

MBT (Schweiz) AG
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Test Report No. 425359.1

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Test Assignment: Test of water tightness under pressure
Test Object: MASTERSEAL ® 345 (applied by the client)

Order dated of: July 1st, 2002, Mr Thomas Kothe
Test Object received: November 20th, 2002
Number of Pages: 2
Attachments: -

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Dübendorf, December 18, 2003

Project leader

Laboratory for Concrete and
Construction Chemistry
Head of laboratory:



STS 338

Walter Trindler

Dr Michael Romer

Note: The test results are valid solely for the tested object. The use of the test report for advertizing purposes, any reference to it or the publication of excerpts require the approval of the EMPA (see Information Sheet). Test reports and supporting documents are retained for 10 years.

1 Test Assignment

The client entrusted EMPA with the testing of their product MASTERSEAL X345 for water tightness under a water pressure of 20 bar. The name of the product was changed from MASTERSEAL X345 to MASTERSEAL ® 345 during the duration of the tests.

2 Sample description

MASTERSEAL ® 345 was applied by the client on the top surface of a porous building material of the size 200x200x55 mm on October 30th 2002, the thickness of the coating being approximately 3 mm. According to the communication with the client the samples have been stored at 20°C and 65% RH.

At EMPA six samples with MASTERSEAL ® 345 and one sample without surface treatment (reference sample) were glued in pressure vessels in the way that only the top surface was exposed to the water pressure. The samples were mounted by the client on November 20th 2002.

Testing was started on November 25th 2002 by flooding the vessels with water and applying a constant pressure of 20 bar.

3 Results

Reference sample

After 1 hour of applied pressure 2.2 litre of water flew through the sample. Testing was stopped for this sample immediately.

Samples treated with MASTERSEAL ® 345

Until the end of testing (3 month: February 27th or 12 month: December 2nd) the unexposed surfaces of all samples were still dry. After 3 month three samples were removed from the vessels and were split. The remaining three samples were removed and split after 12 month. Following the instruction of EN 12390-8 the penetration depth of water into the test surface was determined on the fresh crack surface immediately after splitting.

Sample	test duration	penetration depth [mm]
Sample N° 1 (Reference)	1 hour	n.d.
Sample N° 2	3 month	10
Sample N° 3	3 month	12
Sample N° 4	3 month	22
Sample N° 5	12 month	6-7
Sample N° 6	12 month	6-7
Sample N° 7	12 month	10-20

n.d.: not determined

the range in penetration depth is representing minimum and maximum values

4 Assessment

The reference sample without any coating shows basically a high water flow as expected.

The samples coated with 3 mm of MASTERSEAL ® 345 show a small and almost homogeneous penetration of moisture from the coating. The penetration depths into the underlying porous building material after up to 12 months of high pressure (20 bars) application vary between 10 to 22 mm without indication of speeding up over time.

Apart from the observed moisture migration, MASTERSEAL ® 345 demonstrates watertight performance characteristics under these adverse conditions.