

MasterLife 300D Crystalline capillary waterproofing admixture used in shotcrete for damp areas

Project:

Crystalline capillary waterproofing admixture for shotcrete

Location:

Hard Rock Mines, South Australia

Project completed:

Ongoing

Applicator/Contractor:

UGC

Market sector:

Waterproofing and Infrastructure

Products used & amounts:

MasterLife 300D

MasterLife SF100

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An image showing the drive with MasterLife 300D in the shotcrete

The background

Shotcrete is widely used in Hard Rock mines for ground support, allowing the customer a safe and efficient mining operation.

The challenge

In damp and wet areas, shotcrete may be difficult to apply where fall out can occur due to the shotcrete not bonding to the wet substrate. Additionally, when shotcrete is applied over damp or wet areas water usually penetrates through the shotcrete and then onto the roads. The water damage on the roads can get very costly for the maintenance spent on the road as well as the damage caused to the equipment.

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Picture of weeping shotcrete without the MasterLife 300D



Picture of the shotcrete with the MasterLife 300D included

Our solution

BASF proposed the addition of MasterLife 300D, a crystalline capillary waterproofing admixture, to the shotcrete mix in conjunction with MasterLife SF100, a dry powdered silica fume.

MasterLife300D admixture is an integral crystalline capillary waterproofing admixture for concrete. It is designed for use in above- and below-grade applications, and reduces concrete permeability effectively allowing the shotcrete to breathe.

By supplementing MasterLife300D with MasterLife SF100, water penetration, and capillary absorption, is reduced due to the denser matrix structure and self-healing nature of hairline cracks. Both products are conveniently supplied in water soluble bags, resulting in easy addition to shotcrete mixes whilst adding synthetic fibers.

The customer's benefit

- A reduction in costs associated with road repairs
- Maintenance on equipment reduced
- Quality of shotcrete application improved in problematic damp areas
- Ease of addition of the products to the mix as the MasterLifeSF100 and MasterLife300D are water soluble bags easily added when adding the fibers
- A more cost-effective solution compared to post excavation grouting/ rehabilitation work

Projects facts at a glance

- Addition of the MasterLife 300D by 2% of weight of cementitious material, and MasterLife SF100 dosed at 20kg per/m³
- Currently being employed to combat weeping/ damp troublesome ground conditions with a mining customer in South Australia (100m³/week of shotcrete)
- Successfully used with another unnamed hard rock mine customer - 150m³ was applied to a geologically challenging area that was a critical infrastructure/ transport route

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