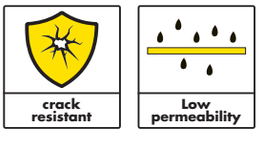
Polycrete 3D

1-Part 3-D printing drymix grout

High strength product, specially formulated by blending OPC with non-shrinking additives, fibres, polymers and graded aggregates to print 3D elements.

CHARACTERISTICS

- Ready to use dry mix requiring only water.
- High thixotropy ensures shape retention during printing.
- High early and final mechanical strengths.
- Excellent surface finish and dimensional accuracy.
- Optimized for 3D printing nozzle systems.
- Low shrinkage and cracking tendency.
- Very low water permeability.
- Consistent rheology for automated equipment.
- Does not contain asbestos, chromated copper arsenate and lead.



DESCRIPTION

Polycrete 3D is a high-performance product that is specially formulated by blending OPC with non-shrinking additives, fibers, polymers and graded aggregates for a thixotropic consistency grout specifically for use with 3D construction printers. It offers excellent buildability, high early and final strength, and controlled consistency, making it ideal for automated layer-by-layer deposition in construction environments.

FIELDS OF APPLICATION

- Automated 3D printing of vertical and horizontal concrete elements.
- Precast and in-situ printed building components.
- Infrastructure and industrial applications requiring fast, automated forming.
- Prototyping.
- Layered construction of walls,partitions and architectural shapes.

APPLICATION INSTRUCTIONS

Surface preparation

Ensure the printing surface or interface is clean, roughened if required, and free from dust, oil, and contaminants. Base layers should be pre-wetted if needed, but free of standing water before application.

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Mixing

Use a high-shear mechanical mixer. Gradually add 14.5 - 16.5% clean water (approx. 3.6 - 4.1L per 25 kg bag) into the mixer and slowly add the powder while mixing continuously. Mix for 3–5 minutes until a homogenous, lump-free, printable consistency is achieved. Do not add extra water once the mix has started to set.

Application

Apply using a compatible 3D construction printer system. The material is designed for extrusion through standard nozzles and provides excellent buildability without formwork. Recommended layer thickness is 10–50 mm. Ensure continuous feed for optimal bonding between layers.

CURING

Protect freshly printed material from direct sunlight, wind, and rapid drying. Start curing immediately after final setting by covering or applying an approved curing compound. Maintain curing for at least 3 days under favorable conditions.

YIELD

Polycrete 3D: ~13L (per 25Kg at 14.5-16.5% water requirement)

STORAGE & SHELF LIFE

Store in a cool, dry place and keep away from all sources of heat and sunlight. In tropical climates, store in air condition rooms. The shelf life is up to 12 months in un-opened condition and if stored as per recommendations. Excessive exposure to sunlight, humidity and UV will result in the deterioration of the quality of the product and reduce its shelf life.

SUPPLY

Polycrete 3D	25kg bag

HEALTH & SAFETY

As with all construction chemical products, caution should always be exercised. protective clothing such as gloves and goggles shall be worn. Treat any splashes to the skin or eyes with fresh water immediately. Should any of the products be accidentally swallowed, do not induce vomiting, but call for medical assistance immediately.

TECHNICAL SPECIFICATION

PROPERTIES	VALUES	TEST STANDARDS
Color & appearance	Grey	-
Mixed density, [g/cc]	2.17±0.05	ASTM D 1475
Consistency	Thixotropic	-
Compressive strength [N/mm²] @ 28 days	> 50	ASTM C 579
Flexural strength @28 days, [N/mm²]	> 8	ASTM C 580
Water penetration @ 5 bars [mm]	< 3	EN12390-8:2019
Application temperature [°C]	5 to 45	-
Layer thickness [mm]	10 - 50	-

All values given are subject to 5-10% tolerance and are based on lab tests at 23 °C and 50% RH.

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