



LAB N°0006 L

RAPPORTO DI PROVA / TEST REPORT

NUMERO / NUMBER

0060\DC\REA\20_1

DATA DI EMISSIONE / EMISSION DATE

20/01/2020

BUSINESS AREA

BA Product Conformity Assessment

LABORATORIO / LABORATORY

Reaction to Fire

IDENTIFICAZIONE E DESCRIZIONE DEL CAMPIONE / SPECIMEN DESCRIPTION

TETRIX

CLIENTE / CUSTOMER

CENTRUFFICIO LORETO SPA
VIALE A. DORIA, 17
20125 MILANO

NORMA DI RIFERIMENTO / REFERENCE STANDARD

EN 13823:2010+A1:2014 - 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: 17/12/2019

Data accettazione campione /Date of test specimen acceptance: 17/12/2019

Data inizio prove / Test beginning date: 17/01/2020

Data fine prove / Test end date: 17/01/2020

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 della prova. / The initial sampling has been done by the customer.

Campioni analizzati / Samples tested:

3 provette campione denominate / 3 specimens of sample identified:

TETRIX

Descrizione : Pannello fonoassorbente in fibra di poliestere rivestito su ambo i lati con tessuto in poliestere.

Description : Sound-absorption polyester fiber panel with polyester fabric cover on both sides.

Massa areica / Mass per area: 2,5 kg/m² (tessuto/fabric 330 g/m²)

Spessore / Thickness: 30 mm

Tipo di substrato: Nessuno

Substrate type: None

Allattamento del campione: Costruzione del provino come da EN 13964:2014 Figure I.3a e I.3b, giunti verticale ed orizzontale, senza isolante.

Specimen mounting and fixing: Specimen mounting complying with EN 13964:2014 Figures I.3a and I.3b, vertical and horizontal joints and without insulation.

Condizionamento secondo EN 13238: 23 °C - 50 % u.r. per 336 ore

Conditioning complying EN 13238: 23 °C - 50 % r.h. for 336 hours

Dichiarazioni / Statement

I risultati di prova contenuti nel presente rapporto si riferiscono esclusivamente al campione provato / Test results contained in this test report pertain exclusively to the tested specimen

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

I dati tecnici riportati nella descrizione del campione sono desunti dalla scheda tecnica allegata dal cliente al campione di prova. / The technical data reported on the specimen description are taken from client technical sheet.

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 13823:2010+A1:2014

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	99,1 a/at 549s 99,1 a/at 549s	6,9	No/No	26,5	174,4	No/No
2	90,9 a/at 480s 90,9 a/at 480s	7,2	No/No	24,4	179,1	No/No
3	79,6 a/at 534s 79,6 a/at 534s	7,0	No/No	22,8	196,7	No/No
Media Average	89,9 89,9	7,0	No/No	24,6	183,4	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**

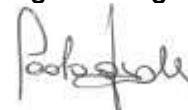
20/01/2020

**Operating Sector Reaction to Fire
Operating Sector Reaction to Fire**

Dr. Lorenzo Zavaglio


**BA Product Conformity Assessment
BA Product Conformity Assessment**

Ing. P. Fumagalli



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SBI Test Report			Laboratory: CSI S.p.A.		
			Test no.	Test date:	Print date:
			1	17/01/2020	17/01/2020
Test condition		Check points		Results	
Baseline duct temp. $_{(t=30-90)}$ [K]	287.93	HRR $_{av, burner}$ [KW]	30.807	FIGRA threshold: 0.2 MJ [W/s]	99.1
Ambient pressure. [Pa]	101518	HRR $_{std, burner}$ [KW]	0.233	FIGRA threshold: 0.4 MJ [W/s]	99.1
Humidity [%]	40	CO $_2$ /O $_2$ Ratio $_{burner}$	0.623	THR $_{600}$ [MJ] *	6.9
k_t	0.9220	SPR $_{av, burner}$ [m 2 /s]	0.029	Lateral flame spread (LFS) reach the edge?	No
k_p	1.0800	SPR $_{std, burner}$ [m 2 /s]	0.009	SMOGRA [m 2 /s 2]	26.5
E' [kJ/m 2]	17200	Ambient temp. $_{(t=30-90)}$ [K]	286.52	TSP $_{600}$ [m 3] *	174.4
Duct diameter: [m]	0.315	No. of acceptable thermocouples	3	Flaming droplets/particles (FDP) (flaming <= 10 s)?	No
		Minimum for flow [m 2 /s]	0.5508	Flaming droplets/particles (FDP) (flaming > 10 s)?	No
		Maximum for flow [m 2 /s]	0.6051	Time to FIGRA $_{0.2}$ [s] *	249
		Burner response time [s]	12	Time to FIGRA $_{0.4}$ [s] *	249
				Tig (2*6KW) [s] *	174
				* After ignition of main burner	
Baseline O $_2$ $_{(t=30-90)}$ [%]	20.8108			Synchronisation information	
Baseline O $_2$ $_{(t=30-90)}$ [%]	20.9495	End data O $_2$ [%]	20.9232	T-Duct (2.5 K drop from baseline)	313.83 297
Baseline CO $_2$ $_{(t=30-90)}$ [%]	0.1368	End data CO $_2$ [%]	0.1398	O $_2$ (0.05% rise from baseline)	20.6601 303
Baseline light signal $_{(t=30-90)}$	100.0192	End data light signal	99.1345	CO $_2$ (0.02% drop from baseline)	0.3171 297

HRR, THR and FIGRA values (Zoom)

HRR, THR and FIGRA values

SPR, TSP and SMOGRA values

Test condition			Check points		Results	
					Test no.	Test date:
					2	17/01/2020 17/01/2020
					Laboratory: CSI S.p.A. Product: TETRIX	
Baseline duct temp. $_{(t=30-90)}$ [K]	293.65	HRR $_{av, burner}$ [KW]	30.351	FIGRA threshold: 0.2 MJ [W/s]	90.9	
Ambient pressure. [Pa]	101547	HRR $_{std, burner}$ [KW]	0.314	FIGRA threshold: 0.4 MJ [W/s]	90.9	
Humidity [%]	35	CO $_2$ /O $_2$ Ratio $_{burner}$	0.623	THR $_{600}$ [MJ] *	7.2	
k_t	0.9220	SPR $_{av, burner}$ [m 2 /s]	0.032	Lateral flame spread (LFS) reach the edge?	No	
k_p	1.0800	SPR $_{std, burner}$ [m 2 /s]	0.009	SMOGRA [m 2 /s 2]	24.4	
E' [kJ/m 2]	17200	Ambient temp. $_{(t=30-90)}$ [K]	289.04	TSP $_{600}$ [m 3] *	179.1	
Duct diameter: [m]	0.315	No. of acceptable thermocouples	3	Flaming droplets/particles (FDP) (flaming <= 10 s)?	No	
		Minimum for flow [m 2 /s]	0.5673	Flaming droplets/particles (FDP) (flaming > 10 s)?	No	
		Maximum for flow [m 2 /s]	0.6214	Time to FIGRA $_{0.2}$ [s] *	180	
		Burner response time [s]	12	Time to FIGRA $_{0.4}$ [s] *	180	
				Tig (2*6KW) [s] *	108	
				* After ignition of main burner		
Baseline O $_2$ $_{(t=30-90)}$ [%]	20.7793			Synchronisation information		
Baseline O $_2$ $_{(t=30-90)}$ [%]	20.9539	End data O $_2$ [%]	20.9396	T-Duct (2.5 K drop from baseline)	Baseline	Last point
Baseline CO $_2$ $_{(t=30-90)}$ [%]	0.1377	End data CO $_2$ [%]	0.1364	O $_2$ (0.05% rise from baseline)	317.88	300
Baseline light signal $_{(t=30-90)}$	100.0466	End data light signal	99.3613	CO $_2$ (0.02% drop from baseline)	20.6784	306
					0.3097	297

HRR, THR and FIGRA values (Zoom)

HRR, THR and FIGRA values

SPR, TSP and SMOGRA values

SBI Test Report				Laboratory: CSI S.p.A.		
				Product: TETRIX		
				Test no.	Test date:	Print date:
				3	17/01/2020	17/01/2020
Test condition		Check points		Results		
Baseline duct temp. _(t=30-90) [K]	291.84	HRR _{av, burner} [KW]	30.025	FIGRA threshold: 0.2 MJ [W/s]		79.6
Ambient pressure. [Pa]	101605	HRR _{std, burner} [KW]	0.253	FIGRA threshold: 0.4 MJ [W/s]		79.6
Humidity [%]	35	CO ₂ /O ₂ Ratio _{burner}	0.626	THR ₆₀₀ [MJ] *		7.0
k _t	0.9220	SPR _{av, burner} [m ² /s]	0.029	Lateral flame spread (LFS) reach the edge?		No
k _p	1.0800	SPR _{std, burner} [m ² /s]	0.009	SMOGRA [m ² /s ²]		22.8
E' [kJ/m ²]	17200	Ambient temp. _(t=30-90) [K]	290.40	TSP ₆₀₀ [m ²] *		196.7
Duct diameter: [m]	0.315	No. of acceptable thermocouples	3	Flaming droplets/particles (FDP) (flaming <= 10 s)?		No
		Minimum for flow [m ² /s]	0.5480	Flaming droplets/particles (FDP) (flaming > 10 s)?		No
		Maximum for flow [m ² /s]	0.6035	Time to FIGRA _{0,2} [s] *		234
		Burner response time [s]	12	Time to FIGRA _{0,4} [s] *		234
				Tig (2*6KW) [s] *		165
				* After ignition of main burner		
Baseline O ₂ _(t=30-90) [%]	20.7916			Synchronisation information		
Baseline O ₂ _(t=30-90) [%]	20.9475	End data O ₂ [%]	20.9392	T-Duct (2.5 K drop from baseline)	Baseline	Last point
Baseline CO ₂ _(t=30-90) [%]	0.1319	End data CO ₂ [%]	0.1286	O ₂ (0.05% rise from baseline)	317.27	303
Baseline light signal _(t=30-90)	99.9857	End data light signal	99.3114	CO ₂ (0.02% drop from baseline)	20.6649	306
					0.3089	300

HRR, THR and FIGRA values (Zoom)

HRR, THR and FIGRA values

SPR, TSP and SMOGRA values