

All tests included in this report are implemented according to ISO 9001

Certified Management system of BBRI

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TEST REPORT

Laboratory	ROOF AND FAÇADES ELEMENTS – CAR	O/Reference	DE-CAR-0169 (DE651XP322) CAR-19-183 (CAR 18247) Page 1 of 5
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Requested by	Profilsa Plastik Sanayi ve Ticaret A.S. Ikitelli USB Esvop San. SIT. C6 Blok Nv. 361-363 Basaksehir/Istanbul Turkey Tel.:+90 212 671 92 72 Fax: +90 212 671 92 02		
Date of the request	2018/11/19	Identification of the samples	S2019-15-002
		Reception of the samples	2018/12/03
Date of the report	2019/04/09		
Tests	Measurement of the c, T and Q values on aluminium profiles with thermal barrier before and after ageing		
Reference	European Standard EN 14024 «Metal profile with thermal barrier» - Version 2005		

This report contains 5 pages; it may only be reproduced in its entirety. Each page of the original report has been stamped (in red) by the laboratory and initialled by the head of laboratory. The results and findings are only valid for the tested samples.

- No sample
- Sample(s) submitted to a destructive test
- Sample(s) to be removed from our laboratories 30 calendar days after sending of the report, unless a written request is received by the demander of the test



Ir. V. Detremmerie
Head of Laboratory



Ir. B. Michaux
Head of Division

1 Introduction

On request of Profilsa Plastik Sanayi ve Ticaret A.S. represented by Ali Gürbag, BBRI carried out some tests in order to measure the tensile strength Q , the shear strength T and the elasticity constant c according to EN 14024 (2005). The results of these tests are given in the present report.

2 Description of the samples

The samples, aluminium window profiles, were delivered at BBRI Test Centre on 3 December 2018 under the registration number S2019-15-002. The composition and dimensions of the samples are given here below.

2.1 Composition of the samples

The schematic representation of the samples is shown in the different figures below.

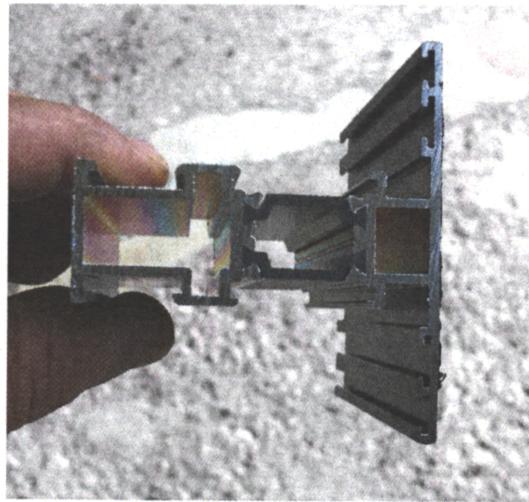


Figure 1: Cross view of the sample

2.2 Dimensions of the samples

Length of the received profiles: 100 mm (cTQ)

2.3 Description of the samples

The description of the samples is given by the requestor

- Profile number: Not communicated
 - Thermal break: PA 24002, material PA66GF25, 2mm (thickness of cavities wall)
 - Surfacing: varnished after strutting



3 Description of the tests

3.1 cTQ

The measurement of the T and Q values and the calculation of the c value for the profiles with thermal barrier are implemented according to the European standard NBN EN 14024 - version 2005.

According to the request, the following measurements should be done:

- Measurement of T and calculation of c

LT	<input checked="" type="checkbox"/>
RT	<input checked="" type="checkbox"/>
HT	<input checked="" type="checkbox"/>
Temperature category TC1	<input type="checkbox"/>

- Measurement of Q	LT	<input checked="" type="checkbox"/>
	RT	<input checked="" type="checkbox"/>
	HT	<input checked="" type="checkbox"/>
	TC2	<input checked="" type="checkbox"/>
- After ageing: measurement of T, c, Q, Δh, f, A₂ according to the ageing method

Method 1	<input checked="" type="checkbox"/>
Method 2	<input type="checkbox"/>
Method 3	<input type="checkbox"/>
- Performance after immersion in water (§ 5.2.2)
- Performance after exposure to humidity (§ 5.2.3)
- Testing for brittleness (§ 5.2.5)

With

LT : Lower temperature LT
 RT : Room temperature
 HT : High temperature HT
 n : Quantity of sample
 Δh : Residual deformation after ageing method 1
 f : Residual deformation after ageing method 2
 A₂ : Creep factor

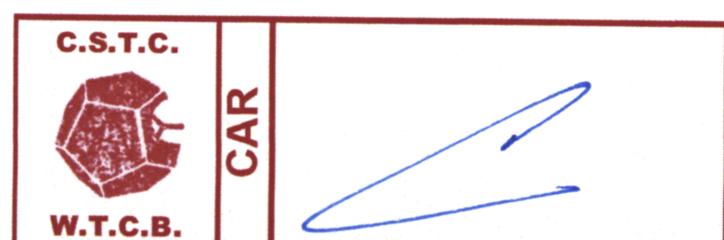
Calculation of T_c and Q_c

On the measured values, the characteristic values are calculated according to the equation:

$$X_c = \text{AVG} - T_{0,05 p} \text{ STD}$$

with AVG : average
 STD : standard deviation
 n : quantity of sample

n	5	10
T _{0,05 p}	2.375	2.02



4 Results of the tests

4.1 Profile (reference not disclosed, see picture)

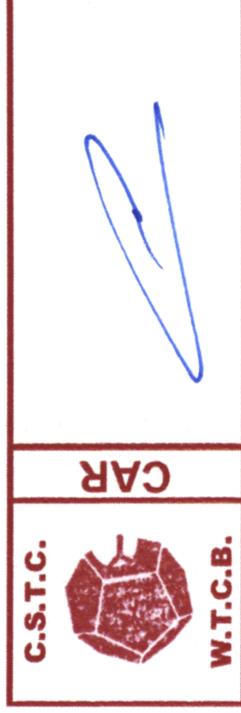
4.1.1.1 Type Varnished after strutting

The c values are calculated values.

Sample Nr.	RT		RT		RT		TC2		TC2		TC2		TC2		5.2.3		5.2.5		OLD M1		OLD M1	
	T ^N _{RT} (N/mm)	C ^N _{RT} (N/mm ²)	Q ^N _{RT} (N/mm)	T ^N _{HT} (N/mm)	C ^N _{HT} (N/mm ²)	Q ^N _{HT} (N/mm)	T ^N _{LT} (N/mm)	C ^N _{LT} (N/mm ²)	Q ^N _{LT} (N/mm)	T ^N _{RT} (N/mm)	Q ^N _{RT} (N/mm)	T ^N _{HT} (N/mm)	C ^N _{HT} (N/mm ²)	Q ^N _{HT} (N/mm)	T ^N _{LT} (N/mm)	C ^N _{LT} (N/mm ²)	Q ^N _{LT} (N/mm)	Q ^N _{-10°C} (N/mm)	Q ^{M1} _{LT} (N/mm)	Q ^{M1} _{HT} (N/mm)		
1	40.76	49.52	80.19	39.61	32.1	62.1	53	84.81	77.59	60.09	47.21	81.95	67.22									
2	47.06	57.59	83.15	40.73	32.08	59.35	56.16	79.74	74.17	57.59	49.62	69.21	64.90									
3	48.52	60.78	82.08	38.99	31.62	55.99	64.07	87.79	76.02	59.59	53.62	69.51	62.61									
4	47.4	56.88	80.79	42.84	33.48	56.29	59.71	83.6	79.99	55.67	53.19	75.09	64.05									
5	49.04	64.32	87.25	39.87	30.57	59.24	66.62	90.63	74.3	52.85	45.34	78.41	63.75									
6	47.36	60.69	81.93	34.88	32.16	55.34	55.26	81.35	79.73	57.67	45.65	79.41	64.38									
7	47.88	62.03	84.37	33.83	31.77	60.23	61.4	89.65	80.41	59.77	48.09	84.46	59.29									
8	55.68	61.48	85.55	39.74	32.49	53.19	66.72	90.5	78.18	54.15	49.86	67.86	61.60									
9	46.96	60.8	85.4	37.5	31.53	60.78	55.18	80.44	62.81	57.18	47.53	69.93	63.59									
10	41.43	62.49	86.65	41.29	32.09	54.11	56.66	86.77	77.86	54.53	58.34	65.89	63.94									
AVG	47.21	59.66	83.73	38.93	31.99	57.66	59.48	85.53	76.11	56.91	49.85	74.17	63.53									
STD	4.12	4.18	2.46	2.80	0.74	3.06	5.01	4.16	5.17	2.54	4.10	6.54	2.09									
	T ^N _{RT}		Q ^N _{RT}	T ^N _{HT}		Q ^N _{HT}	T ^N _{LT}		Q ^N _{LT}		Q ^N _{-10°C}	Q ^{M1} _{LT}	Q ^{M1} _{HT}									
	38.90		78.75	33.27		51.49	49.37		65.67		41.57	60.95	59.31									

Table 1

The measured thicknesses after ageing Method1 are given on Table 1.



M1	Measured thicknesses [mm]										AVG
Sample Nr.	1	2	3	4	5	6	7	8	9	10	
New	68.93	69.01	68.97	68.97	69.01	69.03	68.98	69.00	69.01	69.04	69.00
Old	69.29	69.28	69.31	69.31	69.33	69.28	69.29	69.32	69.31	69.29	69.30
Δh											-0.3

Table 1: results after ageing



