MasterSeal 345

Spray applied waterproofing membrane for tunnel concrete composite shell linings

DESCRIPTION
MasterSeal 345 is an EVA polymer based sprayable membrane for the waterproofing of underground concrete structures. MasterSeal 345 is spray applied in a sandwich structure between two sprayed concrete / cast concrete layers, creating a double bonded composite shell lining. MasterSeal 345 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
MasterSeal 345 is suitable for all types of tunnel designs and is 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
MasterSeal 345 offers the following 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

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. MasterSeal 345 is also compatible with traditional waterproofing methods, enabling interface solutions with other systems (good bond to most sheet membranes and steel).

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.

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

It is 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.

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 feedbowl)
- 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

PACKAGING
MasterSeal 345 is available in 20 kg plastic bags, (50 bags on a pallet).
### Product Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Light brown powder</td>
</tr>
<tr>
<td>Water pressure resistance (max)</td>
<td>15 bar</td>
</tr>
<tr>
<td>Bulk density (+20°C)</td>
<td>590 g/l ± 100 g/l</td>
</tr>
<tr>
<td>Application thickness</td>
<td>3 to 6mm</td>
</tr>
<tr>
<td>Application temperature</td>
<td>+5°C to +40°C</td>
</tr>
<tr>
<td>Failure stress (at +20°C, at 28 days)</td>
<td>1.5 to 3.5 MPa</td>
</tr>
<tr>
<td>Failure strain (at +20°C, at 28 days)</td>
<td>&gt; 100%</td>
</tr>
<tr>
<td>Bond strength to concrete (28 days)</td>
<td>1.2 ± 0.2 MPa</td>
</tr>
<tr>
<td>Shore hardness (28 days)</td>
<td>80 ±5</td>
</tr>
<tr>
<td>Flammability (in accordance with DIN 4102-B2)</td>
<td>Self- extinguishing</td>
</tr>
</tbody>
</table>

### Logistics

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelf Life</td>
<td>12 months if stored according to manufacturer’s instructions in unopened bags.</td>
</tr>
<tr>
<td>Storage Conditions</td>
<td>Store in original sealed bags and at temperatures between 5°C and 40°C. Store under cover, out of direct sunlight and protect from extremes of temperature. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging.</td>
</tr>
<tr>
<td>Handling and Transportation</td>
<td>Refer to MasterSeal 345 Safety Data Sheet</td>
</tr>
<tr>
<td>Disposal</td>
<td>Refer to MasterSeal 345 Safety Data Sheet</td>
</tr>
</tbody>
</table>
Health and Safety

*For full information on Health and Safety matters regarding this product the relevant Health and Safety Data Sheet should be consulted.*

The following general comments apply to all products.

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs, (which may also be tainted with vapour until the product is fully cured and dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Keep away from children and animals. Reseal containers after use.

Spillage

Chemical products can cause damage; clean spillage immediately.

DISCLAIMER

“BASF plc, Construction Chemicals” (the Company) endeavours to ensure that advice and information given in Product Data Sheets, Method Statements and Material Safety Data Sheets (all known as Product Literature) is accurate and correct. However, the Company has no control over the selection of its products for particular applications. It is important that any prospective customer, user or specifier, satisfies him/her-self that the product is suitable for the specific application. In this process, due regard should be taken of the nature and composition of the background/base and the ambient conditions both at the time of laying/applying/installing the material and when the completed work is to be brought into use.

Accordingly, no liability will be accepted by the Company for the selection, by others, of a product, which is inappropriate to a particular application.

Products are sold subject to the Company’s standard conditions of sale and all customers, users and specifiers, should ensure that they examine the Company’s latest Product Literature.