

# MasterSeal<sup>®</sup> 345

Version 2.0

## 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% depending on temperature
- No toxic components
- No classification needed for transport.

### PACKAGING

**MasterSeal 345** is available in 20 kg plastic bags, (50 bags on a pallet).

### TECHNICAL DATA

Form	powder
Color	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- (in accordance with DIN 4102-B2)	extinguishing

### CONSUMPTION

Consumption depends on the surface roughness, but is typically between 4 and 6 kg per m<sup>2</sup>. For more information, please refer to the Method Statement.

### COMPATIBILITY

**MasterSeal 345** can be applied onto all types of concrete, if 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).

### EQUIPMENT

**MasterSeal 345** is applied by the dry spraying method using readily available dry spraying equipment like the Reed "Sove" pump

Basic recommended equipment set-up:

- Rotor allowing low output (e.g., 18 pocket feed bowl)
- Rotor dust collector
- 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 product must be kept out of direct sunlight. The storage area must be kept dry.

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### 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

The technical information and application advice given in this Master Builders Solutions publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

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#### NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by Master Builders Solutions either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not Master Builders Solutions, are responsible for carrying out procedures appropriate to a specific application.

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