



Report No/ Rapor No : 2024090306
Applicant/Deney Sahibi : **ASTRAL PETROL ÜRÜNLERİ SAN. VE TİC. LTD. ŞTİ.**
Applicant Address/ Adres: Gültepe Mah. Demokrasi Bulv. Bestan Tekstil AŞ. No:59
Merkez/ Batman
Contact Person / Yetkili : Davut YAVUZ
Contact Telephone / Telefon: -
Sample Accepted on / Numune Tarihi: 21.06.2024
Report Date / Rapor Tarihi : 03.09.2024
Total number of pages/Rapor Sayfa: 4 (Pg)
Sample ID : **THERMAL SHIELD**

	TEST/ INSPECTION	Directive	METHOD	RESULT
*	FLAMMABILITY TEST	Construction Product Inspections EU 305/2011 89/106/EEC	EN 13501-1	A-S1,d0

NOTE: This test/inspection result replaces the conformity assessment, can be presented to official institutions, and used in products and brochures.



Seal

Customer Representative

Merve Nur KIRVELİ

Laboratory Manager

Merve ÖZLÜ

Test/inspection results, methods and other information about the sample shown in the relevant pages of this Report are based on the information specified in accordance with "Test/inspection Request Form (PR03-F01) conveyed to us from the Applicant. Test/inspection results are valid for the sample as identified above. Sample may not represent the lot which it belongs. This Report does not replace a Product Certificate. Full report or any part of it may not be reproduced or used for any other purpose without the written permission of EUROLAB Laboratory. Sampling has not been done by us. Unsigned and unsealed Reports are invalid. Analysis as indicated with "*" are in the Scope of our Accreditation Certificate issued from UAF according to TS EN ISO/IEC 17020, 17025, Analysis as indicated with "***" are performed at the external laboratories using accredited test/inspection methods according to EN ISO/IEC 17020, 17025 from UAF. Possible extra notes may add with starting "N" to related pages. Tested and remaining samples will be kept in specified terms & conditions at test/inspection request and/or proposal form. Physically, chemically and microbiologically decomposed samples are discarded regardless of the storage period. Applicant can not claim any right in this regard. Results are shown in this Report do not include Measurement Uncertainty values, Measurement Uncertainty values are not taken in consideration during Pass/Fail assessment of the test/inspection results shown in this Report. Evaluation of the test/inspection results using Measurement Uncertainty values is the responsibility of the Applicant. An inspection body shall issue an inspection certificate that does not include the inspection results only when the inspection body can also produce an inspection report containing the inspection results, and when both the inspection certificate and inspection report are traceable to each other.

PR33-F01/08.10.2015/Rev:17.01.2017-R01

EN 13501-1: FLAMMABILITY TEST

Test Result

Building products and structural elements, fire classification. Part 1: Classification by using data obtained from the behavior tests against fire.

This standard covers the behavior of all building products, including products used in combination with structural elements, against flame.

Provisions for Inspection and Test:

If Rule / Test Is Not Needed To Be Applied To Sample (Not Applicable To Sample)	NU
If the Specimen Fits the Rules (Passed)	P
If the Specimen Tested Does Not Comply with the Rules (Left)	K
If there is a Rule / Experiment Not Applied for Any Reason (Unable)	Y

Sample No	1	2	3	4	5	6
Flammability (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes
Whether the flame is spread (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes
Flame Spreading Time	-	-	-	-	-	-
Combustion on Filter Paper (Yes/No)	No	No	No	No	No	No
RESULT						
Observations: Samples had an ignition. The flame did not reach the measurement line within the experimental period. No dripping, melting and burning, filter paper did not burn.						

Related Product Standard and Citations: Fire Response Test (EN 13501-1 A _{fl} Class)	
Conditioning Details: The test samples were conditioned at 23 ± 2 ° C and 50 ± 5% relative humidity at EN Class A _{fl} (TS EN ISO 13501-1 Madde 8.3)	
Test Sample	For the determination of conformity to Class A _{fl} , use a product, the time of exposure to flame according to NF EN 13501-1
Exposure Requirements	Length -- mm , Width -- mm , Thickness — mm
	Surface exposed to flame

RESULT: Tests and tests were carried out according to the European Standard TS EN ISO 13501-1. The product has passed the test successfully.

"The result of this experiment is related to the behavior of the test specimen of a product under the special conditions in which the test is applied; Not a single criterion for assessing the potential fire hazard of a product under actual use."

Reaction to fire

The combustion class (Euroclasses) of the product must be determined in accordance with EN 13501-1.

TS EN 13501-1 - Flammability Test (TS EN ISO 1182)

This test is carried out to determine whether a contribution to a fire is significant, regardless of the end use of a product.

Materia I	Rule / Test	Result / Evaluation	Decision
5	Test sample		
	---	---	PASS
6	Conditioning		
	<p>Test samples shall be conditioned as specified in EN 13238. The test samples should be dried and tested for 20 hours to 24 hours in an air-circulating oven with a temperature of $(60 \pm 5)^\circ\text{C}$. it must be allowed to cool to ambient temperature in a desiccator before being held. The mass of each sample should be determined with a sensitivity of 0.01 g before the experiment.</p>	<p>Conditioning Time: 1 week Conditioning Temperature: $23 \pm 2^\circ\text{C}$ Humidity: $50 \pm 5\%$ <i>EN 13238 4.3 Conditioning for fixed period</i> <i>a) Minimum conditioning period of one weeks:</i> <i>2) cement based products;</i></p>	PASS
8	<p>Display of results</p> <p>The mass loss measured mass loss is calculated and recorded in% for each of the five test samples.</p>		
8.1	<p>Flammability The measured total time of continuous exacerbation is calculated and recorded in seconds for each of the five test samples.</p>	1. test	<p>2.12 MJ/kg</p> <p>TS EN ISO 11925-2</p>
8.2	<p>Note 1: TS EN 13501 -1 Class A_{fl} Homogeneous and non-homogeneous products must meet the $1t \leq 30^\circ\text{C}$ and ,m ve 50% and $t_f = 0s$ criteria.</p>	2. test	<p>2.13 MJ/kg</p> <p>TS EN ISO 11925-2</p>
8.3	<p>Note 2: TS EN 13501-1 Class A_{fl} Homogeneous and non-homogeneous products must meet the $\Delta t \leq 50^\circ\text{C}$ and Δm olmayan 50% and t_f Sınıf 20s criteria.</p> <p>Note 3: TS EN 13501-1 Class A_{fl} Homogen products shall meet the PCS ojen 2.0 MJ / kg criteria.</p>	3. test	<p>2.14 MJ/kg</p> <p>TS EN ISO 11925-2</p>

Classification of THERMAL SHIELD according to TS EN 13501-1 according to the behavior against fire:

A

Test method	Parameter	Number of tests	Mean of continuous parameter	Results Suitable parameter
TS EN 13823	FIGRA _{0,2MJ} (W/s)	3	15	≤20
	LFS > side	3	(-)	No
	THR _{600s} (MJ)	3	2,3	≤4,0
	SMOGRA (m ² /s ²)	3	20	≤30
	TSP _{600s} (m)	3	25	≤50
	Drops and droplets (s)	3	(-)	No

(-): Not applicable

(1) Exposure of the surface to flame

(2): Exposure of the edge to flame (c) EN 14509: 2014 standard C.1.2.2.a)

Test method	Parameter	Parameter	Compliance criteria
TS EN 13823	FIGRA _{p 2 MJ} [W/s]	15	< 20 (A)
	THR _{600s} (MJ)	2,5	<4(A)
	LFS < side	(-)	Yes (A)
	SMOGRA [m ² /s ²]	12	<30 (s1)
	TSP _{600s} [m]	25	<50 (s1)
	burning drops / particles burning time (s)	No	No (d0)

(-): Not applicable

Classification of THERMAL SHIELD based on fire behavior:

A

Additional classification for smoke formation:

S1

Additional classification for burning drops / beads:

d0

Reaction to fire for Total proof

Flammability Behavior		Smoke			Burning Drops	
A	-	s	1	t	d	0

***** End of Report*****



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	TEST/ MUAYENE	Direktif	METOT	SONUÇ
*	Yük taşımayan elemanlar için yangına dayanıklılık deneyleri - Bölüm 1: Duvarlar	İnşaat Ürün Denetimleri AB 305/2011 89/106/EEC	EN 1364-1	GEÇTİ Bkz. Syf. 7.
*	UV-Ksenon Yaşlanma Testi	Genel Ürün Güvenliği Direktifi (GPSD) (2001/95/EC)	Laboratuvar İç Yöntem	GEÇTİ 50 Yıl
*	Stabilite Testi		Laboratuvar İç Yöntem	50 Yıl

NOT: Bu test/muayene sonucu uygunluk değerlendirmesi yerine geçer, resmi kurumlara sunulabilir, ürün ve broşürlerde kullanılabilir.



Mühür

Müşteri Temsilcisi

Merve Nur KIRVELİ

Laboratuvar Müdürü

Merve ÖZLÜ

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EN 1364-1: Yük taşımayan elemanlar için yangına dayanıklılık deneyleri - Bölüm 1: Duvarlar

Scope

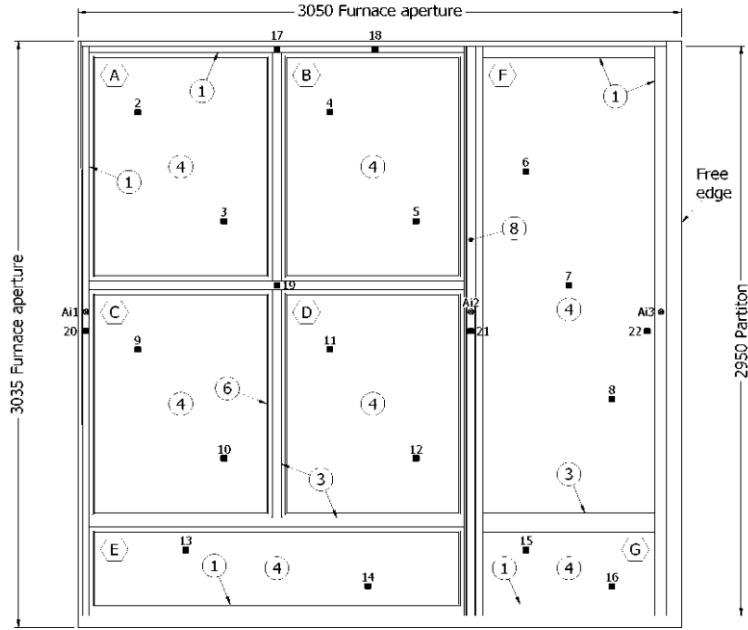
Bu Avrupa standardı, taşıyıcı olmayan duvarların yangına dayanıklılığını belirlemek için bir yöntem belirtir. Bu Avrupa Standardı, EN 1363-1 ile birlikte kullanılmaktadır. Camlı ve camsız iç taşıyıcı olmayan duvarlara (bölmeler), neredeyse tamamen camdan oluşan taşıyıcı olmayan duvarlara (camlı taşıyıcı olmayan duvarlar) ve diğer yük taşımayan iç ve dış yük taşıyıcı olmayan duvarlara ve camlı ve camsız diğer yük taşımayan duvarlara uygulanabilir. Dış yük taşımayan duvarların yangına dayanıklılığı, iç veya dış maruz kalma koşulları altında belirlenebilir. İkinci durumda, EN 1363-2'de verilen harici yangına maruz kalma eğrisi kullanılır.

TEST NUMUNESİ

Üretici Referans Kalınlığı Genel boyutlar Cam bölmeler

- i. bölme A
- ii. B bölmesi
- iii. bölme C
- iv. bölme D
- v. bölme E
- vi. bölme F
- vii. bölme G Cam açıklıkları
- i. bölme A
- ii. B bölmesi
- iii. bölme C
- iv. bölme D
- v. bölme E
- vi. bölme F
- vii. bölme G Referans kodları
- i. bölme A
- ii. B bölmesi
- iii. bölme C
- iv. bölme D
- v. bölme E
- vi. bölme F
- vii. bölme G

Figure 1- General Elevation of Test Specimen



■ Termokuplların pozisyonları

* Sapma ölçümlerinin pozisyonları

33 Bölme boyutları, Bileşenler Çizelgesi'nde atıfta bulunulur.

Enstrümantasyon

Genel	Enstrümantasyon, Standardın gerekliliklerine uygun olarak sağlanmıştır.
Fırın	Fırın, ortalama sıcaklığının, test konstrüksiyonunun yüzeyinden 100 mm'lik bir düzleme dağıtılan dokuz plakalı termometre kullanılarak EN 1363-1 gerekliliklerine uygun olacak şekilde kontrol edildi.
Genel	Numunenin maruz kalmamış yüzeyini izlemek için termokupullar sağlandı. Tüm enstrümantasyonun çıktısı en az bir dakikalık aralıklarla aşağıdaki gibi kaydedildi.
Termokupullar 2 ila 16	Camın yüzeyindeki on beş pozisyonda, her biri Bölme A, B, C, D, E, G için iki pozisyon ve Bölme F için üç pozisyon.
Termokupullar 17 karşı 21	Çerçevenin yüzeyinde beş pozisyonda. Çeşitli maruz kalmamış yüzey termokupullarının yerleri ve referans numaraları Şekil olarak gösterilmiştir.
Fitil Termokupl	Numunelerin maruz kalmamış yüzeyindeki sıcaklıkları, sabit termokupullar tarafından belirtilen sıcaklıklardan daha sıcak görünebilecek herhangi bir konumda ölçmek için bir fitil termokupl mevcuttu.
Işınım	Su soğutmalı bir ısı akışı radyometresi, ortalama radyasyon yoğunluğunu ölçmek için numuneden 1 metre uzağa yerleştirildi.
Sapma	Ekranın yatay sapması, hem çevre kenarlarının orta yüksekliğinde hem de iki çerçevenin bitişik kenarlarında ölçülmüştür.
Bütünlük Kriterleri	Numunenin bütünlüğünü değerlendirmek için pamuklu pedler ve boşluk ölçerler mevcuttu.
Fırın Basıncı	Fırının atmosfer basıncı, EN 1363-1 gerekliliklerine uyacak şekilde kontrol edildi.

Test Sonuçları

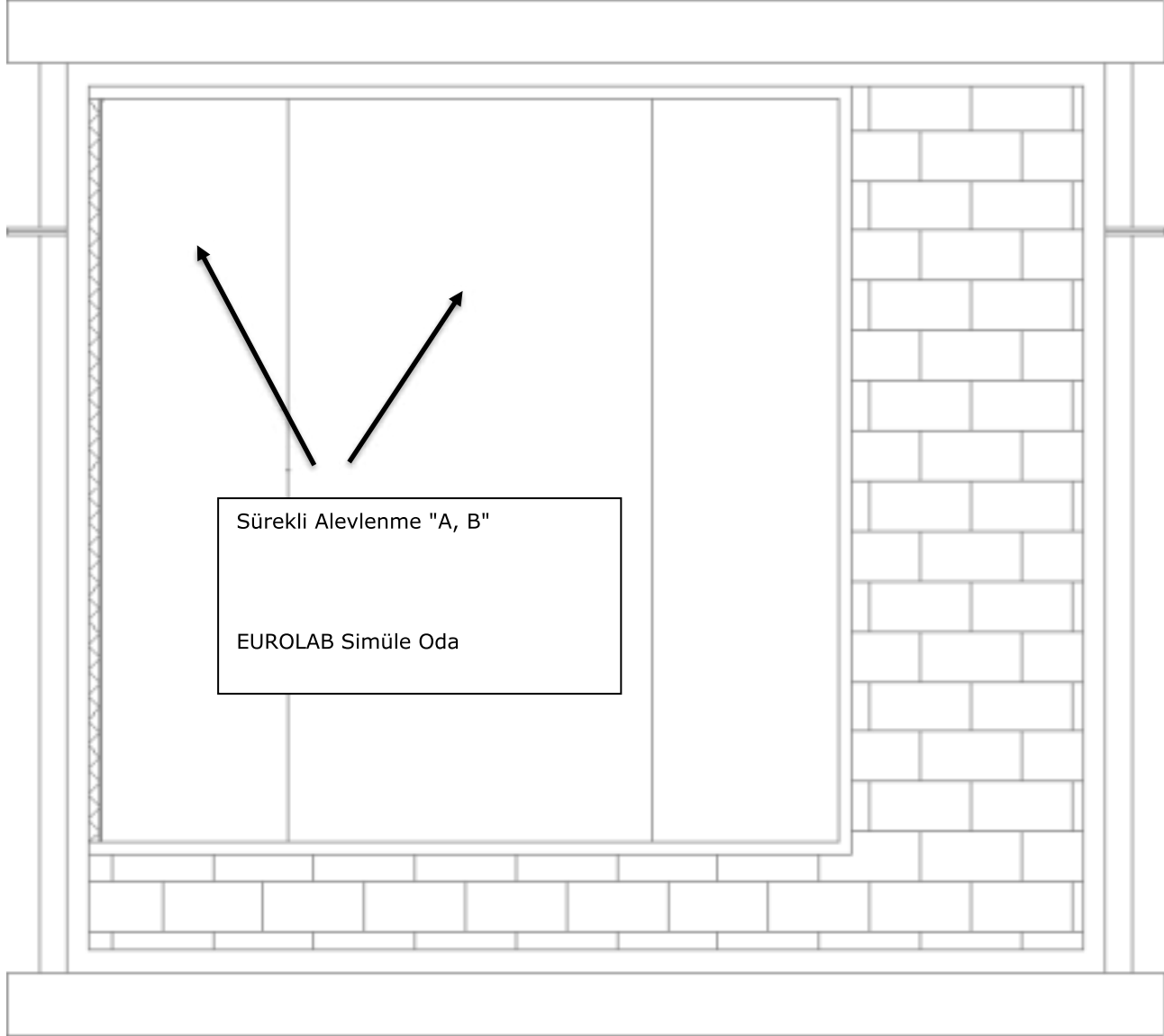
Min	Gözlem	Durum
1.	İzleniyor	
2.	İzleniyor	
3.	İzleniyor	
4.	İzleniyor	
5.	İzleniyor	
6.	İzleniyor	
7.	İzleniyor	
8.	İzleniyor	
9.	İzleniyor	
10.	İzleniyor	
11.	İzleniyor	
12.	İzleniyor	
13.	İzleniyor	
14.	İzleniyor	
15.	İzleniyor	
16.	İzleniyor	
17.	İzleniyor	
18.	İzleniyor	
19.	İzleniyor	
20.	İzleniyor	
21.	İzleniyor	
22.	İzleniyor	
23.	İzleniyor	
24.	İzleniyor	
25.	İzleniyor	
26.	İzleniyor	
27.	İzleniyor	
28.	İzleniyor	
29.	İzleniyor	
30.	İzleniyor	
31.	İzleniyor	
32.	İzleniyor	
33.	İzleniyor	
34.	İzleniyor	
35.	Montaj, testin bütünlüğünü ve radyasyon kriterlerini karşılamaya devam eder.	
36.	İzleniyor	
37.	İzleniyor	
38.	Alevler ekranın yüzeyinden çıkmaya devam ediyor. Şu anda hala görünür boncuk dekolmanı yok.	

39.	İzleniyor	
40.	İzleniyor	
41.	Eşit büyüklükteki bölmelerin dördü de (A, B, C & D) şimdi içeriye doğru konuşlandırılmıştır.	
42.	İzleniyor	
43.	İzleniyor	
44.	İzleniyor	
45.	İzleniyor	
46.	İzleniyor	
47.	Pamuklu ped, dış camın düştüğü D bölmesine bir alan üzerine uygulanır. Ped tutuşmaz veya kömürleşmez.	
48.	İzleniyor	
49.	İzleniyor	
50.	İzleniyor	
51.	İzleniyor	
52.	C bölmesinin yüzeyinde siyah renk değişikliği alanı oluşuyor. Fitil termokupl bu konumda 365 ° C'lik bir sıcaklığı okur.	
53.	İzleniyor	
54.	İzleniyor	
55.	Daha önce bahsedilen bölgeye pamuklu bir ped uygulanır ve çıkarıldığında hafifçe kömürleşir.	
56.	Daha önce bahsedilen bölgeye pamuklu bir ped uygulanır ve çıkarıldığında hafifçe kömürleşir.	
57.	İzleniyor	
58.	İzleniyor	
59.	F bölmesine pamuklu bir ped uygulanır, ateşleme yoktur.	
60.	F bölmesine pamuklu bir ped uygulanır, ateşleme yoktur.	
61.	İzleniyor	
62.	İzleniyor	
63.	Test Durduruldu	GEÇTİ

Bütünlük Performansı

Numunenin, uygulandığında pamuklu pedin tutuşmasına neden olmadan veya EN 1634-1'de belirtildiği gibi bir boşluk göstergesinin nüfuz etmesine izin vermeden veya maruz kalmamış yüzeyde sürekli alev almasına neden olmadan ayırma işlevini koruması gerekir. Bu gereklilikler aşağıda gösterilen süreler için karşılanmıştır:

Sürekli alev alma	63	dakika
Boşluk ölçer	63	dakika
Pamuklu Ped	55	dakika *



Test Sonucu

Termal Performans	5 kW/m ²	10 kW/m ²	15 kW/m ²	20 kW/m ²	25 kW/m ²
	47 dakika	59 dakika#	60 dakika#	63 dakika#	63 dakika#

* Pamuklu pedin camdan gelen radyasyon nedeniyle kendiliğinden tutuşmasından kaynaklandığı düşünülen arıza, sıcak gazlar veya çatlaklar, montaj içindeki çatlaklardan kaynaklanmaz.

Test sırasında aşılmadı.

Test 63 dakikalık bir süre sonra durduruldu.

ISO 4892: UV-Ksenon Yaşlanma

Test Ögesi: Hızlı Yaşlanma Testi-Xenon-arc

Pozlama Örneği Açıklaması: Toplam kanıt

Test Yöntemi: ISO 4892-2: 2013 Döngü 1 ve ISO 105-A02: 1993 / Kor.2: 2005

Test Durumu:

Maruz kalma döngüsü

ISO 4892-2:2013 döngü 1

Işınlama: $(0.50 \pm 0.2) W / (m^2-nm) @ 340nm$ 110 saat, $-40^{\circ} C$ ila $+85^{\circ} C$, $(50 \pm 10)\% RH$

Filtre: Gün Işığı - UV-B / UV-A / UV-C - KSENON ARC

Çekim hızı : 110 saat

Test Sonuçları

Test	UV Yaşlanma Süresi	Gri Tonlama	Gereksinim	Sonuç
1	1600 saat	5-5	50 Yıl	GEÇTİ

Not:

- ISO 105-A02: 1993 / Cor.2: 2005'e göre, gri skala D65 standart ışığı altında, en iyi ölçek 5 ve en kötü ölçek 1 olarak belirlenmiştir.
- Sonuçlar, maruziyet sonunda belirtilen sürelerden ve ara muayeneden sonra 1 saat içinde gerçekleştirildi.

Genel Değerlendirme;

Toplam kanıt 1600 saat (50 yıl) UV yaşlanmasına karşı dayanıklıdır.

Stabilite

Ürünün raf ömrünü hesaplamak için anormal ısı ve ışık kaynağı kullanılmıştır.

Tarih	Test Koşulları		Üründeki değişiklikler	Etki Direnç	Renk Değişimi
	Sıcaklık	Dalga boyu			
1.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
2.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
3.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
4.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
5.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
6.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
7.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
8.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
9.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
10.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
11.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
12.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
13.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
14.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
15.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
16.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
17.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
18.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
19.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
20.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
21.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
22.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
23.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
24.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
25.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
26.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
27.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
28.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
29.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0
30.	-10 ~ + 50 °C	380-420 nm (0,7 kW)	YOK	6,8 J	% 0

Sonuç : Ürün raf ömrü 50 yıl olarak belirlenmiştir.

*****Rapor Sonu*****



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*	Fire resistance tests for non-loadbearing elements- Part 1:Walls	Construction Product Inspections EU 305/2011 89/106/EEC	EN 1364-1	PASS
				See Pg 7.
*	UV-Xenon Aging	The General Product Safety Directive (GPSD) (2001/95/EC)	Inhouse Method	PASS 50 Years
*	Stability		Inhouse Method	50 Years

NOTE: This test/inspection result replaces the conformity assessment, can be presented to official institutions, and used in products and brochures.



Seal

Customer Representative

Merve Nur KIRVELİ

Laboratory Manager

Merve ÖZLÜ

Test/inspection results, methods and other information about the sample shown in the relevant pages of this Report are based on the information specified in accordance with "Test/inspection Request Form (PR03-F01) conveyed to us from the Applicant. Test/inspection results are valid for the sample as identified above. Sample may not represent the lot which it belongs. This Report does not replace a Product Certificate. Full report or any part of it may not be reproduced or used for any other purpose without the written permission of EUROLAB Laboratory. Sampling has not been done by us. Unsigned and unsealed Reports are invalid. Analysis as indicated with "*" are in the Scope of our Accreditation Certificate issued from UAF according to TS EN ISO/IEC 17020, 17025, Analysis as indicated with "***" are performed at the external laboratories using accredited test/inspection methods according to EN ISO/IEC 17020, 17025 from UAF. Possible extra notes may add with starting "N" to related pages. Tested and remaining samples will be kept in specified terms & conditions at test/inspection request and/or proposal form. Physically, chemically and microbiologically decomposed samples are discarded regardless of the storage period. Applicant can not claim any right in this regard. Results are shown in this Report do not include Measurement Uncertainty values, Measurement Uncertainty values are not taken in consideration during Pass/Fail assessment of the test/inspection results shown in this Report. Evaluation of the test/inspection results using Measurement Uncertainty values is the responsibility of the Applicant. An inspection body shall issue an inspection certificate that does not include the inspection results only when the inspection body can also produce an inspection report containing the inspection results, and when both the inspection certificate and inspection report are traceable to each other.

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EN 1364-1: Fire resistance tests for non- loadbearing elements- Part 1:Walls

Scope

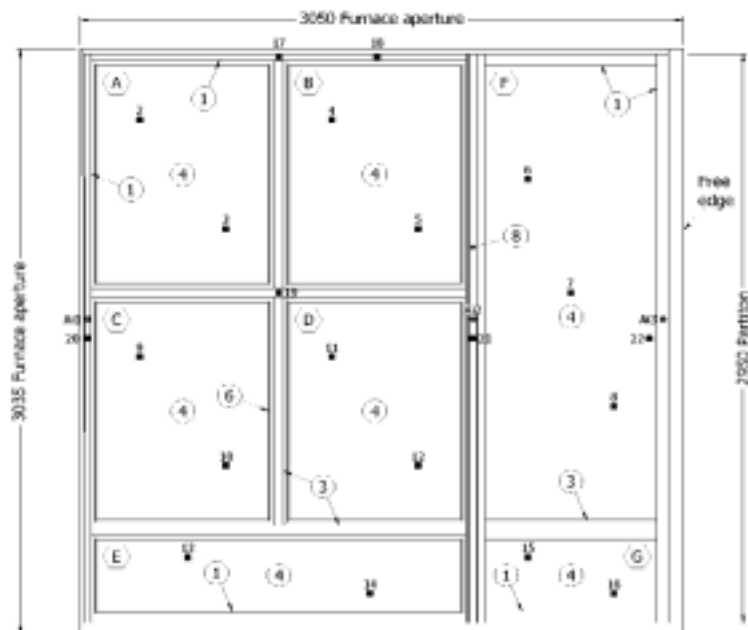
This European standard specifies a method for determining the fire resistance of non-loadbearing walls. This European Standard is used in conjunction with EN 1363-1. It is applicable to internal non-loadbearing walls (partitions), with and without glazing, non-loadbearing walls consisting almost wholly of glazing (glazed non-loadbearing walls) and other non-loadbearing internal and external non-loadbearing walls with and without glazing. The fire resistance of external non-loadbearing walls can be determined under internal or external exposure conditions. In the latter case the external fire exposure curve given in EN 1363-2 is used.

TEST SPECIMEN

Manufacturer Reference Thickness Overall sizes Glass panes

- i. pane A
 - ii. pane B
 - iii. pane C
 - iv. pane D
 - v. pane E
 - vi. pane F
 - vii. pane G
- Glazing apertures
- i. pane A
 - ii. pane B
 - iii. pane C
 - iv. pane D
 - v. pane E
 - vi. pane F
 - vii. pane G
- Reference codes
- i. pane A
 - ii. pane B
 - iii. pane C
 - iv. pane D
 - v. pane E
 - vi. pane F
 - vii. pane G

Figure 1- General Elevation of Test Specimen



■ Positions of thermocouples

* Positions of deflection measurements

33 Pane sizes referred to in Schedule of Components

Instrumentation

General	The instrumentation was provided in accordance with the requirements of the Standard.
Furnace	The furnace was controlled so that its mean temperature complied with the requirements of EN 1363-1 using nine plate thermometers, distributed over a plane 100 mm from the surface of the test construction.
General	Thermocouples were provided to monitor the unexposed surface of the specimen. The output of all instrumentation was recorded at no less than one minute intervals as follows:
Thermocouples 2 to 16	At fifteen positions on the surface of the glazing, two positions each for Panes A, B, C, D, E, G and three positions for Pane F.
Thermocouples 17 to 21	At five positions on the surface of the framing.
Roving Thermocouple	A roving thermocouple was available to measure temperatures on the unexposed surface of the specimens at any position which might appear to be hotter than the temperatures indicated by the fixed thermocouples.
Radiation	A water cooled heat flux radiometer was positioned 1 metre away from the specimen to measure its average radiation intensity.
Deflection	The horizontal deflection of the screen was measured at mid-height of both the perimeter edges and at the adjoining edges of the two frames.
Integrity Criteria	Cotton pads and gap gauges were available to evaluate the integrity of the specimen.
Furnace Pressure	The furnace atmospheric pressure was controlled so that it complied with the requirements of EN 1363-1.

Test Result

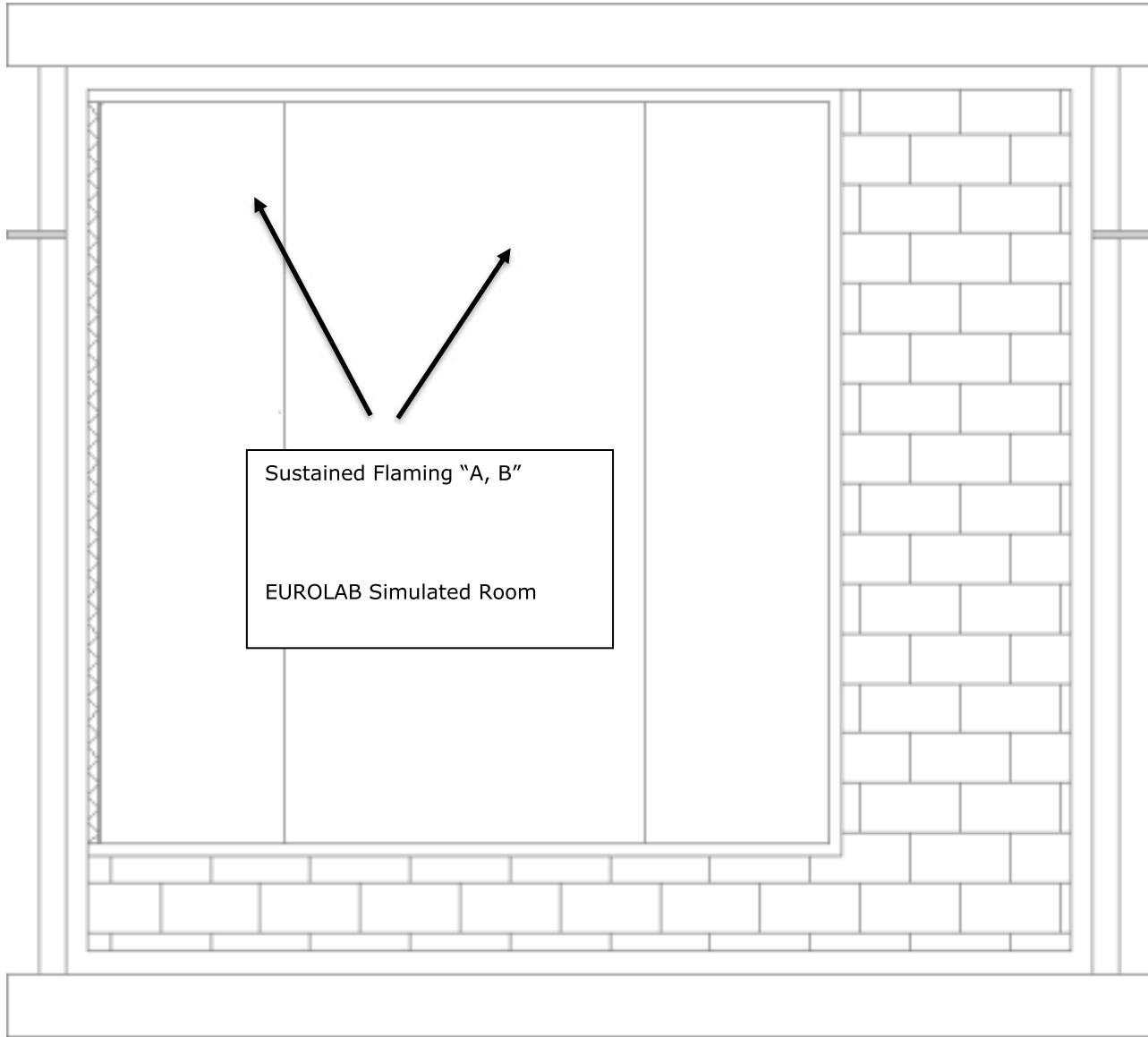
Min	Observation	Status
1.	Watching	
2.	Watching	
3.	Watching	
4.	Watching	
5.	Watching	
6.	Watching	
7.	Watching	
8.	Watching	
9.	Watching	
10.	Watching	
11.	Watching	
12.	Watching	
13.	Watching	
14.	Watching	
15.	Watching	
16.	Watching	
17.	Watching	
18.	Watching	
19.	Watching	
20.	Watching	
21.	Watching	
22.	Watching	
23.	Watching	
24.	Watching	
25.	Watching	
26.	Watching	
27.	Watching	
28.	Watching	
29.	Watching	
30.	Watching	
31.	Watching	
32.	Watching	
33.	Watching	
34.	Watching	
35.	The assembly continues to satisfy the integrity and radiation criteria of the test.	
36.	Watching	
37.	Watching	
38.	Flames continue to issue from the surface of the screen. Still no visible bead detachment at this time.	

39.	Watching	
40.	Watching	
41.	All four of the equal sized panes (A, B, C & D) are now dished inwards.	
42.	Watching	
43.	Watching	
44.	Watching	
45.	Watching	
46.	Watching	
47.	The cotton pad is applied over one area to pane D where the outer glass has fallen away. The pad does not ignite or char.	
48.	Watching	
49.	Watching	
50.	Watching	
51.	Watching	
52.	An area of black discolouration is forming on the surface of pane C. The roving thermocouple reads a temperature of 365°C at this position.	
53.	Watching	
54.	Watching	
55.	A cotton pad is applied over the area mentioned previously and is slightly charred on removal.	
56.	A cotton pad is applied over the area mentioned previously and is slightly charred on removal.	
57.	Watching	
58.	Watching	
59.	A cotton pad is applied to pane F, no ignition.	
60.	A cotton pad is applied to pane F, no ignition.	
61.	Watching	
62.	Watching	
63.	Test Stopped	PASS

Integrity Performance

It is required that the specimen retain its separating function, without either causing ignition of a cotton pad when applied, or permitting the penetration of a gap gauge as specified in EN 1634-1, or resulting in sustained flaming on the unexposed surface. These requirements were satisfied for the periods shown below:

Sustained flaming 63 minutes
 Gap gauge 63 minutes
 Cotton Pad 55 minutes*



Conclusion

Thermal Performance	5 kW/m ²	10 kW/m ²	15 kW/m ²	20 kW/m ²	25 kW/m ²
	47 minutes	59 minutes#	60 minutes#	63 minutes#	63 minutes#

* Failure deemed to be caused by the spontaneous ignition of the cotton pad due to radiation through the glass and not due to hot gases or cracks, fissures within the assembly.
 # Not exceeded during the test.
 The test was stopped after a period of 63 minutes.



ISO 4892: UV-Xenon Aging

Test Item: Rapid Aging Test-Xenon-arc

Exposure Example Description: Total proof

Test Method: ISO 4892-2: 2013 Loop 1 and ISO 105-A02: 1993 / Cor.2: 2005

Test Status:

Exposure cycle

ISO 4892-2: 2013 cycle 1

Irradiation: $(0.50 \pm 0.2) \text{ W} / (\text{m}^2\text{-nm})$ @ 340nm 110 hours, -40°C to $+85^\circ \text{C}$, $(50 \pm 10)\% \text{RH}$

Filter: Daylight- UV-B / UV-A / UV-C - KSENON ARC

Exposure time: 110 hours

Test Results;

Test	UV Aging Time	Gray Scale	Requirements	Results
1	1600 h	5-5	50 Year	PASS

Note:

1. According to ISO 105-A02: 1993 / Cor.2: 2005, under the gray scale D65 standard light, the best scale was determined as 5 and the worst scale as 1.
2. The results were performed within 1 hour after the specified times at the end of the exposure, as well as the interim examination.

General Evaluation;

Total proof is resistant to 1600 hours (50 years) UV aging.

Stability

Abnormal heat and light source was used to calculate the shelf life of the product.

Date	Test Conditions		Changes on the product	Impact Resistance	Color Change
	Temperature	Wavelength			
1.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
2.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
3.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
4.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
5.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
6.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
7.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
8.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
9.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
10.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
11.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
12.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
13.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
14.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
15.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
16.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
17.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
18.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
19.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
20.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
21.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
22.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
23.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
24.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
25.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
26.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
27.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
28.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
29.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0
30.	-10 ~ + 50 °C	380-420 nm (0.7 kw)	N/A	6,8 J	% 0

Conclusion : Product shelf life is determined as 50 years.

***** End of Report*****