

CRYSTALCOAT - CRYSTALLINE CONCRETE WATERPROOFING
Description

MacLennan Crystalcoat is applied to the surface of concrete to provide in-depth protection against the movement of moisture through the capillaries and hairline cracks within the concrete. It consists of Portland cement, specially treated quartz sand and a compound of active chemicals. MacLennan Crystalcoat is supplied in powdered form and is either sprinkled onto fresh concrete or is mixed with water as a carrier and brush applied as a slurry for application to fully cured or older concrete or vertical surfaces.

The active chemicals within MacLennan Crystalcoat combine with the free lime and moisture present within the capillaries to form insoluble crystalline complexes which effectively block the capillaries and any minor shrinkage cracks to prevent any further movement of moisture to provide a totally dry surface to the concrete.

Large areas can be quickly treated with MacLennan Crystalcoat. The speed of application and the low material application rate (1kg/m²) makes MacLennan Crystalcoat a very low cost option for a large number of scenarios.

Because MacLennan Crystalcoat penetrates deep into the concrete, it does not leave a physical membrane to the surface of the concrete element and so is completely unaffected by loadings imposed by further elements of the build. New concrete elements are placed 'concrete to concrete' with no potential for slip or separation as is the case with physical membranes. This makes MacLennan Crystalcoat particularly useful as a means of isolating moisture within pile caps, ring beams and kicker joints to internal walls.

Key Benefits

- Ease of application - sprinkled onto new concrete and applied as a simple slurry to vertical and cured concrete
- Permeates deep into the concrete to form a barrier against moisture that cannot be damaged or punctured
- Loading capabilities only limited by the strength of the concrete
- No physical membrane - subsequent concrete placement is 'concrete to concrete'
- Concrete treated with MacLennan Crystalcoat remains vapour permeable, allowing the structure to 'breathe'
- Easy to detail and specify as the concrete surface becomes the membrane
- Very cost effective alternative to conventional physical membranes
- Sealing of cracks up to 0.3mm resulting in dry concrete with less reinforcing steel requirement

Typical Applications
Pile caps and ring beams

Pile caps and ring beams often support ground floor slabs and structural walls which are bearing with too much force for conventional membranes to deal with. Because MacLennan Crystalcoat is fully absorbed into the surface of the concrete an indestructible isolating membrane is formed that prevents moisture from the pile cap or ring beam from transferring to the floor slab or structural wall; and does so without creating a potential slip surface between the two building elements.

Support plinths

Where a steel or concrete column is to be supported from a plinth, conventional membranes are often not suitable due to the point loading transmitted through the column. MacLennan Crystalcoat will seal deep into the surface of the concrete to produce a membrane unaffected by the loading of the column.

Sealing of concrete surfaces

MacLennan Crystalcoat will provide a dry surface to walls, rafts and slabs to car parks, garages and plant rooms, where a physical membrane is not suitable because of potential damage or where a physical membrane requires covering with a finish that is not required for the intended end use of the space.

Isolation of internal walls from moisture in the kicker joint:

MacLennan Crystalcoat is the ideal product to prevent the migration of moisture to internal RC walls from kicker joints formed internally to the ground bearing raft. Once applied and correctly cured, MacLennan Crystalcoat forms a barrier to moisture within the surface of the kicker that cannot be damaged by the loading of the structural wall and one that provides a clean concrete to concrete interface of the two building elements so that slippage is not a concern.

Isolation of internal walls from moisture at the abutment with earth retained walls:

MacLennan Crystalcoat creates a simple to apply barrier to prevent the migration of moisture to internal walls at the interface with the retained concrete walls. MacLennan Crystalcoat can be easily applied around reinforcing steel and dowel bars¹) to provide a continuous barrier to moisture that cannot be damaged by placement of the internal concrete wall.

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TECHNICAL DATA

Features	Result					Units
Form – Single Component	Powder					
Colour	Grey					
Density	1.25					
Pack size	25					kg
Shelf life	6					Months
Application rate	1					kg/m ²
Pot life @ 20°C & RH of 40%	N/A					
Application temperature	+5 to +35					°C
Service temperature	-15 to +180					°C
Odour	None					
VOC content	0					%
Curing	5°C	10°C	15°C	20°C	25°C	Units
To not be adulterated by rain	3	3	3	3	3	Days
Ready for temporary foot traffic / protection boards	3	3	3	3	3	Hours
Initial set	6	4	2	1	*45	Hours/*Minutes
Fully cured	28	28	28	28	28	Days
Cured Performance	Result		Units		Test Method	
Colour	Grey					
Membrane thickness	N/A					
Adhesion to concrete	> 0.8		MPa		BS EN 1542	
Tensile adhesion	0.7		MPa		BS EN 1015-12	
Elongation	3 to 5		%		Manufacturer test	
Loading capability	As concrete applied to		MPa		BS 4551	
Water permeability	< 5.0 x 10 ⁻¹³				BTD/TP/02/2002	
Water penetration	< 20		mm		DIN 1048: Part 5:1991	
Fire testing – non-combustibility	Non-combustable				BS 476-4	

Crystalcoat is not a decorative material. When applied as a slurry, the slurry residue remains on the surface of the concrete and can be unsightly. Where applied as a dry powder to green concrete and trowelled or power floated, uneven colouring or blotching may be apparent once the concrete is cured. If a decorative finish is required, other products should be considered.

FOR MORE INFORMATION

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