DIVISIONE: *DIVISION:* **TESTING-CERTIFICAZIONE** ***TESTING & CERTIFICATION***

LABORATORIO: *LABORATORY:* **Fisica della Combustione** ***Physics of Combustion***

RAPPORTO DI PROVA
(Test Report)

N° **0066\DC\REA\17_4**

Data: *Date:* **06/02/2017**

IDENTIFICAZIONE E DESCRIZIONE DEL CAMPIONE:
SPECIMEN DESCRIPTION:

Nome commerciale ..... : **SEVALCON 203**
Product Name

Descrizione ..... : **Vedi pagina 3**
Description ..... : ***See page 3***

DATI IDENTIFICATIVI DEL CLIENTE:
CLIENT:

Nome / *Name* ..... *:* **IMPOL SEVAL A.D.**

Indirizzo / *Address* ..... *:* **Prvomajska b. b.**

Città / *City* ..... *:* **RS31205 Sevojno - Serbia**

NORMA DI RIFERIMENTO:
REFERENCE STANDARD:

Norma Tecnica / *Technical 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

DISTRIBUZIONE ESTERNA:
OUTSIDE DISTRIBUTION:

Originale cliente
Original : Client

DISTRIBUZIONE INTERNA:
INSIDE DISTRIBUTION:

Copia capo laboratorio
Copy: Head of laboratory

ENTE DI ACCREDITAMENTO:
ACCREDITATION BODY:

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N°0006
Signatory of EA, IAF and ILAC
Mutual Recognition Agreements

DATI GENERALI / *GENERAL DATA* :

- Data ricevimento campioni / *Product supply date* ..... : **17.01.2017**
- Data esecuzione prove / *Date of test* ..... : **01.02.2017**
- Identificazione delle norme di riferimento ..... : **EN 13823:2010+A1:2014**
  Standard reference identification **EN 13238:2010**

  Identificazione dei metodi di prova ..... : //
  Test method identification ..... : //

  Campionamento / *Sampling* ..... : **Provette ricavate dal laboratorio su lotto di materiale fornito dal cliente.**
  Specimens taken from sample supplied by the client.

  Costruzione dei provini / *Specimens construction* ..... : **Nessun giunto.**
  No joint.

  Condizionamento secondo EN 13238 ..... : **23 °C - 50 % u.r. per 336 ore**
  Conditioning compliing EN 13238 ..... : ***23 °C - 50 % r.h. for 336 hours***

- Procedura normalizzata / *Standard procedure* ..... : **SI / *Yes***
- Deviazione dai metodi di prova ..... : **NO / *No***
  Standard procedure deviation
- Controllo calcoli / *Calculation check* ..... : **SI / *Yes***

CAMPIONI ANALIZZATI / *SAMPLES TESTED*:

- 3 Provette campione denominate / 3 *Specimens of sample identified*:

  SEVALCON 203

Descrizione:	**Pannello in alluminio verniciato con vernice a base di poliestere**
Description:	***Aluminum painted panel with polyester based paint***
Spessore Spessore:	**0,5 mm**
Thickness:	***0,5 mm***
Peso per unità di superficie:	**1450 ± 10 g/m^2**
Mass unit area:	***1450 ± 10 g/m^2***
Vernice su lato a vista:	**59,5 g/m^2 (fondo 12,3 g/m^2, finitura 47,2 g/m^2)**
Paint on front side:	***59,5 g/m^2 (fondo 12,3 g/m^2, finitura 47,2 g/m^2)***
Vernice su lato non a vista:	**11,2 g/m^2**
Paint on back side:	***11,2 g/m^2***
Tipo di substrato:	**Nessuno.**
Substrate type:	***None.***
Allestimento del campione:	**Costruzione del provino come da EN 13823 par 5.2 a) con pannelli sul retro posti a 80 mm dal campione.**
Specimen mounting and fixing:	***Specimen mounting compliing to EN 13823 par 5.2 a) with backing boards at a distance of 80 mm from the specimen.***

DICHIARAZIONE / *STATEMENTS* :

- I risultati di prova contenuti nel presente rapporto si riferiscono esclusivamente al campione provato.
  Test results contained in this test report relate only to specimens tested.
- Il presente rapporto non può essere riprodotto parzialmente senza l'autorizzazione del Responsabile del Centro.
  The test report shall not be reproduced except in full without the written approval of the 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

  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 - <10s - >10s]**
1	Soglia non raggiunta *Threshold not reached*	0,2	No/*No*	Soglia non raggiunta *Threshold not reached*	24,5	No/*No*
2	Soglia non raggiunta *Threshold not reached*	0,3	No/*No*	Soglia non raggiunta *Threshold not reached*	15,4	No/*No*
3	Soglia non raggiunta *Threshold not reached*	0,2	No/*No*	Soglia non raggiunta *Threshold not reached*	22,9	No/*No*
Media *Average*	**0 0**	**0,2**	**No/*No***	**0**	**20,9**	**No/*No***

FIGRA = fire growth rate index
THR = total hest release
LFS = lateral flame spread
SMOGRA = smoke growth rate index
FDP = flaming droplet or particles
TSP = total smoke production

DATA *Date*	Settore Fisica della Combustione *Physics of Combustion Sector*	Area Testing *Testing Area*
	Lorenzo Zavaglio	Paolo Fumagalli
06/02/2017		

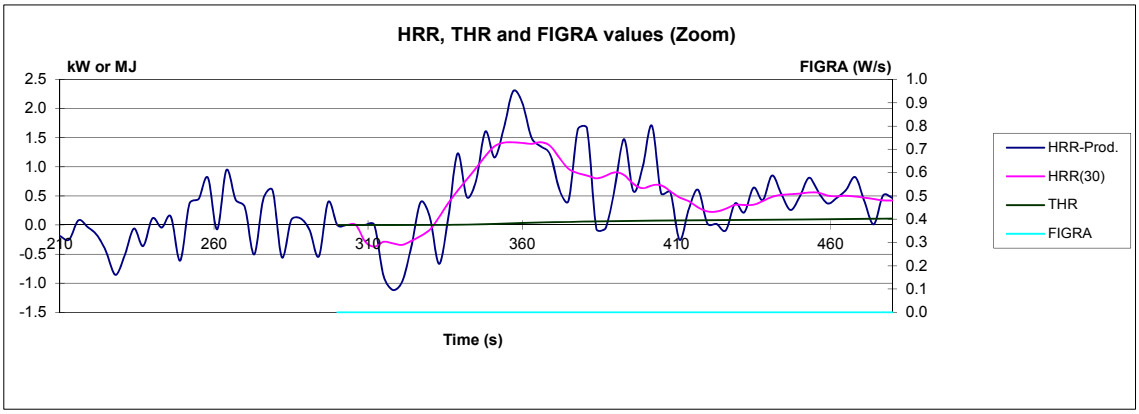
Documento firmato digitalmente ai sensi del D. Lgs. N. 82 del 7 Marzo 2005 e successive modifiche
Digitally signed document in accordance with Legislative Decree n. 82 dated March 7th 2005 and subsequent amendments.

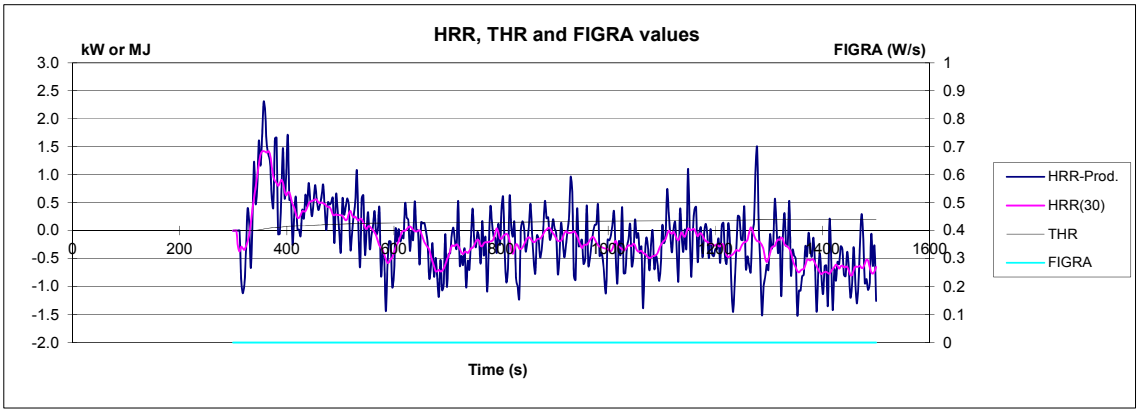
SBI Test Report

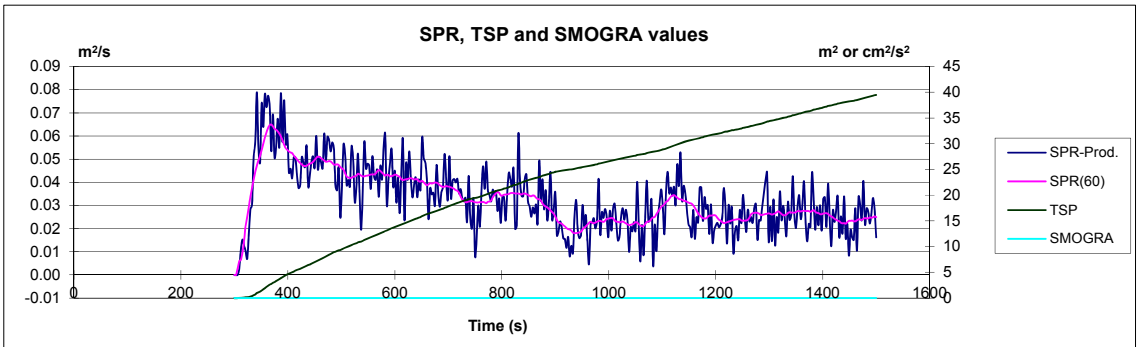
Laboratory: CSI S.p.A.
Product: SEVALCON 203

Test no.	Test date:	Print date:
1	01/02/2017	03/02/2017

Test condition		Check points		Results	
Baseline duct temp.$_{(t=30-90)}$ [K]	290.95	$HRR_{av,burner}$ [KW]	30.953	FIGRA threshold: 0.2 MJ [W/s]	**0.0**
Ambient pressure. [Pa]	100975	$HRR_{std\ burner}$ [KW]	0.451	FIGRA threshold: 0.4 MJ [W/s]	**0.0**
Humidity [%]	35	CO_2/O_2 $Ratio_{burner}$	0.637	THR_{600} [MJ] *	**0.2**
		$SPR_{av,burner}$ [m²/s]	0.034	Lateral flame spread (LFS) reach the edge?	**No**
k_t	0.8600	$SPR_{std\ burner}$ [m²/s]	0.009	SMOGRA [cm²/s²]	**0.0**
k_p	1.0800			TSP_{600} [m²] *	**24.5**
E' [KJ/m³]	17200	Ambient temp. $_{(t=30-90)}$ [K]	290.75	Flaming droplets/particles (FDP) (flaming <= 10 s)?	**No**
Duct diameter: [m]	0.315	No. of acceptable thermocouples	3	Flaming droplets/particles (FDP) (flaming > 10 s)?	**No**
		Minimum for flow [m³/s]	0.5535	Time to $FIGRA_{0.2}$ [s] *	0
		Maximum for flow [m³/s]	0.6515	Time to $FIGRA_{0.4}$ [s] *	0
		Burner response time [s]	9	Tig (2*6KW) [s] *	Not reach
				* After ignition of main burner	
Baseline O_2^n $_{(t=30-90)}$ [%]	20.7963			**Synchronisation information**	Baseline / Last point
Baseline O_2 $_{(t=30-90)}$ [%]	20.9445	End data O_2 [%]	20.9298	T-Duct (2.5 K drop from baseline)	313.52 / 303
Baseline CO_2 $_{(t=30-90)}$ [%]	0.1957	End data CO_2 [%]	0.1975	O2 (0.05% rise from baseline)	20.6554 / 303
Baseline light signal $_{(t=30-90)}$	100.0689	End data light signal	99.6712	CO2 (0.02% drop from baseline)	0.3801 / 300







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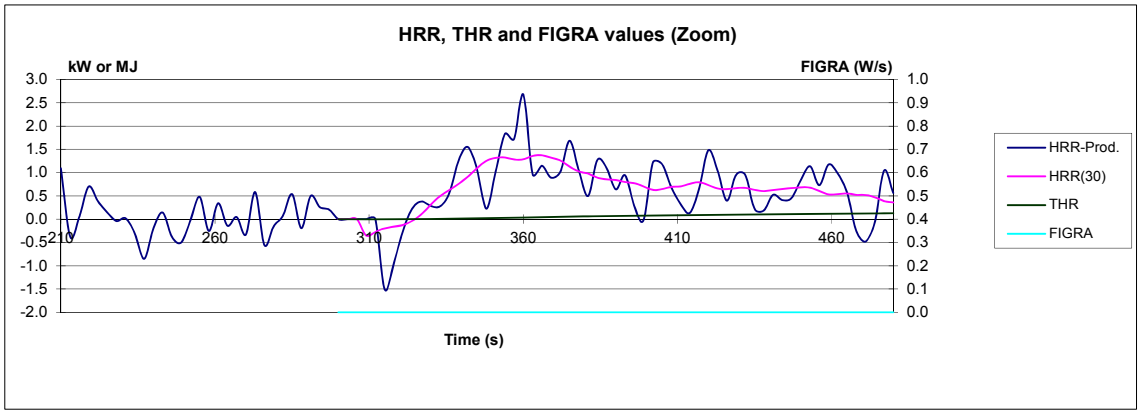
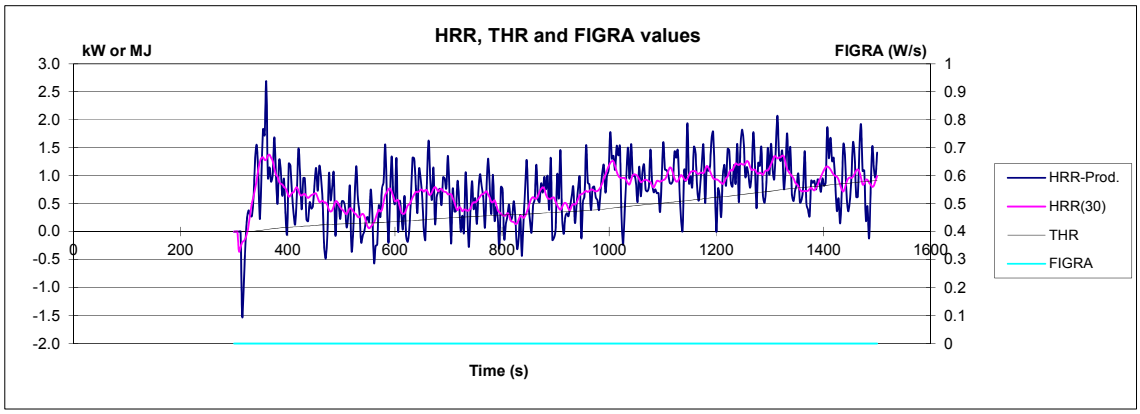
SBI Test Report

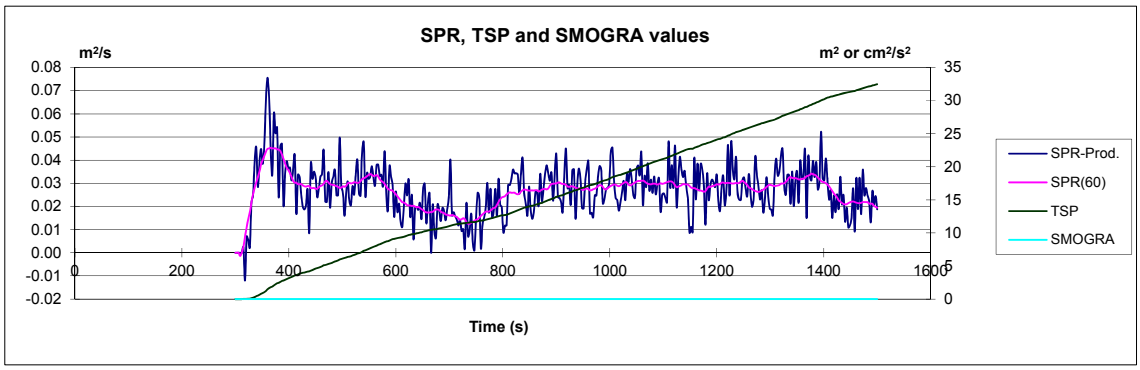
Laboratory: CSI S.p.A.
Product: SEVALCON 203

Test no.	Test date:	Print date:
2	01/02/2017	03/02/2017

Test condition		Check points		Results	
Baseline duct temp.$_{(t=30-90)}$ [K]	291.04	$HRR_{av,burner}$ [KW]	28.918	FIGRA threshold: 0.2 MJ [W/s]	**0.0**
Ambient pressure. [Pa]	101021	$HRR_{std\ burner}$ [KW]	0.437	FIGRA threshold: 0.4 MJ [W/s]	**0.0**
Humidity [%]	35	CO_2/O_2 $Ratio_{burner}$	0.657	THR_{600} [MJ] *	**0.3**
		$SPR_{av,burner}$ [m²/s]	0.033	Lateral flame spread (LFS) reach the edge?	**No**
k_t	0.8600	$SPR_{std\ burner}$ [m²/s]	0.009	SMOGRA [cm²/s²]	**0.0**
k_p	1.0800			TSP_{600} [m²] *	**15.4**
E' [KJ/m³]	17200	Ambient temp. $_{(t=30-90)}$ [K]	290.50	Flaming droplets/particles (FDP) (flaming <= 10 s)?	**No**
Duct diameter: [m]	0.315	No. of acceptable thermocouples	3	Flaming droplets/particles (FDP) (flaming > 10 s)?	**No**
		Minimum for flow [m³/s]	0.5568	Time to $FIGRA_{0.2}$ [s] *	0
		Maximum for flow [m³/s]	0.6029	Time to $FIGRA_{0.4}$ [s] *	0
		Burner response time [s]	9	Tig (2*6KW) [s] *	Not reach
				* After ignition of main burner	
Baseline O_2^n $_{(t=30-90)}$ [%]	20.8018			**Synchronisation information**	Baseline / Last point
Baseline $O_{2\ (t=30-90)}$ [%]	20.9508	End data O_2 [%]	20.9488	T-Duct (2.5 K drop from baseline)	314.38 / 303
Baseline $CO_{2\ (t=30-90)}$ [%]	0.1986	End data CO_2 [%]	0.1982	O2 (0.05% rise from baseline)	20.6782 / 303
Baseline light signal $_{(t=30-90)}$	100.0690	End data light signal	101.4771	CO2 (0.02% drop from baseline)	0.3778 / 300







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SBI Test Report

Laboratory: CSI S.p.A.
Product: SEVALCON 203

Test no.	Test date:	Print date:
3	01/02/2017	03/02/2017

Test condition		Check points		Results	
Baseline duct temp.$_{(t=30-90)}$ [K]	293.10	$HRR_{av,burner}$ [KW]	29.702	FIGRA threshold: 0.2 MJ [W/s]	**0.0**
Ambient pressure. [Pa]	101133	$HRR_{std\ burner}$ [KW]	0.538	FIGRA threshold: 0.4 MJ [W/s]	**0.0**
Humidity [%]	35	CO_2/O_2 $Ratio_{burner}$	0.648	THR_{600} [MJ] *	**0.2**
		$SPR_{av,burner}$ [m²/s]	0.049	Lateral flame spread (LFS) reach the edge?	**No**
k_t	0.8600	$SPR_{std\ burner}$ [m²/s]	0.009	SMOGRA [cm²/s²]	**0.0**
k_p	1.0800			TSP_{600} [m²] *	**22.9**
E' [KJ/m³]	17200	Ambient temp. $_{(t=30-90)}$ [K]	289.36	Flaming droplets/particles (FDP) (flaming <= 10 s)?	**No**
Duct diameter: [m]	0.315	No. of acceptable thermocouples	3	Flaming droplets/particles (FDP) (flaming > 10 s)?	**No**
		Minimum for flow [m³/s]	0.5573	Time to $FIGRA_{0.2}$ [s] *	0
		Maximum for flow [m³/s]	0.6031	Time to $FIGRA_{0.4}$ [s] *	0
		Burner response time [s]	6	Tig (2*6KW) [s] *	Not reach
				* After ignition of main burner	
Baseline O_2^n $_{(t=30-90)}$ [%]	20.7840			**Synchronisation information**	Baseline / Last point
Baseline O_2 $_{(t=30-90)}$ [%]	20.9534	End data O_2 [%]	20.9363	T-Duct (2.5 K drop from baseline)	313.84 / 303
Baseline CO_2 $_{(t=30-90)}$ [%]	0.1978	End data CO_2 [%]	0.2073	O2 (0.05% rise from baseline)	20.6739 / 303
Baseline light signal $_{(t=30-90)}$	100.1626	End data light signal	99.3848	CO2 (0.02% drop from baseline)	0.3794 / 300