

Certificate of Test

Supplement to Certificate of Test number 8828 issued by Taylor Woodrow on 29th May 2007.

Since the original Certificate was issued, 'Akzo Nobel Decorative Coatings Ltd' has been renamed as 'Crown Paints Limited'.

Title:

CROWN PAINTS LTD

Sandtex Trade Hydrobond

Determination of Carbon Dioxide Permeability

Certificate of Test No: **11337**

Client's Name & Address:

**Crown Paints Ltd
PO Box 37
Crown House
Hollins Road
Darwen BB3 0BG**

Our Ref:	1.151.7
Job No:	T591-3LK6
Your Ref:	PO 4500888787
Date:	5 February 2009
Date Sample(s) Received:	4 April 2007
Sample(s) Received From:	Crown Paints Ltd

Sample No(s): **143969**

Tested By:  D J Thompson

Authorised By:  S R Moxon

Job Title: **Manager, Testing & Contracting**

For

Taylor Woodrow Technology

Stanbridge Road, Leighton Buzzard, Bedfordshire,
LU7 4QH
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1. SAMPLE DESCRIPTION AND ANALYSIS REQUIRED

The Materials Testing Laboratories received one tin of Sandtex Trade Hydrobond (TW ref. 143969). The coating was given a unique sample number for reference purposes only. No Certificate of sampling was received.

The laboratories were requested to determine the carbon dioxide diffusion coefficient in accordance with our UKAS accredited In-House Test Procedure TP950/05/13569 Issue 1, which is in general accordance with EN 1062-6:2002.

2. METHOD

2.1 Coating Application

The coating system was brush applied to previously characterised porous plates using a weighing procedure to achieve the coverage rate required. Two coats of Sandtex Trade Hydrobond were applied, each at a rate of 193g/m^2 , with a minimum drying period of 16 hours between coats. The second coat was applied at 90° to the first. The coated sample was allowed to cure for 2-3 days in the laboratory, and then conditioned at $23\pm 2^\circ\text{C}$ and $60\pm 5\%$ relative humidity for a minimum period of four weeks prior to testing.

2.2 Determination of Carbon Dioxide Diffusion Resistance*

One coated tile (specimen no. 143969/2) was sealed in a circular steel rig such that the coated and uncoated faces were exposed. Carbon dioxide (15% in oxygen) at a known pressure and flow rate was passed over the coated face of the plate and helium gas was passed over the opposite face at the same pressure and flow rate. The helium gas stream was continuously monitored by gas chromatography to analyse for carbon dioxide. Equilibrium conditions were not achieved as the coating did not act as barrier to the gas. Therefore the diffusion coefficient for carbon dioxide (D_{CO_2}) could not be calculated.

* In-House Test Procedure TP950/05/13569 Issue 1.

2.3 Determination of Carbon Dioxide Permeability

Testing for gas permeability was undertaken in general accordance with "Rilem Report 12, Performance Criteria for Concrete Durability, E & FN Spon, London, UK pp 226-231". Carbon dioxide (15% in oxygen) at approximately 0.13bar (10cmHg) above atmospheric was pressurised on the coated surface of the sample. The gas flow rate through the sample was determined at atmospheric pressure approximately 2 hours after initial pressurisation. The porous plate tile offers no measurable resistance to pressurised gas and was ignored in the calculation of the carbon dioxide gas permeability.

3. RESULTS

The results of the gas permeability test are given in the table below.

CARBON DIOXIDE GAS PERMEABILITY

Table 1

Coating System Name	TW Specimen No.	Coating Thickness (mm)	Specimen Area (cm ²)	Time Elapsed After Start Of Test (Hours)	CO ₂ Gas Permeability (K _g) (m ² /s ⁻¹)
Sandtex Trade Hydrobond	143969/2	0.089	55.25	2	7.848x10 ⁻⁸

Date of test: 24 May 2007.

END OF CERTIFICATE
