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MasterSeal® 345

Spray applied waterproofing membrane for tunnel concrete composite shell linings

Product description

MasterSeal 345 is an EVA polymer based, sprayable membrane for the waterproofing of underground concrete structures. It is spray applied in a sandwich structure between two sprayed concrete / cast concrete layers, creating a double bonded composite shell lining. It is flexible and has very high bond strength properties on both sides of the membrane. It is an effective alternative to conventional waterproofing sheet membranes.

As a double bonded system, this provides excellent water tightness, preventing the development of water migration on both sides of the membrane.

As with all spray applied membranes, it is not possible to seal against water ingress through the substrate. In such cases a drainage system or local water management using drainage pipes should be used in combination with MasterSeal 345. However, it can be applied to damp substrate (as long as there is no running water).

Fields of application

- Suitable for all types of tunnel designs
- Particularly well suited for underground structures with complex profiles and geometry such as stations, escape and access tunnels, utility caverns, cross passages and tunnel intersections
- Enables tunnel design with composite shell lining to reduce excavation cross section and lining thickness, and is especially suited to tunnel rehabilitations

Features and benefits

- Fast curing
- Easy to use, only addition of water needed
- Application by spraying with simple equipment
- Elasticity 80% to 140% between -20 °C and +20 °C
- No toxic components
- No classification needed for transport

Packaging

MasterSeal 345 is available in 15 kg moisture resistant bags

Technical data

Form	powder
Colour	light brown
Water pressure resistance (max)	15 bar
Bulk density (+20°C)	590 g/l ± 100 g/l
Application thickness	3 to 6mm
Application temperature	+5°C to +40°C
Failure stress (at +20°C, at 28 days)	1.5 to 3.5 MPa
Failure strain (at +20°C, at 28 days)	> 100%
Bond strength to concrete (28 days)	1.2 ± 0.2 MPa
Shore hardness (28 days)	80 ±5
Flammability	self extinguishing (in accordance with DIN 4102-B2)

Consumption

Consumption depends on the surface roughness, but is typically between 4 and 6 kg per m². For more information please refer to the Method Statement.

Compatibility

MasterSeal 345 can be applied onto all types of concrete, provided that the surface is clean and without loose particles. Sprayed concrete and cast concrete may be placed against the membrane surface once it has cured. Fiber reinforced sprayed concrete can be used on both sides of the membrane. It is also compatible with traditional waterproofing methods, enabling interface solutions with other systems (good bond to most sheet membranes and steel).



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Equipment

MasterSeal 345 is applied by the dry spraying method.

Basic recommended equipment set-up:

- Rotor 12 round hole 90 mm high
- Rotor base 90 mm coupling
- Rotor dust collector 90 mm high coupling
- Spraying nozzle DIA 32 mm (plastic tip with collar/conical) with minimum 16 hole water ring (18 holes is recommended)
- Spraying hose DIA 32 mm

Curing

The speed of curing depends on weather conditions on site (humidity, wind conditions and temperature).

We recommend not exposing the membrane to air temperatures outside the range of +5°C and +40°C for a minimum of 5 days following application, and cyclic variations should not exceed 10°C within this range.

Storage

MasterSeal 345 has a shelf life of 12 months if stored in original, unopened bags between +5 °C to +40°C. The storage area must be kept dry.

Safety precautions

The product has no toxic components. The use of gloves, eye protection and a mask when spraying are recommended. For further information please refer to the Material Safety Data Sheet.

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STATEMENT OF RESPONSIBILITY (Disclaimer)

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