

MasterSeal Pool 1689

High performance elastomeric system for waterproofing swimming pools and water park pools.

DEFINITION OF MATERIAL

MasterSeal Pool 1689 is a continuous waterproofing system based on polyurethane elastomers applied by spray and high performance polyaspartic coating.

MasterSeal Pool 1689 includes, for an average thickness of 3.5 to 4mm:

- primer, MasterSeal P 385;
- waterproofing membrane for airless spray application with bi-mixer, MasterSeal M 689;
- polished polyaspartic elastomeric coating, chemically resistant and stable to UV irradiation, MasterSeal TC 681 (RAL 5015, RAL 7038, White).

MAIN FIELDS OF APPLICATION

MasterSeal Pool 1689 is ideal for waterproofing water park pools (slides, water game pools, dolphinariums) and swimming pools.



- it has extremely strong shock resistance;
- it resists abrasive stresses;
- it meets the principles defined in UNI EN 1504/2 ("Concrete Surface Protection Systems") and their acceptance limits, also with regard to severe chemical attack.



THEORETICAL CONSUMPTION

Product	Application	Kg/m ²
MasterSeal P 385 Comp. D + Water	Concrete repair from 2 to 40mm, fast drying	1.7 / mm (min 2mm)
MasterSeal P 385 Kit "ABC"	Primer for ceramic and/or resinous substrates	0.5
	Primer for damp substrates	
Comp. A + Comp. B + Comp. C	Primer resistant to negative hydraulic thrust	1.5
	Primer resistant to osmotic pressure	
MasterSeal P 385 Kit "AB2D"	Mortar for repair from 2 to 40mm also with primer function, for damp, resinous or mixed substrates (concrete / resin)	1.7 / mm (min 2mm)
Comp. A + Comp. B + 2 Comp. D		

FEATURES

MasterSeal Pool 1689 has the following peculiar features:

- it adheres monolithically to the support;
- it also fits to the most complex geometries;
- A5 crack bridging class elastomeric system (> 2.5mm);
- it chemically resists swimming pool water;
- it has a low level of dirt;

Product	Function	kg/m ²
MasterSeal M 689	Membrane	2 - 2.5
MasterSeal TC 681	UV and chemically resistant elastomeric finish	0.6 - 0.9

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PACKAGING

MasterSeal P 385	Package	Kg
Comp. A	Tin	4.25
Comp. B	Tin	4.25
Comp. C	Bag	15
Comp. D	Bag	25
Kit "ABC" (0.3 to 1mm)	1 Tin Comp. A + 1 Tin Comp. B + 1 Bag Comp. C	23.5
Kit "AB2D" (from 2 to 40mm)	1 Tin Comp. A + 1 Tin Comp. B + 2 Bags Comp. D	58.50

STORAGE

Store the material in the original containers, in a dry and dark place at a temperature between 15 and 25 °C. Do not expose to direct sunlight.

Product	Package	Kg
MasterSeal M 689	Drum	A: 200
	Drum	B: 225
MasterSeal TC 681	Tins	28 (A+B)

CHARACTERISTIC PERFORMANCES MasterSeal M 689

Test methods	Performance (2mm thickness)
Surface hardness, UNI EN ISO 868	Shore A \cong 95, Shore D \cong 48
Concrete adhesion, UNI EN 1542: MC support (0.40) according to UNI EN 1766	Before thermal cycles
	After 50 cycles of freeze and thaw with de-icing salts UNI EN 13687/1
	> 3 MPa (substrate rupture)
Crack bridging ability at 23 °C, UNI EN 1062/7 - Static - Dynamic	Class A ₅ (slot opening > 2.5mm) Class B _{4,2}
Resistance to positive hydraulic thrust, UNI EN 12390/8	5 bars
Resistance to negative hydraulic pressure with primer MasterSeal P 385, UNI 8298/8	2.5 bars
Permeability to water vapour measured as Sd equivalent air thickness, UNI EN ISO 7783/1. Sd = $\mu \cdot s$, μ = vapour diffusion coefficient, s = coating thickness. Class I: Sd < 5 m (Permeable), Class II: Sd \geq 5 and \leq 50 m, Class III: Sd > 50 (Non- Permeable)	Sd < 9 m (Class II)
Capillary absorption coefficient, UNI EN 1062/3	< 0.01 kg·m ⁻² ·h ^{-0,5}
Permeability to CO ₂ , Sd equivalent air thickness, EN ISO 1062/6. Sd = $\mu \cdot s$, μ = coefficient diffusion to CO ₂ , s = coating thickness	Sd > 100 m
Resistance to slip / creep, UNI EN 13036/4 Class I: damp test for internal surfaces: unit \geq 40 Class II: dry test for internal surfaces: unit \geq 40	(With overspray only) Class I: 23 units Class II: 60 units
Resistance to artificial atmospheric agents (2000 hours of UV radiation and condensation), UNI EN 1062/11	No swelling, cracking or slicing (colour changes).
Resistance to abrasion, UNI EN ISO 5470/1 (load 1000 g grinder H22 / 1000 cycles)	Weight loss < 120 mg
Resistance to impact, UNI EN ISO 6272. Class I: 4 N·m, Class II: 10 N·m, Class III: 20 N·m	> 30 N·m, Class > III
Fire reaction class, UNI EN 13501/1 • Fire reaction classes: A1 _{fl} , A2 _{fl} , B _{fl} , C _{fl} , D _{fl} , E1 _{fl} , F1 _{fl} ; • Smoke emission classes: S ₁ , S ₂	C _{fl} -S ₁

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CHARACTERISTIC PERFORMANCES MasterSeal TC 681

Requirements and Test Methods	Performance (referred to a thickness $\geq 300 \mu\text{m}$)
Resistance to severe chemical attack UNI EN 13529: standard pool water test liquid consisting of: <ul style="list-style-type: none"> • deionised water; • tri-chloroisocyanate 10 g/m^3; • algae inhibitor $0,5 \text{ litres} / 100 \text{ m}^3$ 	Class II UNI EN 1504/2 No change in colour and Shore hardness after 6 months of constant exposure
Thermal compatibility (adhesion UNI EN 1542 0.40 MC substrate UNI EN 1766, after 50 freeze and thaw cycles with de-icing salts), UNI EN 13687/1	$> 3 \text{ MPa}$ (substrate rupture)
Crack bridging ability at $23 \text{ }^\circ\text{C}$, UNI EN 1062/7 - Static - Dynamic	Class A ₄ , (slot opening 1.25– 2.5mm) Class B ₂
Permeability to water vapour measured as Sd equivalent air thickness, UNI EN ISO 7783/1. $S_d = \mu \cdot s$, μ = vapour diffusion coefficient, s = coating thickness. Class I: $S_d < 5 \text{ m}$ (Permeable), Class II: $S_d \geq 5$ and $\leq 50 \text{ m}$, Class III: $S_d > 50$ (Non- Permeable)	$S_d < 1.35 \text{ m}$ (Class I)
Capillary absorption coefficient, UNI EN 1062/3	$< 0.01 \text{ kg}\cdot\text{m}^{-2}\cdot\text{h}^{-0.5}$
Resistance to slip / creep, UNI EN 13036/4 Class I: damp test for internal surfaces: $\text{unit} \geq 40$; Class II: dry test for internal surfaces: $\text{unit} \geq 40$.	Class I: 22 units Class II: 18 units
Permeability to CO_2 , Sd equivalent air thickness, EN ISO 1062/6 (thickness $200 \mu\text{m}$). $S_d = \mu \cdot s$, μ = coefficient diffusion to CO_2 , s = coating thickness	$S_d > 50 \text{ m}$
Resistance to impact, UNI EN ISO 6272. Class I: $4 \text{ N}\cdot\text{m}$, Class II: $10 \text{ N}\cdot\text{m}$, Class III: $20 \text{ N}\cdot\text{m}$	$20 \text{ N}\cdot\text{m}$
Resistance to artificial atmospheric agents (2000 hours of UV radiation and condensation), UNI EN 1062/11	No degradation or colour change
Resistance to abrasion, UNI EN ISO 5470/1 (load 1000 g grinder H22 / 1000 cycles)	Weight loss $< 200 \text{ mg}$

DATA SHEET

TEMPERATURE

Application can occur when the ambient temperature is between $+ 5 \text{ }^\circ\text{C}$ and $+ 40 \text{ }^\circ\text{C}$.

DETERIORATED CONCRETE: REPAIR WITH FAST DRYING MORTAR

Provide for removal of the inconsistent and deteriorated or oil, grease or other substance contaminated concrete layer, and then for fast drying with MasterSeal P 385 Comp. D mixed with water only.

NON-DETERIORATED CONCRETE

The surface must be sandblasted or sanded.

Other specific techniques can also be used in specific cases (the choice of these is to be evaluated upon on-site visit).

COVES

Coves must be made with fast drying mortar MasterSeal P 385 Comp. D mixed with water only or with MasterSeal 590, quick-setting mortar.

JOINTS

The expansion and construction joints must be respected and sealed with MasterSeal NP 474, MasterSeal 944 or MasterSeal 930 sealants (for the choice, always contact BASF CC Technical Service).

RESIN OR CERAMIC SUBSTRATES

The surface must be sandblasted or sanded. Only MasterSeal P 385 Kit "AB2D" or MasterSeal P 385 Kit "ABC" can be applied on this type of substrates.

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SUBSTRATE SATURATION

Before proceeding with the application of MasterSeal P 385, wet the highly absorbent surfaces with water, then remove any excess water with rags or air jets. The substrate must be saturated with a dry surface.

APPLICATION of MasterSeal P 385 Comp. D + water

Add to MasterSeal P 385 Comp. D, the mix water shown in the table. Mix with a low speed rotating whip drill (400-600 rpm) until a homogeneous mixture is obtained.

Technical data	
Density of the mixture	about 2 kg / litre
Mix water	17.5% (4.3 to 4.4 litres per bag)
Workability time	20 minutes at 20 °C
Setting times at 20 °C	Start at 45 minutes End at 70 minutes
Operating temperature (air)	- 20 °C – + 80 °C
Full hardening at 20 °C	28 days

Apply material with a spatula.

APPLICATION of MasterSeal P 385 KIT "ABC" (Comp. A + Comp. B + Comp. C)

Pour the component B (hardener) into component A (base) and mix thoroughly until complete homogenization. Then add the component C (inert) while stirring using a mechanical stirrer. Stir until a smooth and clogless mix has been obtained.

It is applied with a spatula, as it is or diluted with water up to 10% or with roller or spray, diluted with water up to 20% maximum.

Technical data	
Useful life in open pot	1 hour at + 20 °C
Mixing ratios	18%A, 18%B, 64%C
Operating temperature	- 20 °C – +80 °C (air)
Full hardening at 20 °C	7 days

Always apply the material in two coats at 16 to 24 hours apart.

During the product application phase, keep in constant stirring.

Do not work under direct sunlight, with wind, fog or strong moisture or rain hazard.

To spray MasterSeal P 385 "ABC" kit (Comp.A + Comp.B + Comp.C), only diaphragm airless pumps must be used. Immediately after use, wash the tools thoroughly with water and detergent.

Airless spray equipment	
Nozzle equivalent diameter	0.026 - 0.030 in
Spraying angle	50 to 80°
Nozzle pressure	200 - 250 bars
Minimum flow rate	10 litres / minute
Tube diameter	3/8 in
Maximum pipe length	10 m
Filter	60 Mesh (250 micron of aperture and 590 meshes / cm ²)

APPLICATION of MasterSeal P 385 KIT "AB2D" (Comp. A + Comp. B + 2 Comp. D)

Pour the component B (hardener) into component A (base) and mix thoroughly until complete homogenization. Water may be added to the newly mixed resin (A + B) up to 10% maximum on the total weight of component D.

Then add the component D in an amount equal to 2 bags while stirring using a mechanical stirrer. Stir until a smooth and clogless mix has been obtained.

Technical data	
Useful life in open pot	20 minutes at + 20 °C
Mixing ratios	7% A, 7% B, 86 % 2D
Setting times at 20 °C	Start at 45 minutes End at 85 minutes
Operating temperature	- 20 °C – +80 °C (air)
Full hardening at 20 °C	28 days

Apply with a palette knife.

Immediately after use, wash the tools thoroughly with water and detergent.

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RECOATING TIMES

Always verify that the surface moisture of MasterSeal P 385 is less than or equal to 4% before being painted over.

MasterSeal P 385: residual moisture and recoating times at 20 °C (carbide hygrometer)

MasterSeal P 385	Time	Residual moisture	Recoating
Comp. D + Water	24 hours	< 6 %	MasterSeal P 385 (ABC) ☺
Kit "ABC"	48 hours	< 4 %	MasterTop P 604 MasterSeal M 689 ☺
Kit "AB2D"	24 hours	< 3 %	MasterTop P 604 MasterSeal M 689 ☺

APPLICATION MasterTop P 604 / P 686W

In some cases, in order to reduce the phenomenon of blowholes, it may be necessary before laying MasterSeal M 689, to apply a coat of MasterPop P 604 or MasterTop P 686W epoxy primer by 0.2-0.3 kg / m².

In these cases, please refer to the relevant technical data sheet.

APPLICATION of MasterSeal M 689

Before application, both components must be pre-heated by heating bands at a temperature of about 25-30 ° C. Mix component A before laying.

Technical data	
Mixing ratio	Vol. 100 A: 100 B Weight. 100 A: 112 B
Density	A: 1.0 kg / litre B: 1.11 kg / litre
Viscosity at 20 °C	A: 220 mPa·s B: 800 mPa·s
Application pressure	120 - 200 bars
Application temperature	Comp A 70-80 °C Comp B 70-80 °C
Gel time at 20 °C	20 - 25 s
Full hardening at 23°C	2 days

The application of MasterSeal M 689 must be performed using the specific bimixer hot spraying apparatus.

MasterSeal M 689 can be applied in variable thicknesses in one coat on either horizontal or vertical surfaces.

The tools used for mixing and applying the material can be cleaned with thinner for polyurethane products P200. The material hardened on the tools can be removed mechanically.

APPLICATION of MasterSeal TC 681

Before mixing, bring components A and B to a temperature between 15 and 25 °C.

Pour the entire contents of Part B into the container of Part A.

Hand mixing is not allowed. Mix with a very low speed electric propeller mixer (approx. 300 rpm) for no less than 3 minutes.

Scrape the sides and bottom of the container several times to obtain total mixing.

Mixer blades must always be immersed in the product to prevent air bubbles. Do not work outside the original container.

Apply with a roller at least in two coats

Technical data	
Mixing ratio	100 A / 67 B
Solids by volume	94%
Density at 20 °C	about 1.39 kg / litre
Kinematic viscosity at 23 °C	about 700 mPa·s
Workability time at 23 °C	25 min
Maximum relative humidity	85%
Walkable at 23 °C	After 3 hours
Passable at 23 °C	After 7 hours
Complete polymerization	After 7 days

CLEANING TOOL

Immediately clean tools after use with thinner.

RECOMMISSIONING

Swimming pool recommissioning shall take place upon complete curing of the waterproofing coating (see table above).

APPLICATION GUIDANCE

For all details on proper application, always refer to the specific application guidelines "MasterSeal Traffic Systems: Application Handbook for Waterproofing of Paving Slabs" and "Water Management Clean & Waste: Application Handbook for MasterSeal Systems".



We create chemistry

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DECLARATION OF PERFORMANCE (DOP) AND CE MARKING

In compliance with the European Regulation (EU No. 305/2011 and EU No. 574/2014) the system components are CE marked according to EN 1504/2 and its DoP (Declaration of Performance).

Since 16/12/1992, BASF Construction Chemicals Italia Spa operates under a Quality System certified in accordance with UNI EN ISO 9001. In addition, the Environmental Management System is certified according to UNI EN ISO 14001 standard and the Safety Management System is certified according to the OHSAS 18001 standard. Environmental sustainability: Member of Green Building Council since 2009.

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For more information, please consult the BASF Construction Chemicals Italia Spa's local Engineer.

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This edition cancels and replaces any other previous one.

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