

RAPPORTO DI PROVA / TEST REPORT

NUMERO / NUMBER

1328\DC\REA\24

DATA DI EMISSIONE / EMISSION DATE

26/08/2024

BUSINESS AREA

BA Building & Construction

LABORATORIO / LABORATORY

Reaction to Fire

IDENTIFICAZIONE E DESCRIZIONE DEL CAMPIONE / SPECIMEN DESCRIPTION

EGGBOARD BAFFLE

CLIENTE / CUSTOMERArtemide S.p.A.
Via Bergamo, 18
Pregnana Milanese (MI)**NORMA DI RIFERIMENTO / REFERENCE STANDARD**

EN 13823:2020+A1:2022 - Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item

Dati generali / General data

Data ricevimento campione / Date of test specimen arrival: 15/07/2024

Data accettazione campione /Date of test specimen acceptance: 15/07/2024

Data inizio prove / Test beginning date: 02/08/2024

Data fine prove / Test end date: 02/08/2024

Luogo di prova/ Test site: Viale Lombardia, 20, 20021 Bollate (MI) Italia

Deviazione dai metodi di prova/
Deviations from test methods: NO/NO

Campionamento/Sampling

Il campionamento e il prelievo iniziali sono stati eseguiti dal committente. / The initial sampling has been done by the client.

Campioni analizzati / Samples tested:

3 provette campione denominate / 3 specimens of sample identified:

EGGBOARD BAFFLE

Descrizione : Pannello in fibra di poliestere rivestito con tessuto in poliestere.

Description : Polyester fiber panel covered with polyester fabric.

Massa areica rivestimento : 200 g/m²

Cover mass per area unit : 200 g/m²

Densità anima : 43 kg/m³

Core density : 43 kg/m³

Spessore : 5 mm

Thickness : 5 mm

1328\DC\REA\24

26/08/2024

Tipo di substrato / Substrate type:
Nessuno / None

Allestimento del campione / Specimen mounting and fixing:
Costruzione del provino come da EN 13823 par 5.2 a) con pannelli sul retro a 80 mm dal campione. Giunti verticali ogni 400 mm.
Specimen mounting compiling to EN 13823 par 5.2 a) with backing boards at 80 mm from the specimen. Vertical joints every 400 mm.

Condizionamento secondo EN 13238: 23 °C - 50 % u.r. fino a massa costante
Conditioning compliing EN 13238: 23 °C - 50 % r.h. until constant mass

Dichiarazioni / Statement

I risultati di prova contenuti nel presente rapporto si riferiscono esclusivamente al campione provato, così come ricevuto. / Test results contained in this test report pertain exclusively to the tested sample, as received.

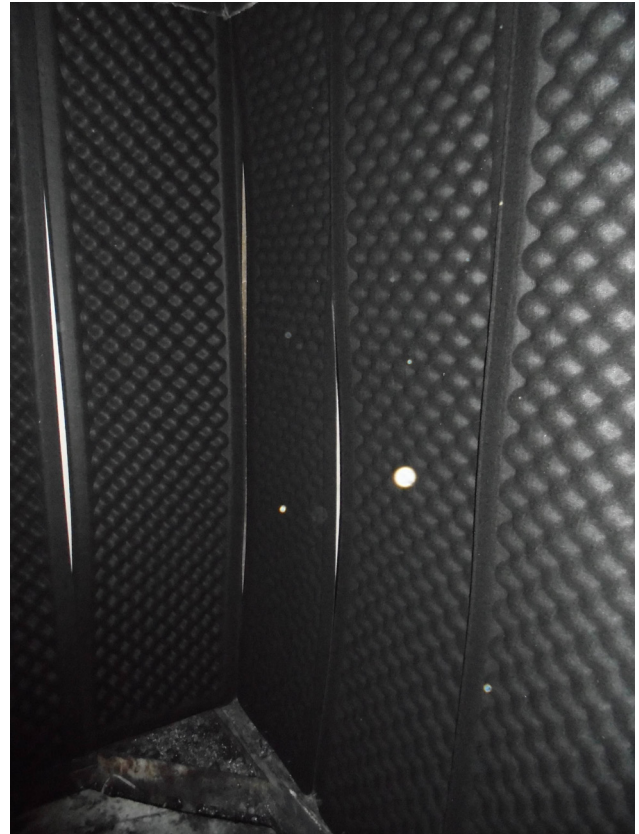
I dati relativi al campione sono forniti dal cliente e non verificati dal laboratorio, se non espressamente indicato. Il laboratorio ne declina ogni responsabilità. / The data relating to the sample are provided by the customer and not verified by the laboratory, unless expressly indicated. The laboratory declines all responsibility.

Il presente rapporto non può essere riprodotto parzialmente senza l'autorizzazione del Responsabile del laboratorio. / This test report cannot be reproduced partially without the consent of the laboratory managing director.

I risultati di prova si riferiscono esclusivamente al comportamento dei provini di un materiale nelle particolari condizioni della prova; essi non sono destinati ad essere l'unico criterio per la valutazione della pericolosità potenziale del materiale in opera. / The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

Fotografie / Photographs:

Vista frontale ala lunga
Long wing front view



Angolo verticale esterno dell'ala lunga
Long wing vertical outer edge

Risultati / Results:

Metodo di prova / Test method: EN 13823:2020+A1:2022

Identificazione provetta Specimen identification	FIGRA 0.2MJ/0.4MJ [W/s]	THR [MJ]	LFS [Si/Yes – No/No]	SMOGRA [m ² /s ²]	TSP [m ²]	FDP [No/No - <10s - >10s]
1	10,7 a/at 675s 10,7 a/at 675s	1,3	No/No	Soglia non raggiunta Threshold not reached	10,0	No/No
2	15,2 a/at 513s 14,7 a/at 519s	1,8	No/No	Soglia non raggiunta Threshold not reached	12,5	No/No
3	Soglia non raggiunta Threshold not reached	0,2	No/No	Soglia non raggiunta Threshold not reached	16,1	No/No
Media Average	8,6 8,5	1,1	No/No	0	12,9	No/No

FIGRA = fire growth rate index

THR = total heat release

LFS = lateral flame spread

SMOGRA = smoke growth rate index

TSP = total smoke production

FDP = flaming droplets or particles

DATA
Date

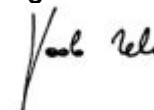
26/08/2024

Operating Sector Fire Reaction
Operating Sector Fire Reaction

Dr. Lorenzo Zavaglio


BA Building & Construction
BA Building & Construction

Ing. Paolo Mele



Il documento è firmato digitalmente ai sensi del D.Lgs. 82/2005 s.m.i. e norme collegate e sostituisce il documento cartaceo e la firma autografa ed ha validità con decorrenza dalla data di apposizione della firma digitale / The document is digitally signed in accordance with Legislative Decree n. 82/2005 as amended and replaces the paper document and the handwritten signature and it's valid from the date of affixing the digital signature.

Test condition		Check points		Results		
				Test no.	Test date:	Print date:
				1	02/08/2024	02/08/2024
Laboratory: CSI S.p.A. Product: EGGBOARD BAFFLE						
Baseline duct temp. (t=30-90) [K]	299.11	HRR _{av, burner} [KW]	29.217	FIGRA threshold: 0.2 MJ [W/s]		10.7
Ambient pressure. [Pa]	100826	HRR _{std, burner} [KW]	0.380	FIGRA threshold: 0.4 MJ [W/s]		10.7
Humidity [%]	65	CO ₂ /O ₂ Ratio _{burner}	0.591	THR ₆₀₀ [MJ] *		1.3
k _i	0.9000	SPR _{av, burner} [m ² /s]	0.022	Lateral flame spread (LFS) reach the edge?		No
k _p	1.2400	SPR _{std, burner} [m ² /s]	0.004	SMOGRA [m ² /s ²]		0.0
E' [KJ/m ²]	17200	Ambient temp. (t=30-90) [K]	299.17	TSP ₅₀₀ [m ²] *		10.0
Duct diameter: [m]	0.315	No. of acceptable thermocouples	3	Flaming droplets/particles (FDP) (flaming <= 10 s)?		No
		Minimum for flow [m ² /s]	0.5583	Flaming droplets/particles (FDP) (flaming > 10 s)?		No
		Maximum for flow [m ² /s]	0.6129	Time to FIGRA _{0.2} [s] *		375
		Burner response time [s]	15	Time to FIGRA _{0.4} [s] *		375
				Tig (2*6KW) [s] *		Not reach
				* After ignition of main burner		
Baseline O ₂ (t=30-90) [%]	20.4965	End data O ₂ [%]	20.9465	Synchronisation information		
Baseline O ₂ (t=30-90) [%]	20.9522	End data CO ₂ [%]	0.0734	T-Duct (2.5 K drop from baseline)	Baseline	Last point
Baseline CO ₂ (t=30-90) [%]	0.0733	End data light signal	99.8240	O ₂ (0.05% rise from baseline)	20.6792	306
Baseline light signal (t=30-90)	99.9935			CO ₂ (0.02% drop from baseline)	0.2346	303
Main burner average (390-450s)						
SPR _{av, main burner} [m ² /s] 0.028						
SPR _{std, main burner} [m ² /s] 0.004						

HRR, THR and FIGRA values (Zoom)

HRR, THR and FIGRA values

SPR, TSP and SMOGRA values (alternative baseline method)

SBI Test Report				Laboratory: CSI S.p.A.		
				Product: EGGBOARD BAFFLE		
				Test no.	Test date:	Print date:
				2	02/08/2024	02/08/2024
Test condition		Check points		Results		
Baseline duct temp. $(t_{(t=30-90)})$ [K]	301.01	HRR _{av, burner} [KW]	30.426	FIGRA threshold: 0.2 MJ [W/s]	15.2	
Ambient pressure. [Pa]	100810	HRR _{std, burner} [KW]	0.425	FIGRA threshold: 0.4 MJ [W/s]	14.7	
Humidity [%]	65	CO ₂ /O ₂ Ratio _{burner}	0.567	THR ₆₀₀ [MJ] *	1.8	
		SPR _{av, burner} [m ² /s]	0.026	Lateral flame spread (LFS) reach the edge?	No	
		SPR _{std, burner} [m ² /s]	0.004	SMOGRA [m ² /s ²]	0.0	
k _i	0.9000	Ambient temp. $(t_{(t=30-90)})$ [K]	299.50	TSP ₅₀₀ [m ²] *	12.5	
k _p	1.2400	No. of acceptable thermocouples	3	Flaming droplets/particles (FDP) (flaming <= 10 s)?	No	
E' [KJ/m ²]	17200	Minimum for flow [m ² /s]	0.5634	Flaming droplets/particles (FDP) (flaming > 10 s)?	No	
Duct diameter: [m]	0.315	Maximum for flow [m ² /s]	0.6081	Time to FIGRA _{0.2} [s] *	213	
		Burner response time [s]	9	Time to FIGRA _{0.4} [s] *	219	
				Tig (2*6KW) [s] *	Not reach	
				* After ignition of main burner		
Baseline O ₂ $(t_{(t=30-90)})$ [%]	20.4445	End data O ₂ [%]	20.9470	Synchronisation information		
Baseline O ₂ $(t_{(t=30-90)})$ [%]	20.9545	End data CO ₂ [%]	0.0729	T-Duct (2.5 K drop from baseline)	Baseline	Last point
Baseline CO ₂ $(t_{(t=30-90)})$ [%]	0.0735	End data light signal	99.7048	O ₂ (0.05% rise from baseline)	323.99	303
Baseline light signal $(t_{(t=30-90)})$	99.9867	Main burner average (390-450s)		CO ₂ (0.02% drop from baseline)	20.6713	306
		SPR _{av, main burner} [m ² /s]	0.028		0.2339	303
		SPR _{std, main burner} [m ² /s]	0.004			

HRR, THR and FIGRA values (Zoom)

HRR, THR and FIGRA values

SPR, TSP and SMOGRA values (alternative baseline method)

Test condition		Check points		Results		
				Test no.	Test date:	Print date:
		Laboratory: CSI S.p.A.		3	02/08/2024	02/08/2024
		Product: EGGBOARD BAFFLE				
Baseline duct temp. (t=30-90) [K]	304.30	HRR _{av, burner} [KW]	31.652	FIGRA threshold: 0.2 MJ [W/s]		0.0
Ambient pressure. [Pa]	100815	HRR _{std, burner} [KW]	0.375	FIGRA threshold: 0.4 MJ [W/s]		0.0
Humidity [%]	65	CO ₂ /O ₂ Ratio _{burner}	0.548	THR ₆₀₀ [MJ] *		0.2
k _i	0.9000	SPR _{av, burner} [m ² /s]	0.026	Lateral flame spread (LFS) reach the edge?		No
k _p	1.2400	SPR _{std, burner} [m ² /s]	0.004	SMOGRA [m ² /s ²]		0.0
E' [KJ/m ²]	17200	Ambient temp. (t=30-90) [K]	299.77	TSP ₅₀₀ [m ²] *		16.1
Duct diameter: [m]	0.315	No. of acceptable thermocouples	3	Flaming droplets/particles (FDP) (flaming <= 10 s)?		No
		Minimum for flow [m ² /s]	0.5616	Flaming droplets/particles (FDP) (flaming > 10 s)?		No
		Maximum for flow [m ² /s]	0.6081	Time to FIGRA _{0.2} [s] *		0
		Burner response time [s]	12	Time to FIGRA _{0.4} [s] *		0
				Tig (2*6KW) [s] *		Not reach
				* After ignition of main burner		
Baseline O ₂ (t=30-90) [%]	20.3388	End data O ₂ [%]	20.9495	Synchronisation information		
Baseline O ₂ (t=30-90) [%]	20.9556	End data CO ₂ [%]	0.0727	T-Duct (2.5 K drop from baseline)	Baseline	Last point
Baseline CO ₂ (t=30-90) [%]	0.0734	End data light signal	99.2429	O ₂ (0.05% rise from baseline)	20.6601	306
Baseline light signal (t=30-90)	99.9759			CO ₂ (0.02% drop from baseline)	0.2354	306
		Main burner average (390-450s)				
		SPR _{av, main burner} [m ² /s]	0.028			
		SPR _{std, main burner} [m ² /s]	0.004			

HRR, THR and FIGRA values (Zoom)

HRR, THR and FIGRA values

SPR, TSP and SMOGRA values (alternative baseline method)