

MasterSeal[®] M 790

2-component highly chemical resistant, crack-bridging Membrane based on Xolutec - Technology for waterproofing and protection of concrete structures in harsh conditions.

DESCRIPTION

MasterSeal M 790 is a two-component crack-bridging membrane based on **Xolutec** - Technology providing high chemical and mechanical resistance.

Xolutec™ - A new dimension in durability

Xolutec is an innovative and smart way of combining complementary chemistries. When the material is mixed on site a cross linked interpenetrating network (XPN) is formed enhancing the overall material properties. By controlling the cross-linking density, the properties of **Xolutec** can be adjusted depending on the product performance required, e.g. this allows the formulation of materials with varying degrees of toughness and flexibility. **Xolutec** is very low in volatile organic components (VOC), is quick and easy to apply with both spray and hand application depending on requirements. It cures rapidly even at low temperature, reducing application time thus enabling fast return to service and minimizing downtime. This technology is not sensitive to moisture and tolerates a wide variety of different site conditions, greatly expanding the application window and reducing the potential for delays and failures. Long maintenance cycles and lower life cycle costs significantly reduce total cost of ownership

FIELD OF APPLICATION

MasterSeal M 790 is used in waterproofing applications where a high level of chemical resistance is required.

This includes:

- Waste water treatment plants both in the inflow and outflow areas.
- Sewage effluent pipelines.
- Biogas plants.
- Secondary containment.

MasterSeal M 790 can be applied on:

- Horizontal and vertical substrates.
- Internal and external areas.
- Concrete, cementitious mortar or steel substrates.
- Reinforced concrete to protect it against carbonation or chloride induced corrosion and for protection against chemical attack in secondary containment bunds in chemical and petrochemical industries. Contact your local Master Builders Solutions representative for any other applications not listed here.

FEATURES AND BENEFITS

- **Application Friendly** - Easy hand application by roller or trowel
- **Continuous membrane** - Monolithic – no laps, welds or seams
- **Excellent chemical resistance** – Wide range of applications
- **Resistant to Biogenic Sulphuric Acid** – Durable solution for Sewage treatment plants
- **Waterproof** - Resistant to standing water.
- **Versatile** - Can be applied to a wide range of substrates with appropriate primer.
- **Moisture tolerant** - Can be applied on substrates with high residual humidity.
- **High resistance to carbon dioxide diffusion** - Protects concrete from rebar corrosion.
- **High tear, abrasion and impact resistance:** Withstands traffic and use in areas exposed to mechanical damages.
- **Flexible and crack bridging** - High durability and protection with reduced cracking due to embrittlement
- **Thermoset** - Does not soften at high temperatures.
- **Excellent adhesion** on different substrates (concrete, steel).
- **Weatherproof:** proven thundershower and freeze / thaw resistance, can be applied outdoors without additional top coating.
- **Does not contain solvents** – Environment friendly
- **Can be spray-applied*** - Faster application in demanding conditions

**(with selected 2-component spray machines please contact our technical service for details)*

APPROVALS AND CERTIFICATES

- Proven long-term resistance to biogenic sulfuric acid corrosion resistance (Fraunhofer Institute)
- CE Certification per EN 1504-2
- Chemical Resistance per EN 13529

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PERFORMANCE DATA	
Exposure to water pressure (hours) at +20° C	24
Fully cured (days) at +20° C	7
Service temperature (°C)	
Dry Condition	- 20 to +80
Wet Condition	up to +60
Adhesion to concrete after 28 days (N/mm ²)	
Dry Condition (EN 1542)	2.9
Wet Condition (EN 13578)	2.2
Adhesion to steel without primer (N/mm ²) (EN 12188)	> 7.0
Adhesion after freeze-thaw cycles (N/mm ²) (EN 13687-1)	2.7
CO ₂ permeability S _D (m) (EN 1062-6)	206 (Required > 50)
Water vapour permeability S _D (m) (EN ISO 7783)	126 (Class III S _D > 50)
Capillary water absorption (Kg/m ² ·h ^{0.5}) (EN 1062-3)	0.0005 (Required < 0.1)
Behaviour after artificial weathering (EN 1062-11) (2000h)	No blistering or cracking or flaking; colour change
Tensile strength (N/mm ²) (EN ISO 527-1/-2)	> 20
Abrasion resistance - Taber test (mg loss) (EN ISO 5470 -1)	194 (Required < 3000)
Impact resistance (N-m) (EN ISO 6272/2)	24.5 (Class III > 20)
Shore D hardness after 7 days (EN ISO 868/07)	80
Static crack bridging (EN 1062-7)	A3 (+ 23 °C) A2 (+70°C, dry), A2 (-10°C)
Dynamic crack bridging (EN 1062-7)	B3.1 (23° C) B2 (-10° C)
Elongation at break (%) (DIN 53504)	20
Resistance to water pressure (bar)	
Positive (UNE-EN 12390-8)	5
Negative (UNI 8298-8)	2.5

PROPERTIES	
Mixed Density (g/cm ³) (EN ISO 2811-1)	approx. 1.2
Mixed Viscosity (mPas) (EN ISO 3219)	approx. 2800
Application temperature (°C)	
Substrate	from +5 to +30
Material	from +5 to +30
Application Condition	
Substrate Moisture	No restriction Visibly Dry Surface
Relative humidity (%)	≤ 75
Pot-life (5 kg kit) (Minutes)	
at +20° C	approx. 20
at +10° C	approx. 25
at +30° C	approx. 15
Re-coating interval (Hours) (at +20° C)	approx. 8

APPLICATION METHOD

(a) Surface Preparation

All substrates (new and old) must be structurally sound, dry, free of laitance and loose particles and clean of oil, grease, rubber skid marks, paint stains and other adhesion impairing contaminants.

Concrete: The surface should be prepared by shot blasting, high-pressure water jetting or other suitable mechanical method. After preparation, concrete and other cementitious substrates must have a minimum pull off strength of 1 N/mm².

Substrate temperature must be minimum +5 °C and maximum +35 °C.

Iron / steel: Should be sand blasted to a SA 2½ finish prior to application of the product. No primer coat is needed for application of **MasterSeal M 790** on steel.

(b) Primer coat

A primer coat will improve the adhesion and prevent the appearance of pinholes or bubbles in the hardened coating. The recommended primer for **MasterSeal M 790** is **MasterSeal P 770***. The substrate should be visibly dry - there is no limit to residual humidity.

MasterSeal P 770 can be applied by roller in one layer and its consumption is approx. 0.25 - 0.3 kg/m².

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Wait for at least 5 hours (@ 20° C) before applying **MasterSeal M 790**.

**Please refer to relevant product data sheet for details.*

(c) Mixing

MasterSeal M 790 is supplied in working kits which are pre-packaged in the exact mixing ratio.

Pour the entire content of Part B into the container of Part A and mix with a mechanical drill and paddle at low speed (max. 400 rpm) for at least 3 minutes. Scrape the sides and the bottom of the container several times to ensure complete mixing. Keep the mixer blades submerged in the coating to avoid introducing air bubbles.

Do not mix part packs and do not mix by hand!

(d) Application

MasterSeal M 790 can be applied by brush or roller. It is always recommended to complete the application in a minimum of two layers.

8 hours (overnight) at 20°C ambient and substrate temperature.

FINISHING AND CLEANING

Tools can be cleaned with solvent-based cleaner while still wet. Once cured, the material can only be removed mechanically.

COVERAGE

The consumption of **MasterSeal M 790** is approximately 0.4 kg/m² per coat. A minimum of two coats is required, depending on the condition and porosity of the substrate, and requested film thickness. A two coats application with a total consumption of approximately 0.8 kg/m² will provide a dry film thickness of approx. 0.6 mm.

In high chemically demanding environments (e.g. waste water treatment plants) and/or in harsh, abrasive conditions, a dry film thickness of 0.9 mm is recommended. Therefore, a minimum consumption of 1.0 - 1.2 kg /m² in two or three layers has to be applied.

These consumptions are theoretical and can vary according to the absorption and roughness of the substrate. It is essential to carry out representative trials on site to evaluate the exact consumption.

WORKING TIME

Approximately 20 minutes at 20°C ambient and substrate temperature.

PACKAGING

MasterSeal M 790 is available in:

5 kg kits	32 kg Kits
Part A – 1.5 kg	Part A – 9.6 kg
Part B – 3.5 kg	Part B – 22.4 kg

COLOURS

Grey and Red

STORAGE

MasterSeal M 790 should be stored in original containers under dry conditions at temperatures between 10 - 25°C preferably. Protect from frost and no permanent storage over +30°C.

SHELF LIFE

Shelf life under these conditions is 12 months for both parts.

WATCH POINTS

- Do not apply at temperatures below + 5°C nor above + 35°C
- Do not add any solvents, sand or other components to **MasterSeal M 790** mixes.
- Ensure application in a continuous layer avoiding pinholes, or surface defects that can facilitate penetration of chemicals to substrate.
- Under strong UV radiation the hardened membrane can yellow; this has however no influence on the chemical resistance and mechanical performance of the material.

HANDLING AND TRANSPORT

Usual preventive measures for the handling of chemical products should be observed when using this product, for example do not eat, smoke or drink while working and wash hands when taking a break or when the job is completed.

Specific safety information referring the handling and transport of this product can be found in the Material Safety Data Sheet.

Disposal of product and its container should be carried out according to the local legislation in force. Responsibility for this lies with the final owner of the product.

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