

# Certificate of Test

This CoT 24192RevA version supersedes original CoT 241192, dated 24 December 2015. Since the original Certificate, the client requested the product name to be changed to Newton 403 HydroBond-GB. No other changes to the Certificate were undertaken.

**Title: Newton 403 HydroBond-GB**

**Determination of Carbon Dioxide Gas Permeability**

**Certificate of Test Number: 24192RevA**

**Customer's Name & Address:**

John Newton & Co. Limited  
Newton House  
17-19, Sovereign Way  
Tonbridge  
Kent  
TN9 1RH

Our Ref: N950/TR0042

VTC Job No: 3TL1 – 1.323.04

Your Ref: PO 6146, dated 19-Nov-15

Date: 24 February 2016

Date samples received: 24 November 2015

Sample received from: John Newton & Co. Limited

Sample No: 150254

Written by:   
D J Thompson (position: Engineer)

Authorised by:   
S R Moxon (position: Operations Director)

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**TECHNOLOGY**   
**CENTRE**

## 1. INTRODUCTION

This certificate of test describes the Carbon Dioxide (CO<sub>2</sub>) gas permeability testing carried out at the request of John Newton & Co. Limited on 04 December 2015 at VINCI Technology Centre (VTC), Leighton Buzzard.

The test was carried out in accordance with In-House Test Procedure TP950/05/13569 Issue 1 and "Rilem Report 12, Performance Criteria for Concrete Durability, E & FN Spon, London, UK pp 226 – 230".

## 2. SAMPLE DESCRIPTION

VINCI Technology Centre UK Limited received four A4 sized sheets of Newton 403 HydroBond-GB membrane from John Newton & Co. Limited (VTC Ref 150254 A-D). The samples were given unique VTC sample numbers for reference purposes only.

## 3. TEST PROCEDURE

### 3.1 Specimen Preparation

The Newton 403 HydroBond-GB membrane was trimmed and sealed by placing in a circular stainless steel mould and filling the annular space with cold curing epoxy resin such that both faces were exposed. When cured the specimen was then conditioned at 23±2°C and ambient laboratory relative humidity, for approximately 7 days prior to testing.

### 3.2 Determination of CO<sub>2</sub> Gas Permeability

One membrane sample (VTC Ref. 150253) was sealed in a circular steel rig such that the coated and uncoated faces were exposed. CO<sub>2</sub> gas at approximately 20 kPa above atmospheric pressure was passed over the coated face of the plate, and any gas flow passing through the sample was determined via a gas bubble-meter.

## 4. TEST RESULTS

The results for the testing are contained in Table 1 below.

### GAS PERMEABILITY RESULTS

Table 1

Client Reference	VTC Ref	Specimen Thickness (m)	Exposed Area (m <sup>2</sup> )	CO <sub>2</sub> Gas Permeability (K <sub>gas</sub> ) (m/s)
Newton 403 HydroBond-GB	150254 A	1.334 x10 <sup>-3</sup>	2.980 x10 <sup>-3</sup>	8.38 x10 <sup>-7</sup>

Date of test: 04 December 2015

## 5. SPECIFICATION

The permeability specification for non-geological barriers is as follows:

For inert waste: K<sub>gas</sub> <1.00 x10<sup>-7</sup> m/s.

Taken from Council Directive 193/31/EC dated 04/1999.

END OF CERTIFICATE