

**Title: Determination of Methane  
Permeability of Triton TT Vapour  
Membrane**

**Certificate of Test Number: 12811RevB**

**Client's Name & Address:**

Triton Chemical Manufacturing Co. Ltd  
129 Felixstowe Road  
Abbey Wood  
London  
SE2 9SG

Our Ref: N950/T591

TC Job No: 3LK6 – 1.281.07

Your Ref: KD/1209-TTVM/TEST

Date: 21 March 2012

Date sample(s) received: 27 November 2009

Sample(s) received from: Triton Chemicals


Sample No: 145554

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**TECHNOLOGY  
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## 1. INTRODUCTION

This certificate of test describes methane permeability testing carried out on Triton TT Vapour Membrane at the request of Triton Chemical Manufacturing Co. Ltd. on 16 December 2009 at Technology Centre (TC), Leighton Buzzard.

## 2. SAMPLE DESCRIPTION

Technology Centre received one 1ltr tin of Triton TT Vapour Membrane (TC Ref 145554). The coating was given unique TC sample numbers for reference purposes only.

## 3. TEST METHOD

### 3.1 Coating Application

The coating system was brush applied to four unglazed ceramic tiles approximately 100x75mm using a weighing procedure to achieve the coverage rate required. One coat of Triton TT Vapour Membrane was applied at a rate of 300g/m<sup>2</sup> and allowed to air dry for 24 hours. A second coat of Triton TT Vapour Membrane was then applied at a rate of 700g/m<sup>2</sup>. Each coat was applied at 90° to the previous.

The coated sample was allowed to cure for 24 hours in the laboratory and then conditioned at 23±2°C and 60±5% relative humidity for a minimum period of 7 days prior to testing.

### 3.2 Test Procedure

The test was carried out in general accordance with accordance with "Rilem Report 12, Performance Criteria for Concrete Durability, E & FN Spon, London, UK pp 226-230".

Methane (100%) at 23cm mercury (30700Pa) above atmospheric was pressurised on the coated specimen. The gas flow rate through the sample was determined at atmospheric pressure approximately 2 hours after initial pressurisation. The unglazed ceramic tile offers no measurable resistance to pressurised gas and was ignored in the calculation of the methane gas permeability ( $K_{gas}$ ). Calculation of gas permeability ( $K_{gas}$ ) was determined in accordance with equation 2.7 in "Rilem Report 12, Performance Criteria for Concrete Durability, E & FN Spon, London, UK pp 7-8".

## 4. TEST RESULTS

The results for the testing are contained in Table 2 below

### METHANE GAS PERMEABILITY

Table 2

Client Reference	TC Ref	Specimen Thickness (m)	Exposed Area (m <sup>2</sup> )	Methane Gas Permeability ( $K_{gas}$ ) (m/s)	Methane Gas Permeability ( $K_{gas}$ ) (ml/m <sup>2</sup> /s)
Triton TT Vapour Membrane	145554C	0.000727	0.005064	8.527 x10 <sup>-15</sup>	8.527 x10 <sup>-9</sup>

Date of test: 16.12.2009

Note: The methane gas permeability values gained by this method can also be used for radon gas permeability values.

## 5. SPECIFICATION

The permeability specifications for non-geological barriers as taken from Council Directive 193/31/EC dated April 1999 has for inert waste:  $K_{gas} = <1.00 \times 10^{-7}$  m/s.