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Zilence AB  
c/o Select Group Ab Arabygatan 49  
352 46 VÄXJÖ  
Sweden

## Fire test according to EN 13823 (SBI Method)

(3 appendices)

RISE has by request of Zilence AB performed a fire test according to EN 13823:2020+A1:2022 (SBI method). The test is for informatory purpose.

This report replaces RISE report O100741-1225884, dated December 11, 2023. The previous report is not valid and should be destroyed. This revision includes some minor editorial updates.

### Product

According to the client:

Acoustic lamella cladding called “Acoustic Panel”.

### Manufacturer

Zilence AB, Växjö, Sweden.

### Sampling

The sample was delivered by the client. It is not known to RISE, Fire and Safety if the product received is representative of the mean production characteristics.

The sample was received October 12, 2023 at RISE, Fire and Safety.

### Test results

The test results are given in appendix 1 and photographs are shown in appendix 2. An explanation of the SBI-test parameters is given in appendix 3.

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.

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Accred. No. 1002  
Testing  
ISO/IEC 17025

## Criteria

According to Table 1 in “Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests”, EN 13501-1:2018.

To meet class ”B-s2,d0”, construction products excluding floorings and linear pipe thermal insulation products have to meet the following limits when tested according to EN 13823:

- $FIGRA_{0,2 MJ} \leq 120 \text{ W/s}$
- $LFS < \text{edge of specimen}$
- $THR_{600s} \leq 7.5 \text{ MJ}$
- $SMOGRA \leq 50 \text{ m}^2/\text{s}^2$
- $TSP_{600s} \leq 200 \text{ m}^2$
- No flaming droplets / particles within 600 s

Additionally construction products excluding floorings and linear pipe thermal insulation products have to meet the following limits when tested according to EN ISO 11925-2:

Flame tip must not reach 150 mm vertically from the point of application of the test flame, within 60 s from the time of application. 30 s exposure time.

## Deviation from standard

Only one test was carried out, instead of the three stipulated in the standard.

## Note


The accreditation referred to is valid for EN 13823.

The test results of the single test according to EN 13823 are within the criteria for class B-s2,d0.

This test does not comply with the standard as far as number of tests is concerned. It can therefore not be used as the sole basis for a classification or an approval.

## RISE Research Institutes of Sweden AB Fire and safety - Reaction to Fire Medium Scale Lab

Performed by



Richard Johansson

Examined by



Per Thureson

## Appendices

1. Test results – EN 13823:2020+A1:2022
2. Photographs
3. Test parameter explanation

## Appendix 1

## Test results, EN 13823:2020+A1:2022

### Product

According to the client:

Acoustic lamella cladding called “Acoustic Panel”.

### Mounting

See photo 1 – 2, appendix 2.

The product was mounted according to EN 13823:2020+A1:2022, 5.2.2 b and e. The product was mechanically fixed on to steel studs to a gypsum plaster board. Stone wool insulation filled the cavity between the product and the gypsum plaster board. The metal studs were mounted in a vertical orientation. A vertical joint was used on the long specimen wing. The side with panels was exposed.

### Test results

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Test no	Test 1
<b>General information</b>	
Test start, min:s	0:00
Auxiliary burner ignited and adjusted, min:s	2:00
Main burner ignited, min:s	5:00
Main burner stopped, min:s	26:00
<b>Observations</b>	
Flaming droplets or particles	No
Burning droplets or particles, > 10 s	No
Lateral flame spread until the edge, LFS	No
<b>Fire performance, see graph no 3 to 6</b>	
<i>FIGRA</i> <sub>0,2MJ</sub> , W/s	51
<i>FIGRA</i> <sub>0,4MJ</sub> , W/s	51
<i>SMOGRA</i> , m <sup>2</sup> /s <sup>2</sup>	8.9
<i>THR</i> <sub>600s</sub> , MJ	5
<i>TSP</i> <sub>600s</sub> , m <sup>2</sup>	104

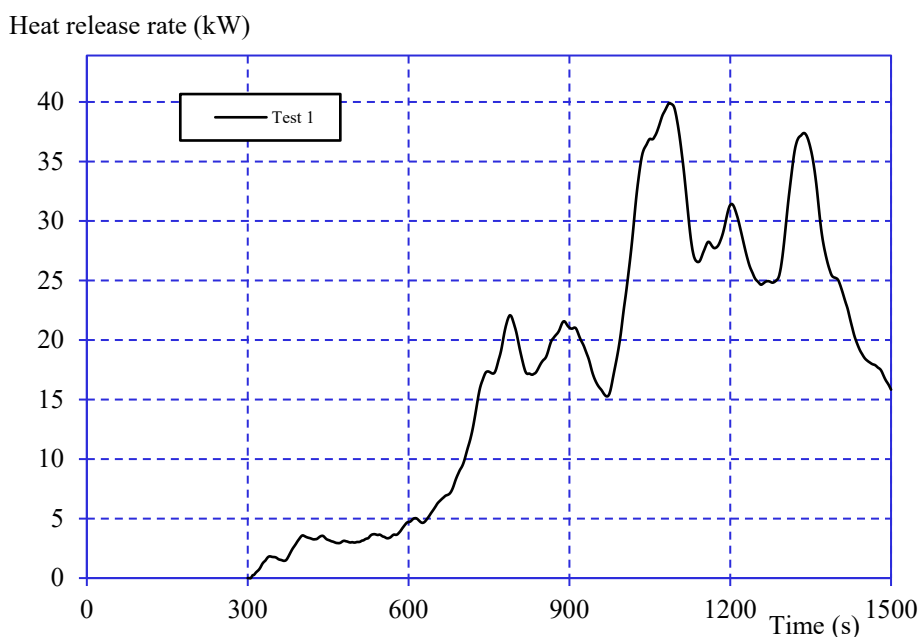
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### Method of smoke calculation

The smoke production rate, SPR, of the burner was calculated using data from the main (primary) burner according to EN 13823:2020+A1:2022.

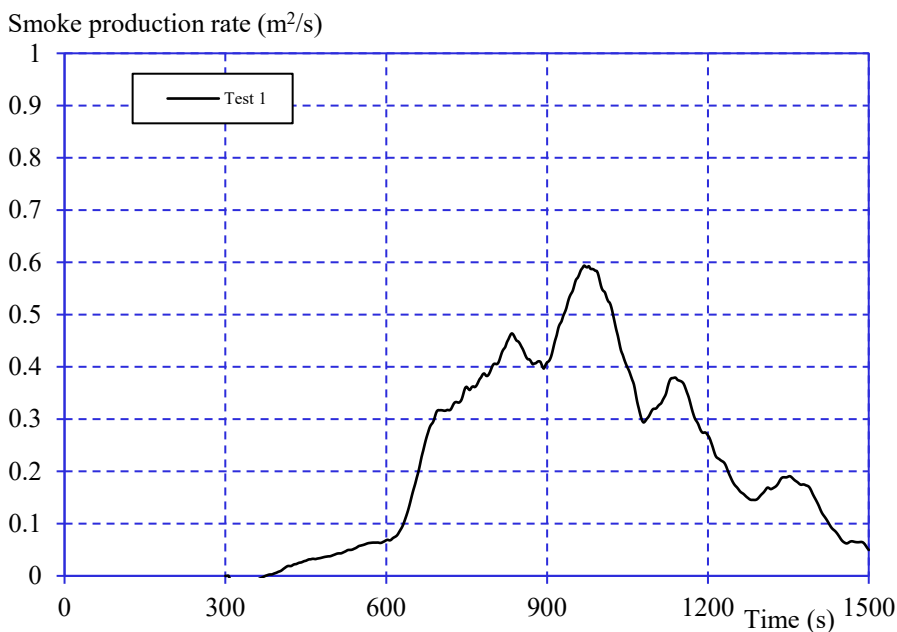
Appendix 1

**Graph of heat release rate ( $HRR_{av}$ )**



*Graph 1 Heat release rate (burner excluded), 30 seconds running average value.*

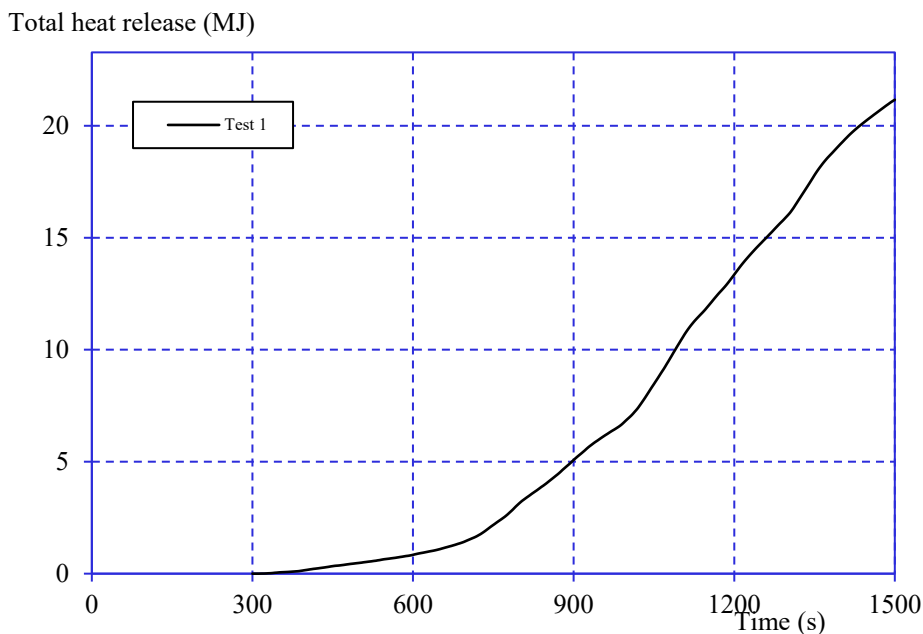
**Graph of smoke production rate ( $SPR_{av}$ )**



*Graph 2 Smoke production rate (burner excluded), 60 seconds running average value.*

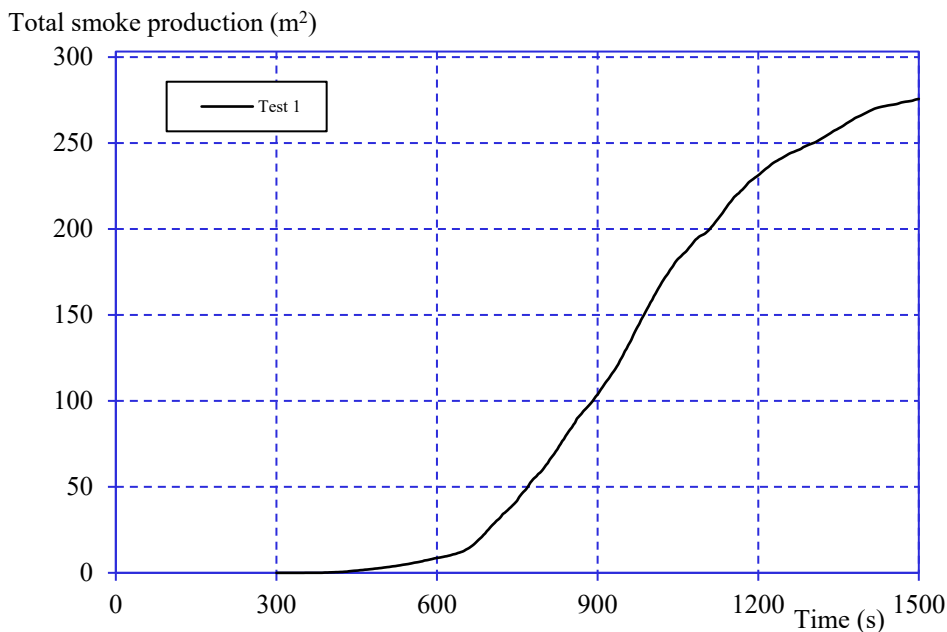
Appendix 1

**Graph of total heat release (THR)**



Graph 3 Total heat release (burner excluded).

**Graph of total smoke production (TSP)**

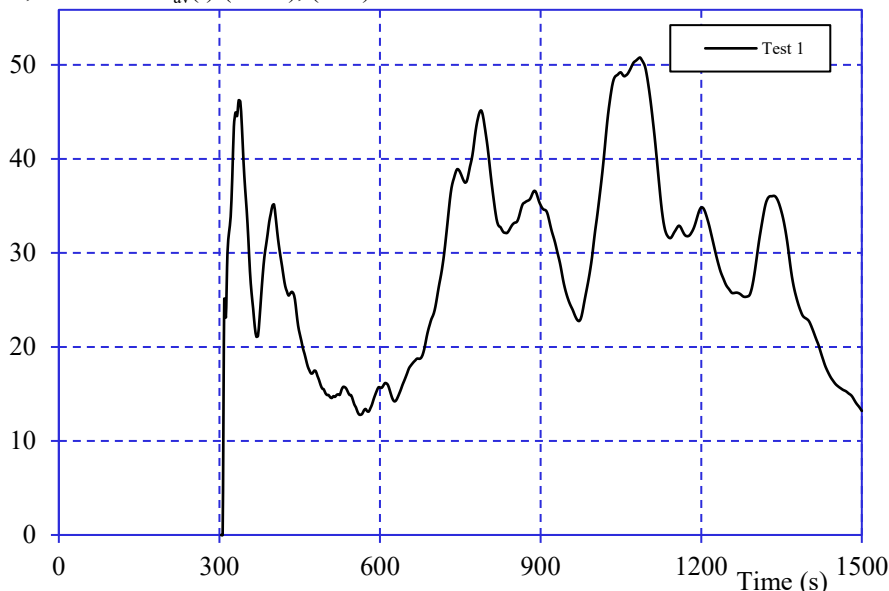


Graph 4 Total smoke production (burner excluded).

Appendix 1

**Graph of Fire Growth RATE index (FIGRA)**

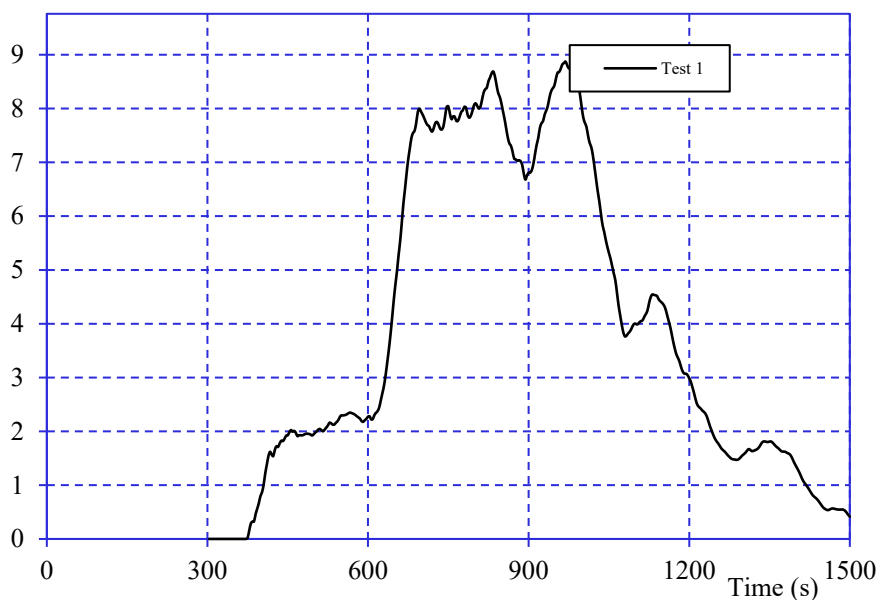
FIGRA,  $1000 \times \text{HRR}_{\text{av}}(t)/(t-300)$ , (W/s)



Graph 5 Fire growth rate index.

**Graph of SMOke Growth RATE index (SMOGRA)**

SMOGRA,  $10000 \times \text{SPR}_{\text{av}}(t)/(t-300)$ , ( $\text{m}^2/\text{s}^2$ )



Graph 6 Smoke growth rate index.

**Note**

Graphs 5 and 6 show the time relationships of FIGRA and SMOGRA respectively without applying the threshold values, see EN 13823, paragraph A.5.3 and A.6.3. Therefore the reported single maximum values of  $\text{FIGRA}_{0,2\text{MJ}}$ ,  $\text{FIGRA}_{0,4\text{MJ}}$  and SMOGRA may be smaller than shown in the graphs as the threshold values are applied in this case.

## Appendix 1

**Measured data**

Thickness 25 mm, approximately.

Area weight 12 kg/m<sup>2</sup>, approximately.

**Conditioning**

According to EN 13238 and EN 13823:2020+A1:2022.

Temperature (23 ± 2) °C.

Relative humidity (50 ± 5) %.

Constant mass:

Mass 1: 3359 g

Mass 2: 3360 g

Time : 24 h

**Date of test**

December 4, 2023.

## Appendix 2

## Photographs



**Photo no 1**          Prior to test          “Acoustic Panel”

The exposed surface of the long wing.



## Appendix 2



**Photo no 2**          Prior to test          “Acoustic Panel”

The vertical outer edge of the long wing at a height of 500 mm above the floor of the trolley.

## Appendix 2



**Photo no 3**      After test      “Acoustic Panel”

Impact of flames in the burner corner.

Appendix 3

**Test parameter explanation – EN 13823:2020+A1:2022 (SBI method)**

Parameter	Explanation
Test start	Start of data collection.
End of test	26:00 (min:s) after test start.
$HRR_{av}$ , maximum, kW	Peak Heat Release Rate of material between ignition of the main burner and end of test (burner heat output excluded), as a 30 seconds running average value.
$SPR_{av}$ , maximum, $m^2/s$	Peak Smoke Production Rate of material between ignition of the main burner and end of test (burner heat output excluded), as a 60 seconds running average value.
$FIGRA_{0,2MJ}$ , W/s	Fire Growth Rate index is defined as the maximum of the quotient $HRR_{av}(t)/(t-300s)$ , multiplied by 1000. During $300 s \leq t \leq 1500 s$ , threshold value 3 kW and 0.2 MJ.
$FIGRA_{0,4MJ}$ , W/s	Fire Growth Rate index is defined as the maximum of the quotient $HRR_{av}(t)/(t-300s)$ , multiplied by 1000. During $300 s \leq t \leq 1500 s$ , threshold value 3 kW and 0.4 MJ.
$SMOGRA$ , $m^2/s^2$	SMOke Growth Rate index is defined as the maximum of the quotient $SPR_{av}(t)/(t-300s)$ , multiplied by 10 000. During $300 s \leq t \leq 1500 s$ , threshold value $0.1 m^2/s$ and $6 m^2$ .
$THR_{600s}$ , MJ	Total heat release of the sample during $300 s \leq t \leq 900 s$ .
$TSP_{600s}$ , $m^2$	Total smoke production of the sample during $300 s \leq t \leq 900 s$ .

# Verifikat

Transaktion 09222115557508626481

## Dokument

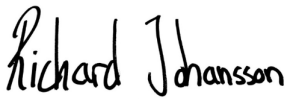
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