

**Title: Determination of Moisture Vapour
Transmission Rate of Graffiti
Magic Matt**

Certificate of Test Number: 12883

Client's Name & Address:

Graffiti Magic Ltd
36 Folkestone Enterprise Centre
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Folkestone
Kent
CT19 4RH

Our Ref: N950/T591

TC Job No: 3LK6 – 1.307.1

Your Ref: PO MJT-241109

Date: 02 February 2010

Date sample(s) received: 27 November 2009

Sample(s) received from: Graffiti Magic Ltd

Sample No: 145551

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Tested by: 
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TECHNOLOGY CENTRE 

1. INTRODUCTION

This certificate of test describes the moisture vapour transmission testing carried out at the request of Graffiti Magic Ltd. between 05 Jan – 01 Feb 2010 at Technology Centre (TC), Leighton Buzzard.

The test was carried out in accordance with Internal Technology Centre Test Procedure TP N950/09/16074 which is based upon EN ISO 7783-2.

2. SAMPLE DESCRIPTION

Technology Centre received two tins of Graffiti Magic Matt (TC Ref 145551 + 145552). The coatings were given unique TC sample numbers for reference purposes only.

3. TEST PROCEDURE

3.1 Coating Application

The coating system was brush applied to four unglazed ceramic tiles approximately 88mm diameter x 4mm thick using a weighing procedure to achieve the coverage rate required. One coat of Graffiti Magic Matt was applied at a rate of 500g/m² and allowed to air dry for 24 hours.

The coated sample was allowed to cure for 2-3 days in the laboratory and then conditioned at 23±2°C and 60±5% relative humidity for a minimum period of four weeks prior to testing.

3.2 Determination of Moisture Vapour Transmission

The test was carried out in triplicate at 23±2°C. Three coated ceramic discs were sealed in Payne permeability cups such that both faces were exposed. The coated face was exposed to a dry atmosphere (0% relative humidity) and the other face to water vapour (100% relative humidity).

The test cups were weighed periodically over a test interval of approximately 30 days. Equilibrium conditions were achieved after approximately 4 days and the subsequent steady state flow of water vapour was calculated from the rate of weight loss.

The diffusion coefficient with respect to water vapour for the coating (D_{H₂O}) was calculated from the measured flux for the coated tile (g/m².d) using Fick's law of diffusion and Crank's equation.

4. TEST RESULTS

MOISTURE VAPOUR TRANSMISSION RATE

Table 1

| COATING SYSTEM | Graffiti Magic Matt | | |
|--|------------------------|------------------------|------------------------|
| Specimen No. | 145551A | 145551B | 145551C |
| Flux (g/m ² .d) | 154 | 158 | 136 |
| D _{H₂O} (cm ² s ⁻¹) | 1.91 x10 ⁻⁴ | 2.10 x10 ⁻⁴ | 1.31 x10 ⁻⁴ |
| μ-value | 1.33 x10 ³ | 1.21 x10 ³ | 1.94 x10 ³ |
| SD (m) | 0.09 | 0.09 | 0.14 |
| Mean DFT (μm) | 71 | 71 | 71 |

Dates tested: 05 Jan – 01 Feb 2010

Notes

- (i) The SD-value (equivalent air layer thickness) is dependent on film thickness and is calculated above for the mean of the measured dry film thickness obtained from a spare sample.
- (ii) D_{H₂O} for the Unglazed Ceramic Tile (thickness = 4.1mm) is 0.00446 (Units of D are cm²s⁻¹).
- (iii) The criteria for an acceptable anti-carbonation coating is for SD to be equal to, or less than, 4m.
- (iv) Classification in accordance with EN 1062-1

Table 2

| Classification | Moisture Vapour Transmission Rate (V) | | SD (m) |
|----------------|---------------------------------------|-------------------------|-------------|
| | (g/(m ² .d)) | (g/(m ² .h)) | |
| I (high) | >150 | >6 | < 0.14 |
| II (medium) | 15 to 150 | 0.6 to 6 | 0.14 to 1.4 |
| III (low) | <15 | <0.6 | > 1.4 |

END OF CERTIFICATE