EOC Belgium – Latex division

BK 6205

BK 6205 is a waterbased compound based on a styrene-butadiene copolymer. BK 6205 is a black pigmented compound, designed for use as a liquid applied membrane. The product has a bluish-black colour but will turn into a black membrane when drying.

Dispersion Properties

Appearance	Blue, viscous compound
Polymer Type	Styrene - Butadiene
Emulsifying System	anionic – non-ionic
Brookfield viscosity (RVT 10 rpm, 20°C)	14000 - 20000 cps
Total Solid Content	56.0 +/- 1.0 %
pH	6.0 - 8.0

Film Properties

Appearance	Black, non transparent film
Surface	Non tacky
M.F.F.T.	+ 0 °C

Applications

This product is used as a liquid applied water and dampproofing membrane and can be brush or roller applied on surfaces that are damp or that have been primed with diluted compound or with diluted (ratio 1:1) EOC Latex L 6006 or L 6007.

It is advised to apply a minimum dry thickness of 0,5 - 0,6 mm in two coats of 0,3 mm dry thickness each with a total coverage of approx. 1,20 kg compound per m². The second coat is applied only when the first coat is touch dry: this is usually possible 1 hour after applying the first coat.

The compound dries fast and results in a black membrane with high strength and flexibility.

Storage

The shelf life of BK 6205 is 6 months in shade off sun at a temperature from +5°C to 30 °C.

PROPERTIES OF THE BK6205 MEMBRANE.

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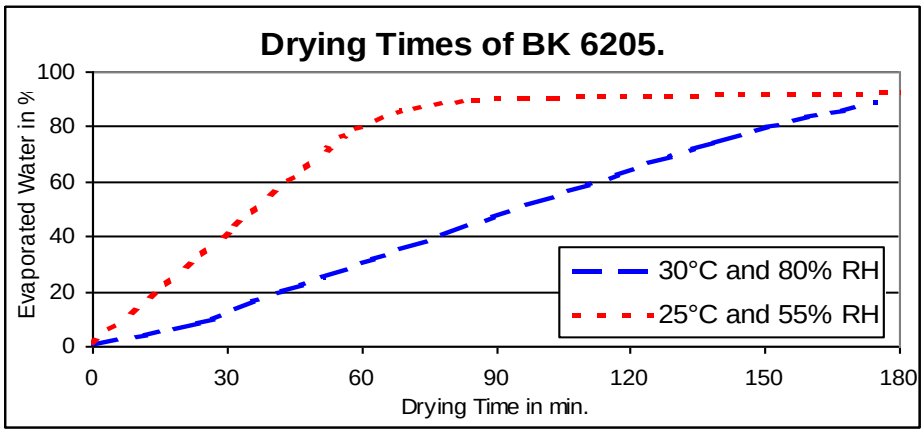
Drying time.

Tests on drying time have been done under the following conditions of temperature and relative humidity:

- ➔ 25°C / 55%
- ➔ 30°C / 80%

A compoundfilm of approx. 0,30mm dry thickness, which is the advised thickness for each of the two coats, was drawn on a teflon coated glassplate. This substrate has been chosen in order to eliminate the influence of absorption of water. By doing so it was possible to get a better indication of the drying speed of an applied membrane.
One can expect shorter drying times when the product is applied on porous substrates such as concrete or brickwork. The second coat however, will need drying times that are more or less in line with what is shown in this graph, as the underlaying first coat will not absorb water from the final coat.

It is worthwhile to pull attention on the influence of high relative humidity on drying times: the evaporation of water is slowed down remarkably at high relative humidity, even at higher ambient temperatures.



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Adhesion Strength.

The adhesion strength was measured by means of the pull-off method: a concrete paving slab was coated with 500 grams of product per m² per coat. Two coats have been applied and the total coverage with BK 6205 was 1 kg/m².

After seven days drying at ambient temperature and humidity (22°C / 60% RH) , ceramic tiles have been placed onto the surface, using a cement based tile adhesive.

It was found that the quality of the bond failure (strength and place of failure) was ruled by the quality of this adhesive: the use of a low quality adhesive (gauging liquid was water) resulted in low pull-off values because the failure was always for 100% between tile and tile adhesive.
The typical bond strength under these poor conditions was 0,72 N/mm² after 14 days drying. Soaking for 1 month in water did not have an influence on this result: the same strength and same kind of failure was registered.

As highest value for bond strength was found 1,7 N/mm² with failures in the epoxy glue and at the interface 'membrane – tile adhesive'. No bond failure between substrate and membrane has been observed. There was no failure anymore between tile and tile adhesive because the adhesive had been polymer modified with EOC Latex L 6007. The epoxy glue was used to fix the metal disk for pull-off onto the tile surface.
Soaking in water for 7 days resulted in an average bond strength of 1,2 N/mm² with 80% of the failures at the interface 'tile – tile adhesive' and 20% at the interface 'membrane – tile adhesive'.

Based on these results it is concluded that still higher bond strength can be achieved when using the 'right' adhesive; it is clear that poor quality adhesive or not properly applied adhesive will result in low bonding strength though the adhesion of the membrane on the substrate will not be affected.
The wet strength will be 1,0 N/mm² or higher, again depending on the tile adhesive quality and eventually on the nature of the tile surface that can cause epoxy glue failures.

Water Vapour Permeability Properties.

The water vapour permeability was measured using Payne Cups and membranes of approximately 0,6 mm thickness. Several tests have been done at different conditions of temperature and relative humidity, as the result of this property is influenced by both parameters.

At 22°C and 55% RH, a 0,6 mm thick membrane has a water vapour permeability of +/- 5-10 grams per m² per 24 hrs. The same value was found for 35°C and 75% RH.
Lower values will be found at lower temperatures and higher percentages of humidity.

It was found that leaching out the membrane in water influenced this property remarkably. The membrane was soaked in tap water for 7 days and dried thereafter for 7 days. The water vapour permeability at 22°C and 55% RH was less than 5 grams per m² per 24 hrs.

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Mechanical Properties.

Membranes of 0,60 mm thickness have been drawn (2 coats) and dried for 7 days at 22°C and 55% RH. Dumbbells were taken from these films and tested on tensile strength and elongation at break.

Tensile strength: 3,4 N/mm²
Elongation at break: 380 %

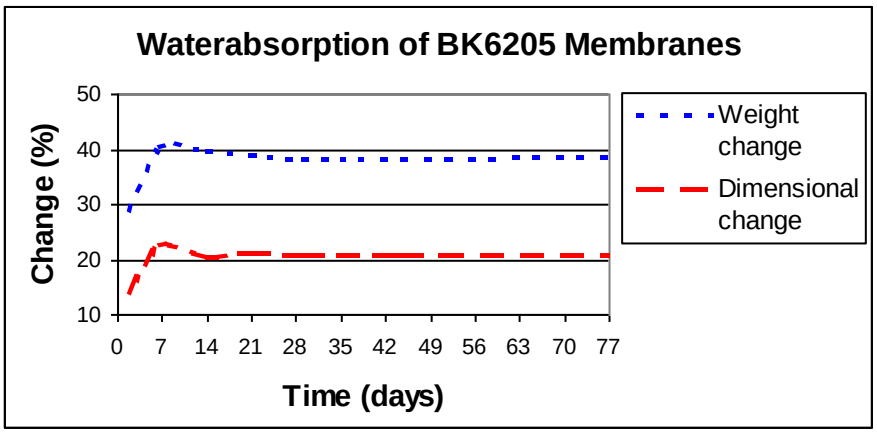
The same material was soaked for 3 month in tap water and dried again for 7 days:

Tensile strength: 4 N/mm²
Elongation at break: 200 %

Water Absorption.

Membrane films of 0,35 mm thickness have been soaked in water for a longer period of time and the relative change in original weight and dimension has been followed up during that period.

The membrane is capable of absorbing a small amount of water during the initial stage but this stabilises very soon. There is no further increase in water absorption after a prolonged period of contact with water.



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Other typical properties.

T_g (°C) (DMA)	-8
Volatile Organic Compounds (V.O.C.)	Nil
Nominal Thickness (mm)	0,6
Crack Bridging a. 2mm gap width b. 1 mm gap width for 10 cycles	a. No cracks b. No cracks
Hardness (Shore A) After 2 hour cure	38 16 ply thickness: 6,02 mm)
Resistance to Toluene	softens
Touch-dry time (min)	60
Service temperature	Flexible above -8°C.

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