

# Certificate of Test

Title:

**TRITON CHEMICAL MANUFACTURING**

**Triton TT-55**

**Water Permeability Determination  
On Coated Concrete Cores**

Certificate of Test No: 5717

Client's Name & Address:

**Triton Chemical Manufacturing  
Triton House  
Lydean Industrial Estate  
129 Felixstowe Road  
Abbeywood  
London, SE2 9SG**

Our Ref: 231S/SS/JM/066c  
TEL Job No: 6729  
Your Ref: 4126/99F  
Date: 20<sup>th</sup> September, 1999  
Date Sample(s) Received: 4<sup>th</sup> May, 1999  
Sample(s) Received From: Triton Chemical

Sample No(s): 126176/1

Tested By:  S Stoute

Authorised By:  A T Blake

For

## **TAYWOOD ENGINEERING**

CONSULTANTS IN DESIGN AND TECHNOLOGY

### **Technology**

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**1. SAMPLE REQUIREMENTS**

Approximately 3.5kg of Triton TT-55 was received for water permeability determination on coated concrete cores in general accordance with DIN 1048 and the Taywood Engineering In House Test Procedure.

**2. METHOD****2.1 Sample Preparation**

Two coats of Triton TT-55 was trowel applied to 100mm diameter concrete cores at a rate of  $3\text{kg/m}^2$ , giving a total coating rate of  $6\text{kg/m}^2$ . The second coat was applied  $90^\circ$  to the first allowing 24 hours drying time between each coat.

The coating was cured for three days at  $23 \pm 2^\circ\text{C}$  in a plastic bag and conditioned for fourteen days at  $60 \pm 5\%$  RH.

**2.2 Water Permeability Coefficient Determination**

The side of each sample was sealed with epoxy resin, by placing in circular moulds and filling the annular space with cold a curing epoxy resin. When the resin had cured, the specimens were demoulded and the water permeability coefficients were determined for the samples in an as received condition.

The procedure followed was generally in accordance with the test methods quoted above. Water, increasing in pressure at a rate of 1 bar per day, was applied to the uncoated surface of the samples. A diagram of the test equipment is shown in Figure 1. The testing was undertaken in the laboratory at  $23 \pm 2^\circ\text{C}$  and ambient Relative Humidity.

Permeability coefficient based on the time for penetration were calculated using Valenta's modified formula, and a coefficient based on flow rate and penetration depth was calculated using Darcy's formula.

3. RESULTS

The samples were inversely tested up to 3 bar pressure (30m water head). After 24 hours at this pressure, the flow rate of water through the sample was measured.

Tables of Results

Table 1

COATING SYSTEM	TE SAMPLE NO.	DATE	PRESSURE (BAR)	COMMENTS
Triton TT-55	126176/1	22.07.99	1	No signs of debonding or leakage.
Triton TT-55	126176/1	23.07.99	2	No signs of debonding or leakage.
Triton TT-55	126176/1	26.07.99	3	Sample showing signs of moisture on the surface as water begins to penetrate the coating
Triton TT-55	126176/1	27.07.99	3	Water was now penetrating through coating.

Water Permeability Results

Table 2

Client ID	Triton TT-55
TEL S/N	126176/1
Pressure (Bar)	3
Sample Depth (cm)	5.43
Surface Area (cm)	76.78
Penetration Depth (cm)	5.43
Voids (%)	1.33
Time (hours)	72
Water Permeability. (m/s)	1.89E-12
Based on penetration (Valenta's)	
Based on flow (Darcy's)	3.60E-12

Water penetrated the Triton TT-55 sample on 27.07.99.



WATER PERMEABILITY TEST

FIGURE 1

