
- Surface temperature is at least 3^0C above dew point temperature.
- It is recommended to use a single batch of CIKOcem PUR-ETS for a continuous wet application to ensure colour uniformity.
- CIKOcem PUR-ETS and CIKOcem PUR-SL do not withstand negative water pressure.
- Do not apply CIKOcem PUR-ETS and CIKOcem PUR-SL over soaked concrete or standing water.
- CIKOcem PUR-ETS is only suitable for concrete substrates.

Storage

CIKOcem PUR-ETS should be stored under cool and enclosed shaded area between 5°C and 25°C away from direct sunlight, moisture and water.

Shelf life

CIKOcem PUR-ETS has a shelf life of 6 months if stored in accordance with CIKO instructions.

Health & safety

Use standard dust mask to avoid inhalation of dust. Powder when wet or moist can cause burns to skin and eyes which should be protected during use. If meets skin/eyes, flush with plenty of fresh water and seek medical advice.

Refer Material Safety Data Sheet for further details.

Technical Support

For any technical support, do not hesitate to contact CIKO team at any time as CIKO offers on and off-site services to end users, specifier and contractors.

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A wide range of construction chemical products are manufactured by CIKO Middle East which includes:

- *Concrete admixtures and additives*
- *Waterproofing and damp-proof coatings*
- *Surface treatments*
- *Flooring and toppings*
- *Grouts and anchors*
- *Tile adhesives and grout*
- *Concrete repair materials*
- *Adhesives and bonding agent*
- *Protective coating*
- *Joint Sealants and Moulding compounds*
- *Ancillaries*

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