TEST REPORT 14298B

Sponsor

CPI Europe GMBH
Wallenroder Str. 6
D-13435 BERLIN
GERMANY

Construction product and trade name

Insulation system – **'eZero E500'**

Nature of the test

EN 13823: 2002 Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by a single burning item.

Summary of the results

Average FIGRA value (W/s)	23
Average THR_{600s} (MJ)	0,8
Average SMOGRA value (m^2/s^2)	1
Average TSP_{600s} (m^2)	32
$LFS_{< edge}$ (mm)	< 1000
Flaming particles or droplets f<10s	None
Flaming particles or droplets f>10s	None

Ghent, 20 SEP. 2010

ing. F. DUTRIEUE
Project manager

Prof.dr.ir. P. VANDEVELDE
Director

EN13823-Off3-WG-5E*

This report contains 15 pages including 9 annexes

This document is the original version of this test report and is written in English.

FOUNDING MEMBER

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196-TEST

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1. DESCRIPTION OF THE TEST METHOD

EN 13823: 2002 – Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by a single burning item

There was no deviation from the specifications contained in the test standard.

2. IDENTIFICATION OF THE PRODUCT

Date of sample arrival	:	2010-01-06
Identification of the samples	:	Not communicated
Sampling done by	:	The sponsor
Sampling date	:	2010-01-06
Name of the sponsor	:	CPI Europe GMBH Wallenroder Str. 6 D-13435 BERLIN GERMANY
Name of the manufacturer/supplier:		CPI Europe GMBH Wallenroder Str. 6 D-13435 BERLIN GERMANY
Trade name	:	**eZero E500**

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Description of the product :

This description is based on information given by the sponsor.
Construction of the test specimen: inner foam, front and back covered with plaster board (fixed to the pine wood with staples), sides, top and bottom are covered with pine wood.

Facing	Generic type	Plaster board
	Product reference	drywall
	Name of manufacturer	Gyproc
	Density (kg/m³)	700 kg/m³
	Weight per unit area (g/m²)	Not communicated
	Thickness (mm)	12 mm
Insulation core	Generic type	polyurethane open cell foam
	Trade name / product reference	eZero E500 Insulation System
	Name of manufacturer	CPI Europe GmbH/CPI Foam Ltd.
	Thickness (mm)	75 mm
	Colour	Light yellow
	Density (kg/m³)	16 (*)
	Flame retardant details	Contains TCPP
	Reference of the flame retardant	-
	Weight of product applied (g/m²)	-
	Number and duration of applications	1 pass in 10 s
	Nature of the treatment	Sprayed foam
Facing	Generic type	Plaster board
	Product reference	drywall
	Name of manufacturer	Gyproc
	Density (kg/m³)	700 kg/m³
	Weight per unit area (g/m²)	Not communicated
	Thickness (mm)	12 mm
Surrounding framework	Generic type	Pine wood
	Thickness (mm)	40 mm
	Density (kg/m³)	576 kg/m³ (*)

(*) values measured by the laboratory WFRGent N.V.

Mounting and fixing :

The insulation system was tested freestanding with a horizontal joint at 500 mm and a vertical joint at 200 mm. The vertical joint was screwed on a batten, no joint filler was used.

Conditioning, according to EN 13238, § 4.3 for fixed period

Start of conditioning	:	2010-01-06
End of conditioning	:	2010-01-25

3. CALIBRATION RESULTS

Latest calibration date	:	2010-01-04
Calibration valid until	:	2010-02-04
Calibration results	:	annex 9

4. RESULTS AND OBSERVATIONS

Date of test	:	2010-01-25
Ambient pressure	:	102500 Pa
Ambient relative humidity	:	31,50 – 32,33 %
Ambient temperature of air	:	18,2 – 18,4 ° C

a) Measured values

Test nr	1	2	3	m'
FIGRA value (W/s)	28,48	19,26	21,11	22,95
$FIGRA_{0,2\,MJ}$ (W/s)	*28,48*	*19,26*	*21,11*	*22,95*
$FIGRA_{0,4\,MJ}$ (W/s)	*16,04*	*10,60*	*10,16*	*12,27*
THR_{600s} (MJ)	0,88	0,60	1,00	0,82
SMOGRA value (m^2/s^2)	0	0	1,55	0,52
TSP_{600s} (m^2)	31,84	30,37	32,27	31,50

Annex 2 : Graphs RHR_{av} (t), THR (t), 1000 x RHR_{av} (t) / (t-300) for specimen nr 1
Annex 3 : Graphs RSP_{av} (t), TSP (t), 10000 x RSP_{av} (t) / (t-300) for specimen nr 1
Annex 4 : Graphs RHR_{av} (t), THR (t), 1000 x RHR_{av} (t) / (t-300) for specimen nr 2
Annex 5 : Graphs RSP_{av} (t), TSP (t), 10000 x RSP_{av} (t) / (t-300) for specimen nr 2
Annex 6 : Graphs RHR_{av} (t), THR (t), 1000 x RHR_{av} (t) / (t-300) for specimen nr 3
Annex 7 : Graphs RSP_{av} (t), TSP (t), 10000 x RSP_{av} (t) / (t-300) for specimen nr 3

b) Observations

Test nr	1	2	3	m'
Lateral flame spread reaching far edge on long wing	No	No	No	No
Flaming particles or droplets				
f<10s	None	None	None	None
f>10s	None	None	None	None
Occurrence of surface flashes	No	No	No	
Smoke flowing out of the trolley into surrounding testing room	None	None	None	
Falling of parts of the specimen	None	None	None	
Development of a gap in the corner (failure of mutual fixing of backing boards)	None	None	None	
Early termination of test	No	No	No	
Occurrence of distortion or collapse of the specimen	None	None	None	

Photographs of the test specimen – Annex 8

c) Summary of test results

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.

The test results are only valid for the specimen of the product which has been tested.

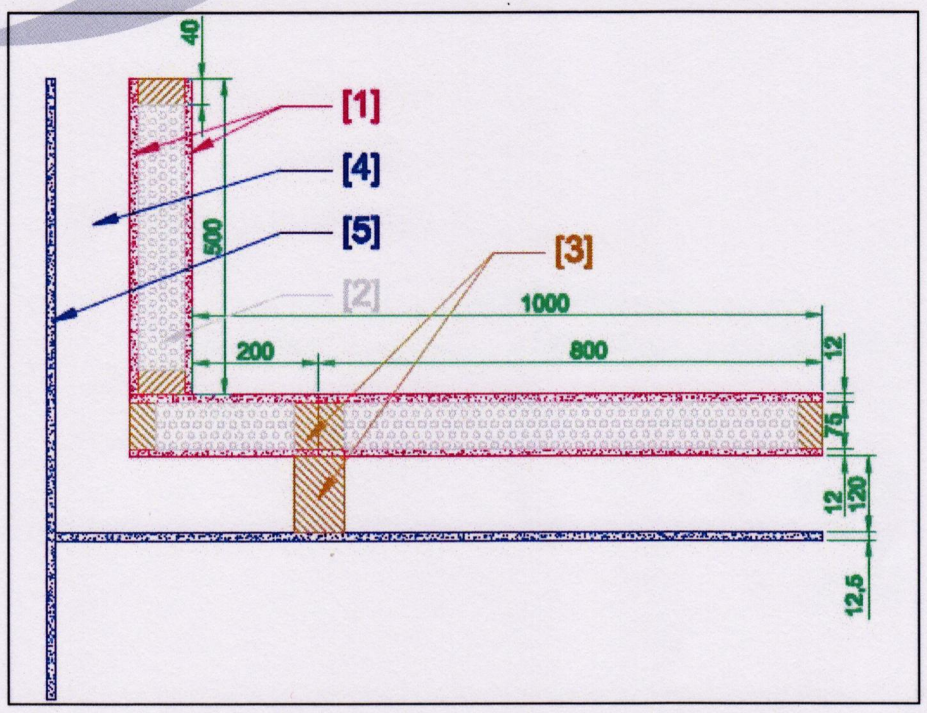
The following test results were obtained in accordance with the standard EN 13823: 2002.

Average FIGRA value (W/s)	23
Average THR_{600s} (MJ)	0,8
Average SMOGRA value (m^2/s^2)	1
Average TSP_{600s} (m^2)	32
$LFS_{< edge}$ (mm)	< 1000
Flaming particles or droplets f<10s	None
Flaming particles or droplets f>10s	None

d) Uncertainty of measurement

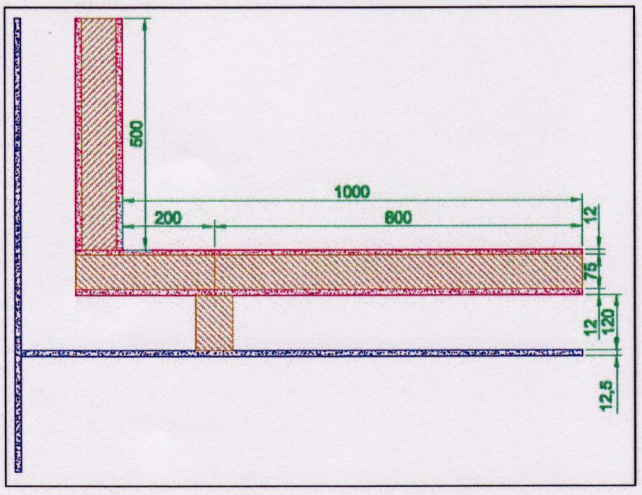
Regarding the precision of the test method, at the present time we have insufficient information to make a considerate statement regarding the uncertainty of measurement. The uncertainty of test results for this test report is described in Annex B of the test standard.
As this annex only covers generic products and as we know at this moment that the uncertainty can be influenced by the nature of the product in the test, the values in Annex B can only give an indication of the actual uncertainty of the tests described in this report.

Mounting specifications

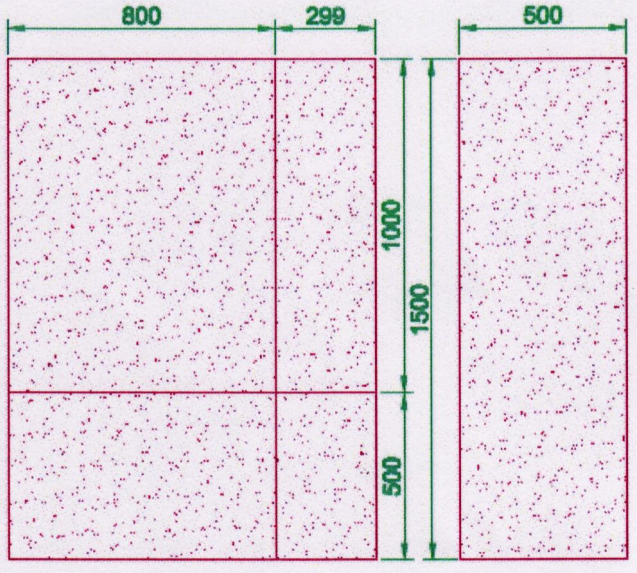


cross section view :

[1] Gypsum plasterboard
[2] Foam
[3] Pine wood
[4] Airgap
[5] Calcium Silicate backing board



view from above



front view

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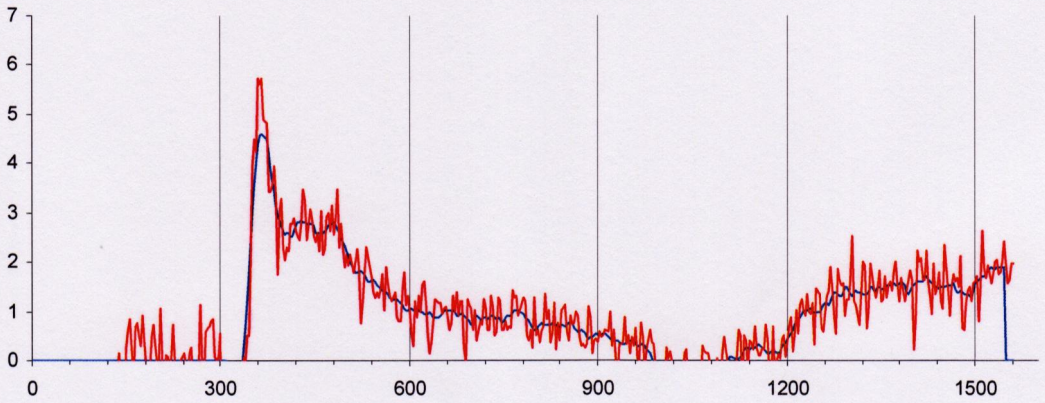
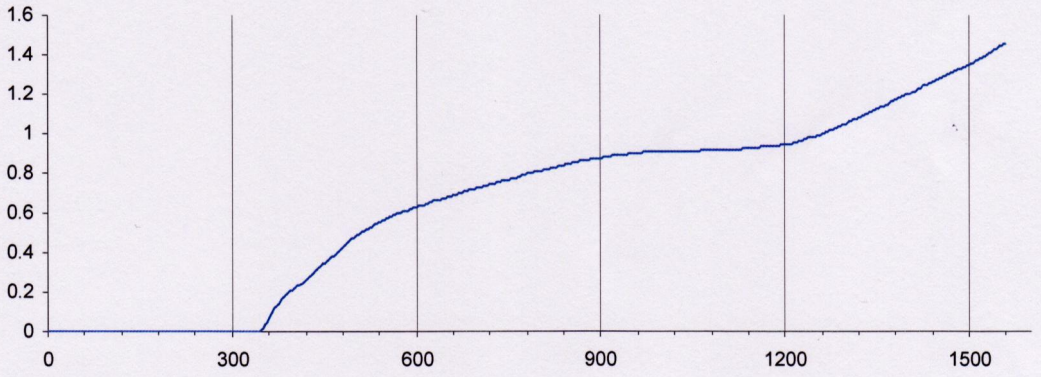
Graphs RHR_{av} (t), THR (t) and 1000 x RHR_{av} (t) / (t-300) for specimen nr 1

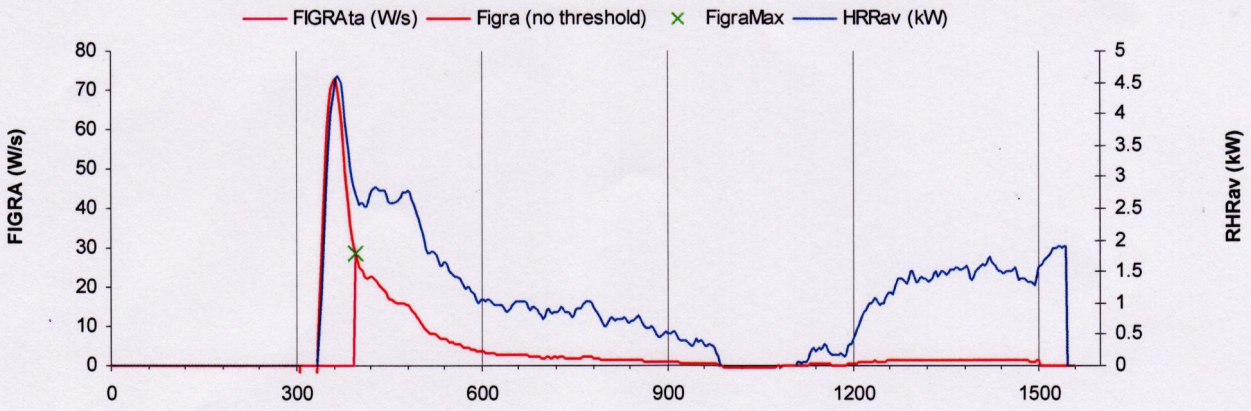
RHR_{av} (t)



THR (t)



1000 x RHR_{av} (t) / (t-300)



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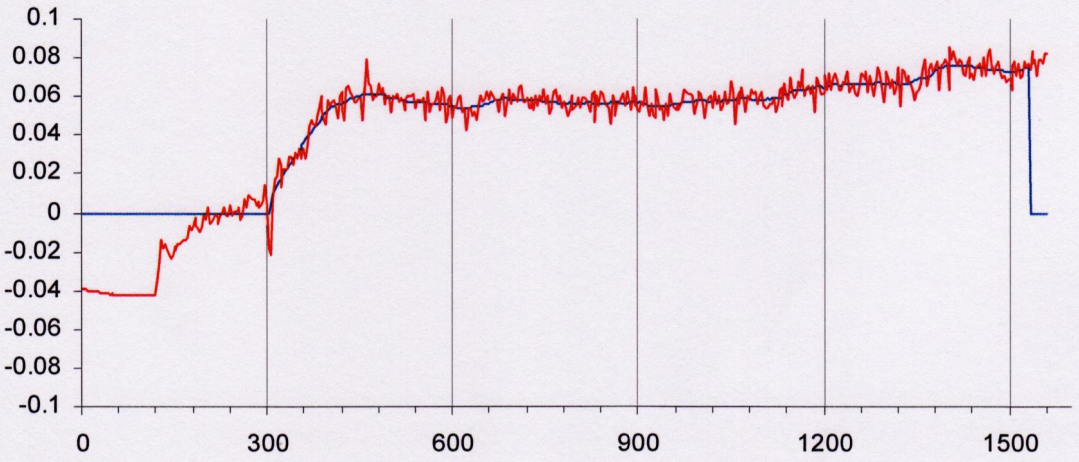
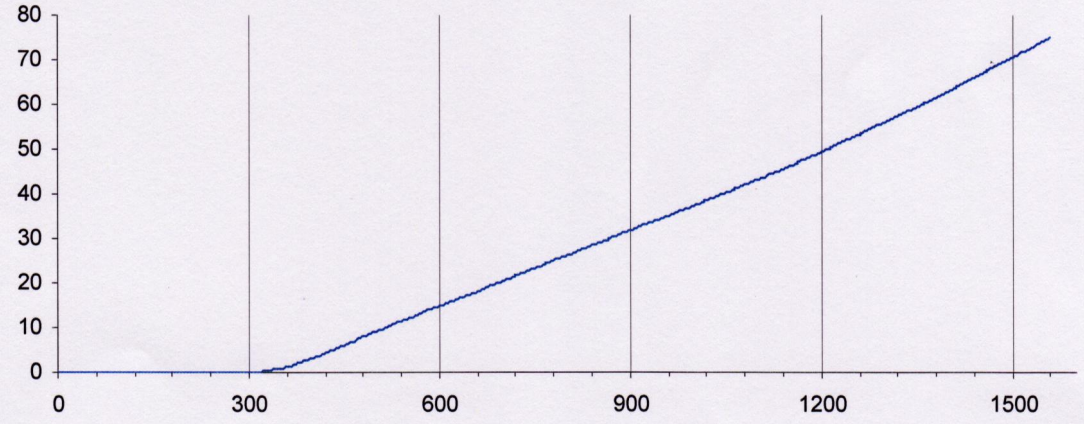
Graphs RSP_{av} (t), TSP (t) and 10000 x RSP_{av} (t) / (t-300) for specimen nr 1

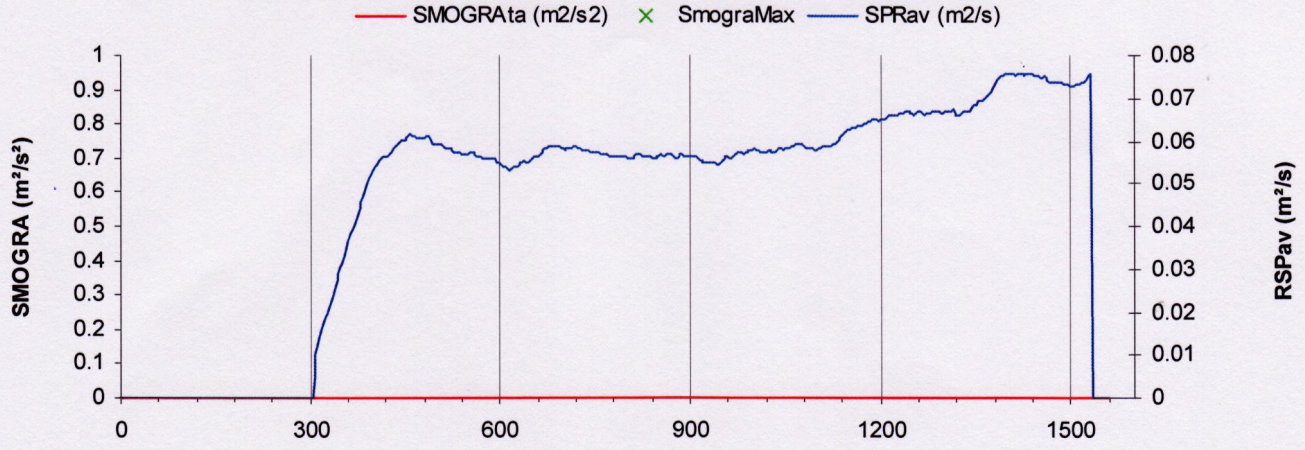
RSP_{av} (t)



TSP (t)



10000 x RSP_{av} (t) / (t-300)



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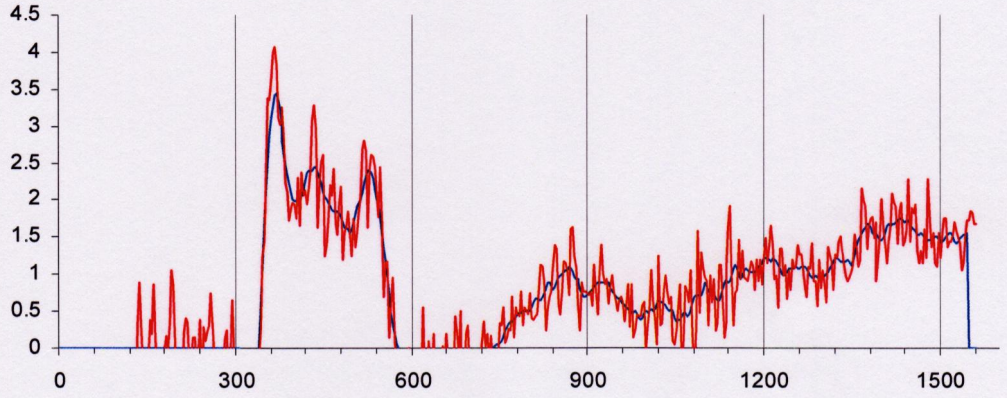
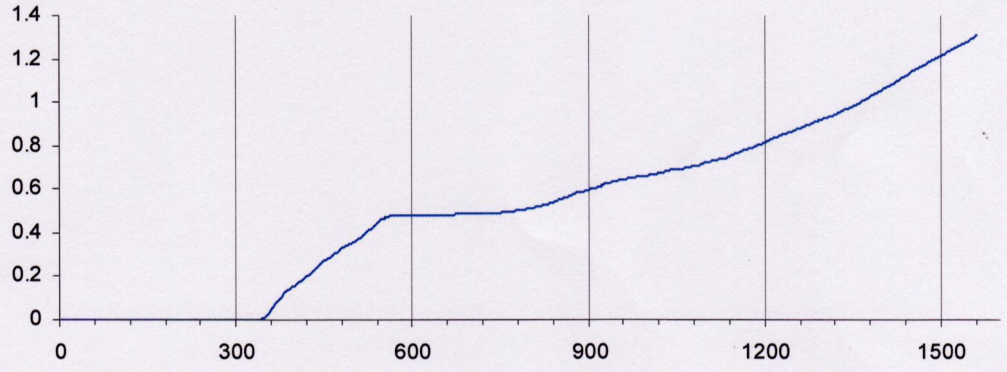
Graphs RHR_{av} (t), THR (t) and 1000 x RHR_{av} (t) / (t-300) for specimen nr 2

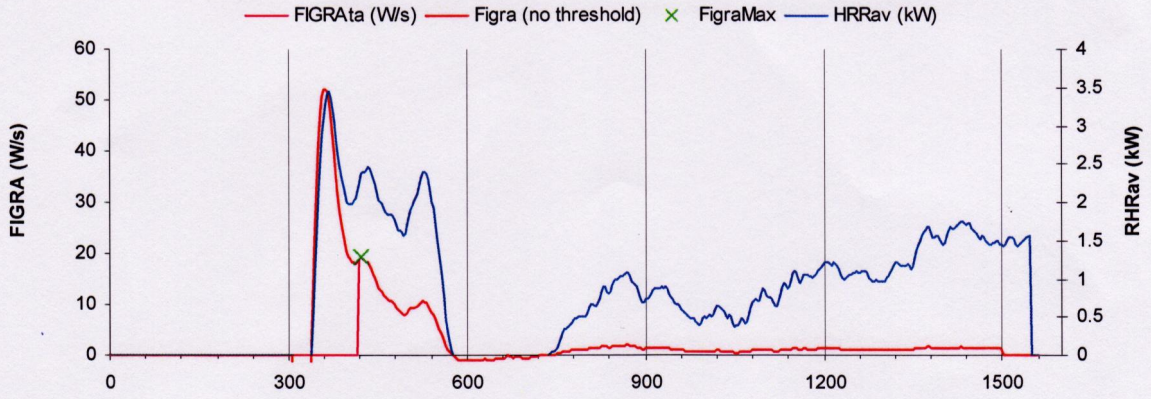
RHR_{av} (t)



THR (t)



1000 x RHR_{av} (t) / (t-300)



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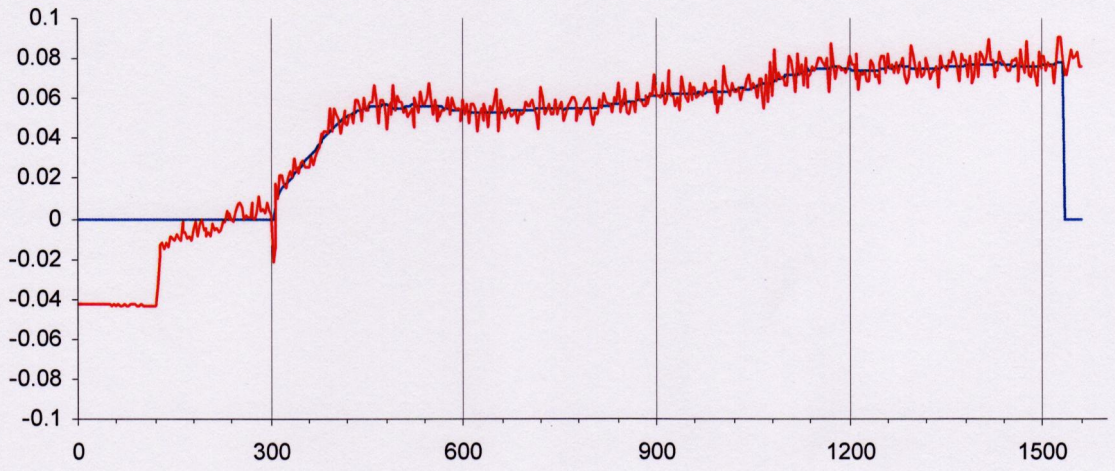
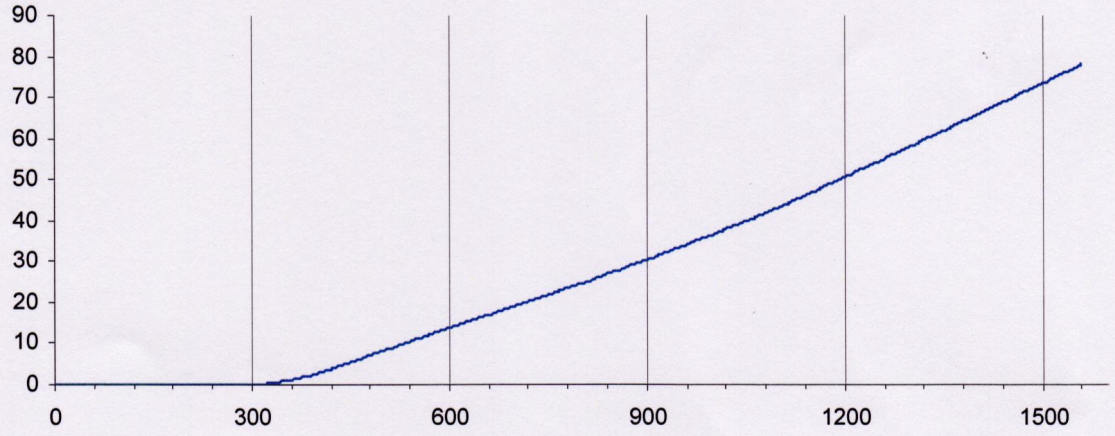
Graphs RSP_{av} (t), TSP (t) and 10000 x RSP_{av} (t) / (t-300) for specimen nr 2

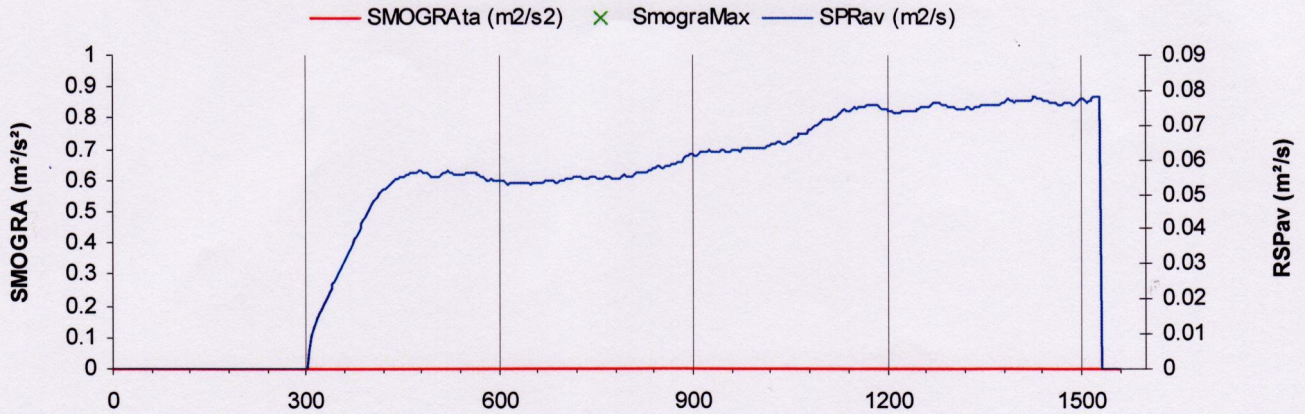
RSP_{av} (t)



TSP (t)



10000 x RSP_{av} (t) / (t-300)



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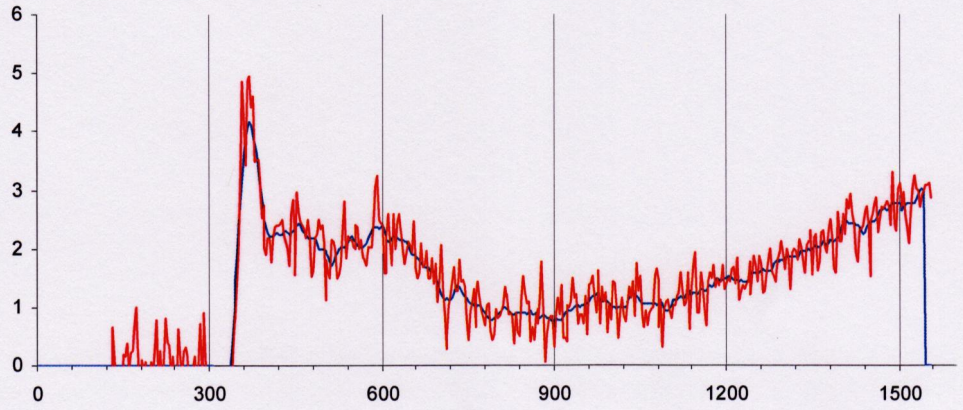
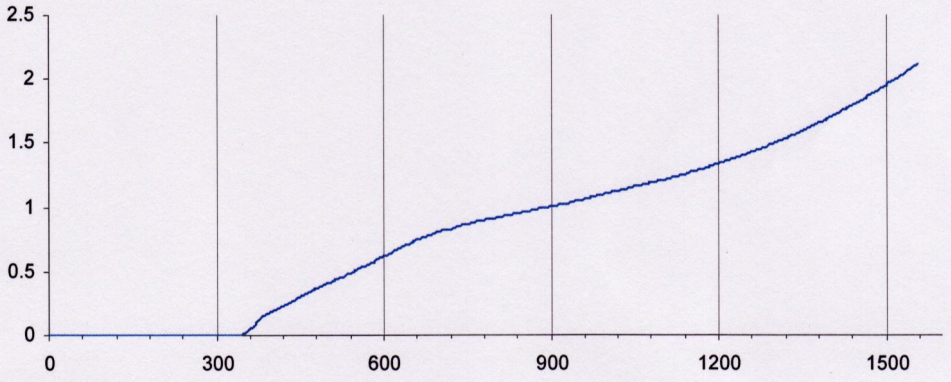
Graphs RHR_{av} (t), THR (t) and 1000 x RHR_{av} (t) / (t-300) for specimen nr 3

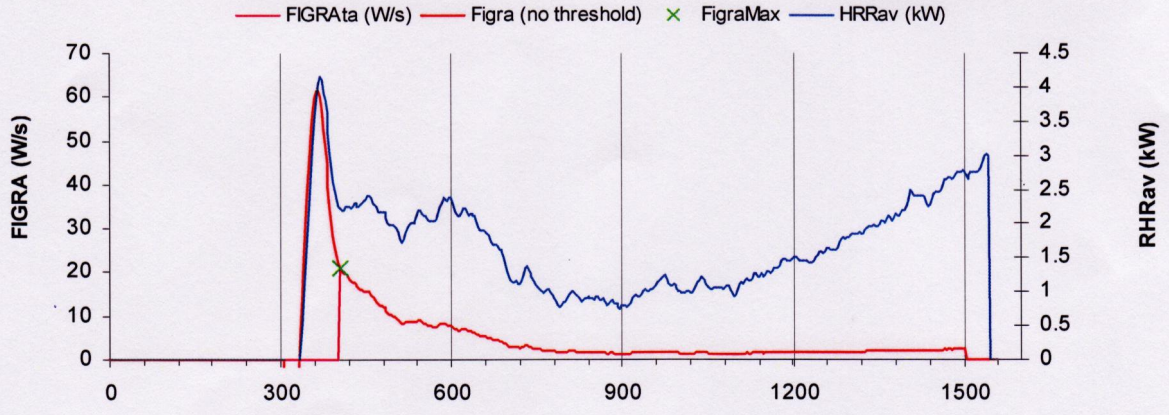
RHR_{av} (t)



THR (t)



1000 x RHR_{av} (t) / (t-300)



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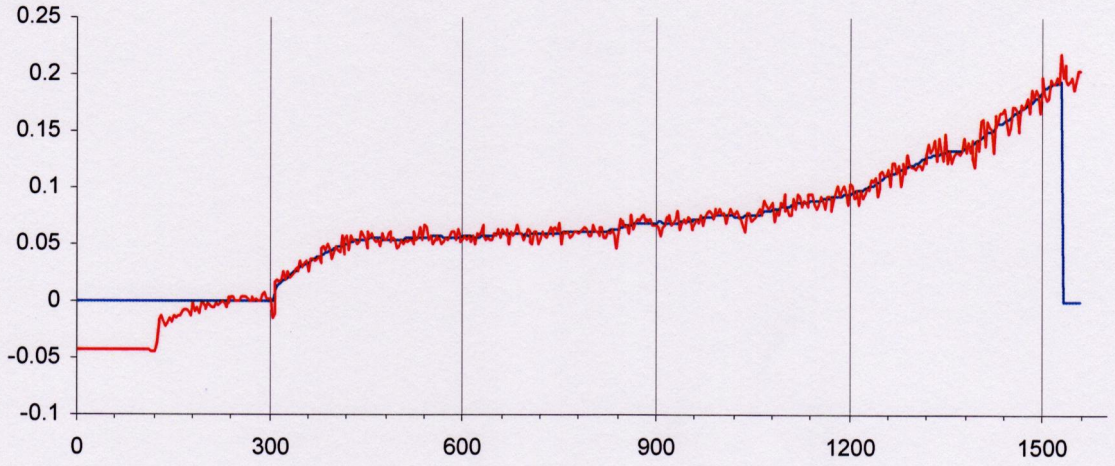
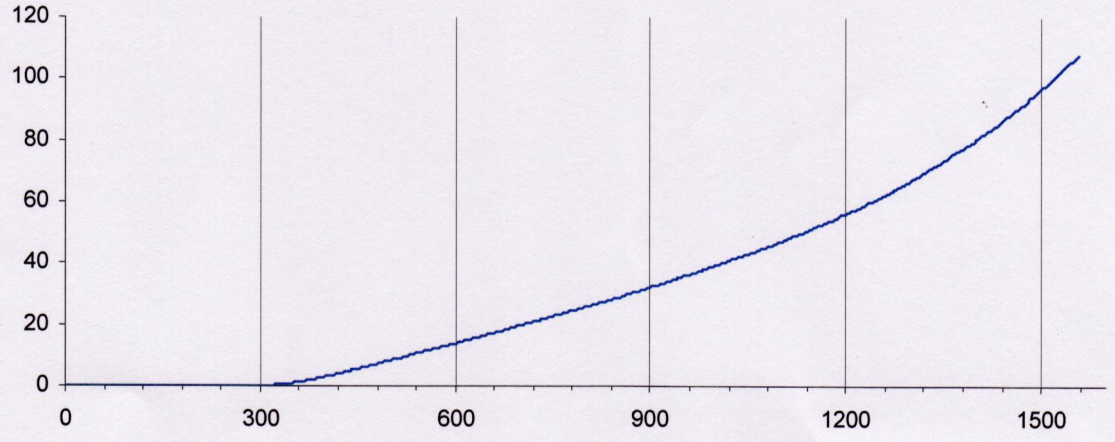
Graphs RSP_{av} (t), TSP (t) and 10000 x RSP_{av} (t) / (t-300) for specimen nr 3

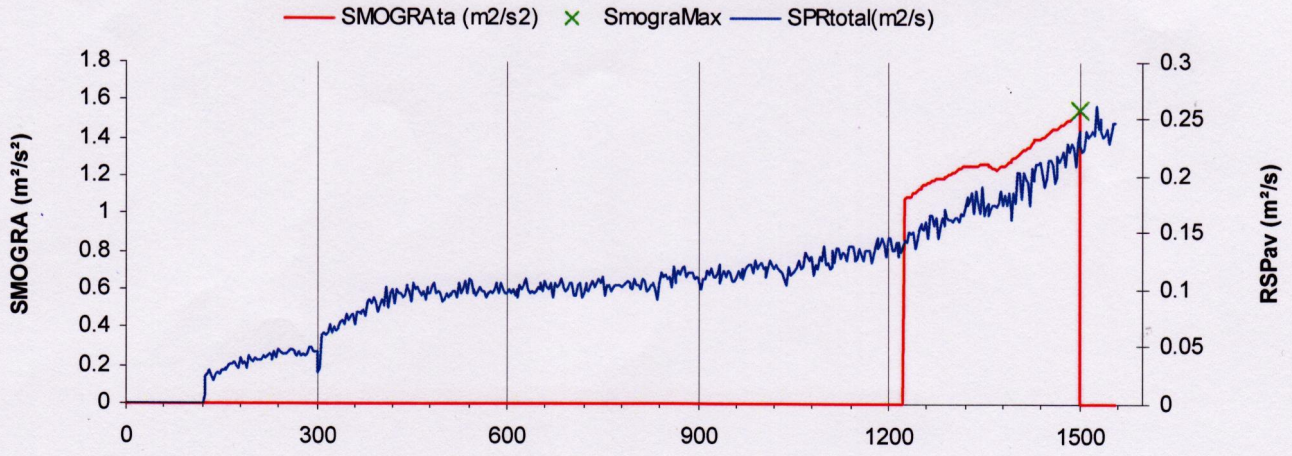
RSP_{av} (t)



TSP (t)



10000 x RSP_{av} (t) / (t-300)



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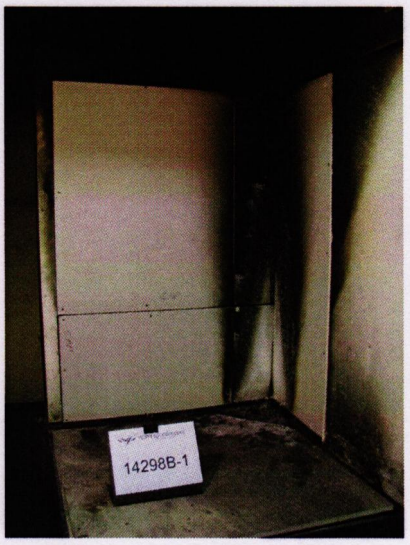
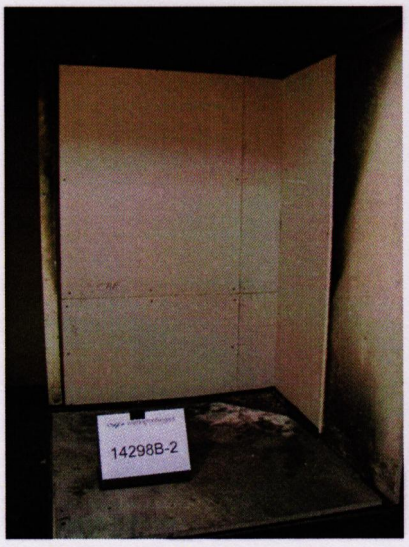
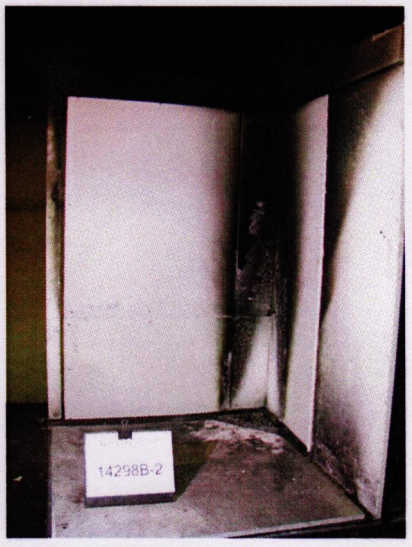
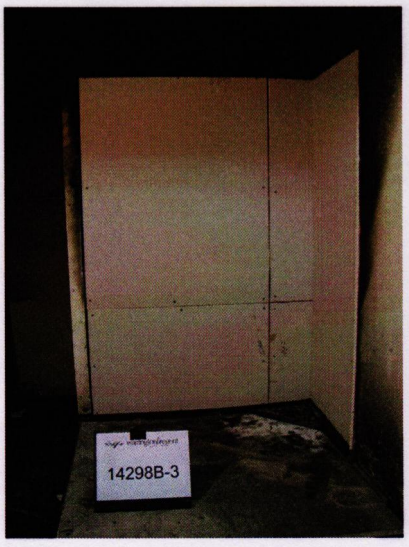
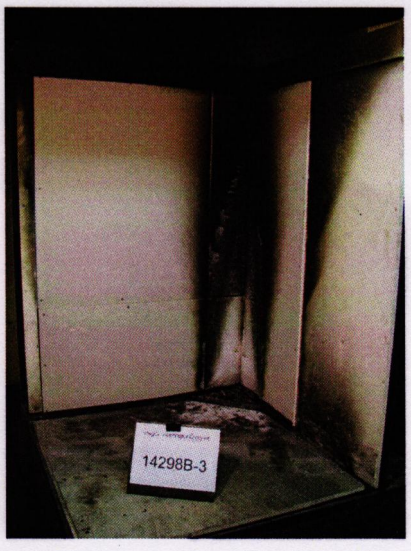
Photographs of the test specimen











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Calibration results

Date of calibration: 2010-01-04

SBI: Step calibration

§ C.2.1.3 a)	t gas	t T	t O2	t CO2	t O2 10%	t O2 90%	t CO2 10%	t CO2 90%	t T 10%	t T 75%	
120s-300s	483	486	498	498	498	504.000	498.000	510	486	486	
480s-660s	663	666	678	681	681	690.000	681.000	693	666	669	
660s-840s	843	846	861	861	861	873.000	861.000	876	846	849	
840s-1020s	0	0	0	0	0	0.000	0.000	0	0	0	
§ C.2.1.3 b-l)	delay O2	delay CO2	resp. O2	resp. CO2	temp. resp.	tup tdown	av. q gas	av. RHR	c 2.1.4. (f)	... Min(%)	... Max(%)
120s-300s	0	0	0	0	0	318	30.05	29.91	OK	99.96	105.55
300s-480s	12	12	6	12	0	330	0	0	O.O.R.	98.33	104.71
480s-660s	12	15	9	12	3	0	30.05	30.89	OK	89.07	97.95
660s-840s	15	15	12	15	3	0	0	0	O.O.R.	0	0
840s-1020s	0	0	0	0	0	0	0	0		0	0

Delay time O2-analyser (s):	**12**
Delay time CO2-analyser (s):	**15**
Response time CO2-analyser (s):	**12**
Response time O2-analyser (s):	**9**
Drift CO2 (Start-End) (Vol%):	**0.001**
Drift O2 (Start-End) (Vol%):	**0.003**
Thermocouple Consistency:	**OK**
Burner switch response time (s):	**12**
Temperature response time (s):	**3**
Average(RHRs2 - RHRs3) (kW):	**0.267**
kt_qgas (-):	**0.798**