

MasterSeal® M 645

One Component, High Performance, Liquid Cold-applied Polyurethane Waterproofing Membrane

DESCRIPTION

MasterSeal M 645 is a unique, single component, liquid applied polyurethane membrane used for waterproofing and protection of concrete, metal and fiber-based cement substrates.

The product can be easily applied in thick layers without bubbles and forms a hydrophobic, elastic, seamless membrane without joints that protect old and new structures efficiently.

It can be applied by brush, roller or airless spray gun in two coats.

TYPICAL APPLICATION

MasterSeal M 645 is used as a waterproofing or damp-proofing membrane for concrete protection with excellent crack bridging property. It is suitable for both new and refurbishment projects and recommended for use in the following areas:

- Waterproofing for exposed roofs with topcoat
- Balconies, Terraces, Podium, Roofing, Pedestrian Traffic area
- Light roofing made of metal or fibrous cement
- Refurbishment on existing bitumen sheet membrane
- Protection of PU foam

FEATURES AND BENEFITS

- One-component ready to use
- Simple application by roller, brush or airless spray system
- High thickness build-up per one layer– Less application layers required and reduces application time and cost
- Seamless membrane without joints
- Highly elastic and crack-bridging
- Excellent mechanical properties – No reinforcement required except for detailing
- Cold Weather resistance - The film remains elastic down to -35°C.
- High temperature resistance – The film will not soften with service temperature up to 80°C.
- Special primers available for almost all substrates
- Easy repair and maintenance in case of physical damage to membrane

TECHNICAL PROPERTIES

In liquid form:

Properties	Typical data	Unit
Supply Form	Liquid	--
Viscosity, Brookfield	5000-9000	cps
Density	1.28 ~1.34	g/ml
Solid Content	≥ 85	%
Touch dry time (23°C/ 50%)	≤ 12	hours
Re-coating interval (23°C/ 50%)	Min. 12 Max. 48	hours
Full cure	7	Days
Application temperature	Min. 5 Max.35	°C °C
Permissible relative humidity	80	%

MasterSeal[®] M 645

Technical Data after curing (after 7 days curing)

Properties	Test Method	Technical Parameter	Typical Data	Unit
Tensile Strength	ASTM D412	≥ 6	7.01	MPa
Elongation	ASTM D412	≥ 450	560	%
Tear strength	ASTM D624	≥ 30	30.5	N/mm
Shore A hardness	ASTM D2240	70 ~ 80	74	--
Pull off strength on concrete without primer	ASTM D 7234	≥ 1.0	1.59	N/mm ²
Extensibility after heat ageing	ASTM C1522	No cracking	No cracking at 6.4mm	--
Static crack bridging at -20°C	EN 1062-7	A5 (2.5mm)	Pass	--
Water absorption, 7 days immersion	ASTM D570	≤ 5	3.39	%
water vapor transmission	ASTM E96	21.6	21.6	g/m ² /24h
Low Temperature Flexibility (-25°C)	ASTM D 1970	No crack	No crack	visual
Tensile Strength retention after heat weather 80 °C*168h	ASTM D4587 ASTM D412	≥ 80	95%	%
Resistance to hydrostatic Head up to 7 Bar (71.4meter)	ASTM D 5385	No leakage	No leakage	Visual
Service Temperature	--	Min.-30 Max. 80	--	°C °C

APPLICATION PROCEDURES

Surface Preparation

All substrates (new and old) must be structurally sound, dry, and free of laitance and loose particles.

Clean of oil, grease, rubber skid marks, paint stains and other adhesion impairing contaminants.

Profile mechanically the surface by shot blasting, high pressure water jetting or other suitable mechanical preparation method.

After surface preparation the tensile strength of the substrate should exceed 1.2 N/mm² (check with an approved pull-off tester).

Temperature of the substrate should be minimum +5°C and maximum +35°C. The residual moisture content of the substrate must not exceed 4% (check with e.g. CM device). The temperature of the substrate must be at least 3°C above the current dew point temperature.

Do not apply the **MasterSeal M 645** in temperature below 5 °C, or when dew, rain or frost is imminent in the next 48 hours.

Priming

Before applying membrane, the substrate must be sealed by primer.

Suitable primer for **MasterSeal M 645** on concrete is **MasterSeal P 640, MasterSeal P 642, MasterTop P 1601**

Also, possible to use MasterSeal M 645 as self-primer by adding 5% xylene to dilute.

On stainless steel, non-ferrous metal **MasterSeal P 684** is recommended.

On old bitumen sheet membrane, **MasterSeal P 698** is recommended.

On Concrete

Before the surface application, all detail areas and any singular points like wall-floor connections, chimneys, joints, substrate cracks, penetrations, corners, etc, must be treated.

For this apply one layer of **MasterSeal M 645**, then place a correct cut stripe of geotextile mat (80 ~100g/m²) into the wet material. Press in to fully soak without leaving air pockets.

MasterSeal[®] M 645

Then fully saturate the geotextile mat by applying additional **MasterSeal M 645**. All lap joints in the mat reinforcement should be minimum 50mm.

When the final membrane is applied, the overall thickness over joints and cracks, at coves and around penetrations should be approximately 2.0mm on the standard system.

Membrane

MasterSeal M 645 can be applied easily with a brush, roller, trowel or spray equipment (like Graco XHD001 spray machine, Max 500 bar, material be heated to ~ 40 degree)

One layer can reach 1.0 mm DFT without bubbles.

Homogenize **MasterSeal M 645** by using a slow speed (approx. 300rpm) hand-held mixing machine fitted with a mixing paddle. Pre-mark the area based on consumption and Dry Film Thickness required. Pour mixed **MasterSeal M 645** onto the primed substrate and spread with roller or brush or spray equipment at a consumption of 1.2kg/m² per layer.

Reinforcement Surface Application

Homogenize **MasterSeal M 645** with mechanical stirring before use.

After the mixing, pour product onto the primed surface to be waterproofed, and spread with a roller or brush at a minimum consumption of 1.2kg/m² per layer. Lay geotextile mat (80-100g/m²) reinforcement into the wet membrane, press in and roll flat with a roller to fully saturate the geotextile mat. All lap joints in the geotextile mat reinforcement should be minimum 50mm.

Immediately pour MasterSeal M 645 again on the geotextile mat and spread with a roller or with consumption of 1.2kg/m² per layer, until full saturation. Per thickness design, apply one more layer to achieve final thickness.

MasterSeal M 645 can also be sprayed by airless spray equipment.

Top-Coat

MasterSeal M 645 doesn't have sufficient UV and weather resistance to be used in exposed applications without protection for long term. In exposed applications, apply two coats of **MasterSeal TC 259** or **MasterSeal TC 258**, **MasterSeal TC 640**. Refer to TDS for application guidelines.

Pedestrian Traffic: MasterSeal TC 258/259 Topcoat can be broadcasted with dry silica sand to provide a hard wearing, slip resistant finish for pedestrian traffic.

CONSUMPTION

Normally 1.2kg/m² per layer, two coats are required.

Will achieve DFT 1.55 mm at 2.4 kg/m².

The consumption is theoretical and can vary according to the absorption and roughness of the support. It is essential to carry out representative trials on site to evaluate the exact consumption.

PACKAGE

MasterSeal M 645 is available in 22.5 kg and 25kg pails.

Color

Available in Grey

SHELF LIFE / STORAGE

MasterSeal M 645 can be kept for 9 months from date of manufacture if stored in original unopened packaging, in a dry and shaded area.

PRECAUTION

For the full health and safety hazard information and how to safely handle and use this product, please make sure that you obtain a copy of the MBCC Material Safety Data Sheet (MSDS) from our office or our website.

© = registered trademark of a MBCC Group member in many countries of the world

MAP#MasterSeal M 645-8.2023

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.

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.

MB Solutions Singapore Pte Ltd

1 Harbourfront Avenue #07-07/08
Keppel Bay Tower, Singapore 098632
Tel: +65 6232 4888

www.master-builders-solutions.com/en-asiapacific