

4WT NO: 3332
JOB NO: 2655
CLIENT REF: Marty McAleenan
REPORT NO: 1868 1 Issue 2

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REPORT ON THE TESTING OF C-TEC WT1

Supplied by:

C-Tec N.I Ltd
Unit 6
Ashtree Enterprise Park
Newry
County Down
Northern Ireland
BT34 1BY

Report Prepared by:

Lesley J Komatsu

Report on the testing of

C-Tec WT1

4ward Testing Ltd were contacted by C-Tec N.I. Ltd of Unit 6, Ashtree Enterprise Park, Newry, County Down, Northern Ireland, BT34 1BY and asked to carry out a series of tests on C-Tec WT1

Identification

Material: Polyurethane based Liquid Roofing Membrane
Customer Identification: C-Tec WT1
Batch No: 4784825
Customer Reference: Marty McAleenan
4ward Sample No: 3332
Job No: 2655
Date Received: 01/07/2015

Test Data

Sheets of WT1 were prepared by the Laboratory in a size and thickness appropriate for the samples required for the testing below.

Thickness: nominal 2mm
Cure time: 2 day cure at $23\pm 2^{\circ}\text{C}$, $50\pm 5\%\text{RH}$

The following tests were carried out:

Tensile Strength

The Tensile Strength and Elongation of the prepared Membrane was measured according to BS EN ISO 527-3 after the following exposure conditions:

- Control after 21 & 56 days @ $23\pm 2^{\circ}\text{C}$, $50\pm 5\%\text{RH}$
- 50 days @ $70\pm 2^{\circ}\text{C}$
- Exposure to heat/Xenon light/water according to ISO 4892-2 as follows:

Artificial weathering: Automatic cycling
Test machine type: Q-Sun Xenon Tester XE-03-HS
Exposure to: ISO 4892-2, Method A
Exposure time: 500hrs
Cycle time: Dry period: 102mins

Black Panel Temperature: 65°C, Air Temperature: 38°C, Humidity: 50% RH
Wet period: 18mins
Light Off

- 500 hrs exposure to UV light/condensation according to ASTM G154

Lamps: UVA-340
Typical Irradiance: 0.77W/m²/nm
Approximate wavelength: 340nm
Exposure cycle: 8hrs UV @ 60±3°C Black panel temperature
4hrs Condensation @ 50±3°C Black panel temperature
Cycling: Continuous for 500hrs

- 28 days in DI water @ 60±2°C

No of samples tested per condition: 5
Specimen Die: Type 5
Test machine: Instron 1114
UKAS Calibration certificate: E105060215105639
Speed of test: 500mm/min

Slip resistance

The Slip Resistance was measured wet and dry on a sheet of the Membrane according to BS 7976-2

Equipment: KSS Pendulum
Slider type: 4S/96
Test conditions: Wet (using potable water to cover the whole test area and refreshed between tests)
Dry (indoor conditions)
Measurements at each condition: 8
No of horizontal planes: 3 (0, 45 & 90°)
Test temperature: 21±2°C

Moisture Vapour Transmission Rate

The rate of water vapour transmission through the Membrane was measured according to BS 3177

Test conditions: 25±2°C, 75±5% RH (Temperate)
No of test assemblies: 3
Thickness of Membrane: nominal 2mm
Time of test: 31 days

Date of testing: 04/08 - 29 /09/2015

Test Results

Control Tensile Properties after 21 days

Sample	Tensile strength (N/mm ²)	Extension at break (%)
1	1.45	140
2	1.63	190
3	1.55	170
4	1.50	150
5	1.70	180
Mean	1.57	170
Std dev	0.10	20

Control Tensile Properties after 56 days

Sample	Tensile strength (N/mm ²)	Extension at break (%)
1	1.40	380
2	1.59	350
3	1.59	350
4	1.63	360
5	1.58	320
Mean	1.56	350
Std dev	0.09	20

Tensile properties after Heat Ageing

Sample	Tensile strength (N/mm ²)	Extension at break (%)
1	3.64	190
2	1.31	150
3	4.30	170
4	3.32	270
5	2.42	130
Mean	3.00	180
Std dev	1.16	50

Tensile Properties after Heat/Xenon light/Water exposure

Sample	Tensile strength (N/mm ²)	Extension at break (%)
1	1.03	410
2	0.94	320
3	0.99	330
4	1.05	320
5	1.07	310
Mean	1.02	340
Std dev	0.05	40

Tensile Properties after UV light/condensation exposure

Sample	Tensile strength (N/mm ²)	Extension at break (%)
1	1.37	370
2	1.36	390
3	1.22	300
4	1.33	380
5	1.39	380
Mean	1.33	360
Std dev	0.07	40

Tensile Properties after hot water immersion

Sample	Tensile strength (N/mm ²)	Extension at break (%)
1	1.05	460
2	1.09	500
3	0.98	440
4	1.06	520
5	1.00	470
Mean	1.04	480
Std dev	0.05	30

Slip Resistance

Slip resistance: Dry	130	Pass
Wet	22	Fail

Moisture Vapour Transmission rate

MVTR: 10.64g/m²/24hrs

These results relate only to the material tested

Work carried out and recorded by the following personnel:



Paula Fountain BSc MSc
Laboratory Technician

Work approved by the following personnel:



L J Komatsu ACQI
Technical Manager

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