

# Testen brandveiligheid

## Mavofire Grafietband

## Construction products

## General information

Date of test 05/09/2022  
Report identification number/file ENL-22-000438\_1.xls  
Operator VRA

## Specimen

Sponsor Murk Stone Creations  
Description Facade construction MSC (flexible strips/Sword-C board Test 1

Standard used EN 13823:2020

## Fire attack

Start of test [s] 300  
Burner exposure time [s] 1200  
Burner exposure level [kW] 30.7

## Results

## Heat release related

|                         | [kW] | t-t0 [s] | t[s] |
|-------------------------|------|----------|------|
| Peak HRRav (t<t0+600s)  | 4.1  | 495      | 795  |
| Peak HRRav (t<t0+900s)  | 4.1  | 495      | 795  |
| Peak HRRav (t<t0+1200s) | 4.1  | 495      | 795  |
| (t0 = 300s)             |      |          |      |

|             |       |    |             |
|-------------|-------|----|-------------|
| Figra0.2 MJ | [W/s] | 21 | B or better |
| Figra0.4 MJ | [W/s] | 19 |             |

| Figra | [W/s] | 21 | B or better |
|-------|-------|----|-------------|
|-------|-------|----|-------------|

|                                  |      |     |     |     |
|----------------------------------|------|-----|-----|-----|
| Figra0.2 MJ: Corresponding HRRav | [kW] | 3.7 | 177 | 477 |
| Figra0.4 MJ: Corresponding HRRav | [kW] | 3.8 | 201 | 501 |

|                              |      |      |     |     |
|------------------------------|------|------|-----|-----|
| t(HRRav >= 3 kW)             |      |      | 138 | 438 |
| (HRRav + t(THRta)) >= 0.2 MJ | [kW] | 3.03 | 147 | 447 |
| (HRRav + t(THRta)) >= 0.4 MJ | [kW] | 3.8  | 201 | 501 |

|                 |      |      |             |
|-----------------|------|------|-------------|
| THRta (t0+600s) | [MJ] | 1.88 | B or better |
|-----------------|------|------|-------------|

|                  |      |     |  |
|------------------|------|-----|--|
| THRta (t0+900s)  | [MJ] | 2.7 |  |
| THRta (t0+1200s) | [MJ] | 3.3 |  |
| (t0 = 300s)      |      |     |  |

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| Estimated class: | B or better |
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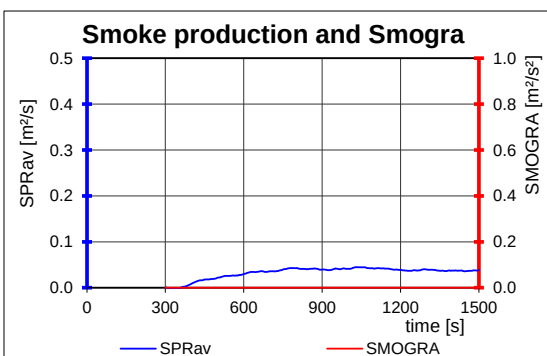
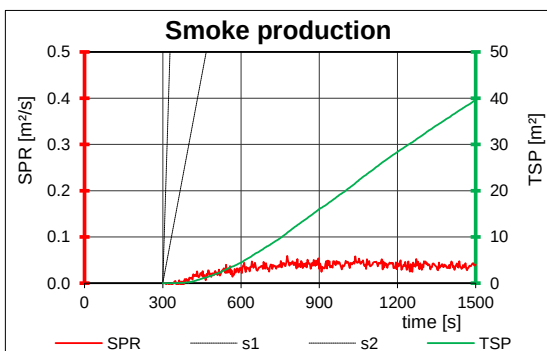
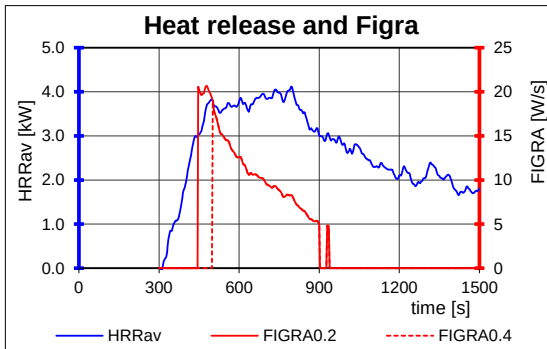
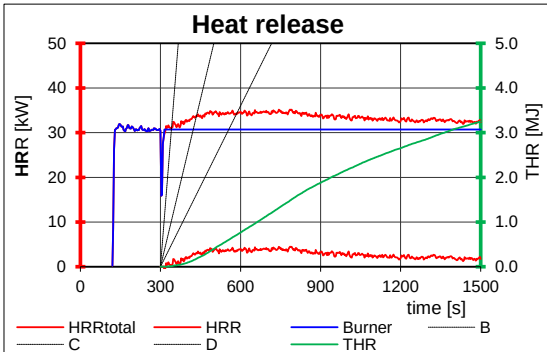
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| Estimated class: | B or better |
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| Estimated class: | B or better |
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| Classification criteria | A1*           | A2-B | C         | D |
|-------------------------|---------------|------|-----------|---|
| FIGRA <sub>0.2MJ</sub>  | [W/s] <= 20   | 120  |           |   |
| FIGRA <sub>0.4MJ</sub>  | [W/s] <= 250  | 750  |           |   |
| THR <sub>600s</sub>     | [kW] <= 4     | 7.5  | 15        |   |
| SMOGRA                  | [m²/s²] <= 30 | 180  | not s1/s2 |   |
| TSP <sub>600s</sub>     | [m²] <= 50    | 200  | not s1/s2 |   |

\* External non-substantial component having PCS > 2,0 MJ/kg and a PCS ≤ 2,0 MJ/m²

Final classification assessment is based on 3 repetitive SBI tests and other tests:

- A1: EN ISO 1182 or EN ISO 1716  
- A2: EN ISO 1182 or EN ISO 1716  
- B, C, D: EN ISO 11925-2

## Flaming droplets/particles related

## Flaming droplets/particles

FDP (t0\_t0+600s) No No = no flaming droplets/particles  
FDP (t0\_t0+600s) F>10s No No = no flaming droplets/particles F>10s  
(not d0 or d1)

Estimated class: d0

Aan deze resultaten kunnen geen rechten worden ontleend / No rights can be derived from these test results.

## Construction products

## General information

Date of test 05/09/2022  
Report identification number/file ENL-22-000438\_2.xls  
Operator VRA

## Specimen

Sponsor Murk Stone Creations  
Description Facade construction MSC flexible strips/Sword-C board Test 2

Standard used EN 13823:2020

## Fire attack

Start of test [s] 300  
Burner exposure time [s] 1200  
Burner exposure level [kW] 30.6

## Results

## Heat release related

|                                     | [kW] | t-t0 [s] | t[s] |
|-------------------------------------|------|----------|------|
| Peak HRR <sub>av</sub> (t<t0+600s)  | 3.3  | 444      | 744  |
| Peak HRR <sub>av</sub> (t<t0+900s)  | 3.3  | 444      | 744  |
| Peak HRR <sub>av</sub> (t<t0+1200s) | 3.3  | 444      | 744  |
| (t0 = 300s)                         |      |          |      |

Figra0.2 MJ [W/s] 16 B or better

Figra0.4 MJ [W/s] 13

**Figra [W/s] 16 B or better**

Figra0.2 MJ: Corresponding HRR<sub>av</sub> [kW] 3.2 198 498

Figra0.4 MJ: Corresponding HRR<sub>av</sub> [kW] 3.1 246 546

t(HRR<sub>av</sub> >= 3 kW) 192 492

(HRR<sub>av</sub> + t(THR<sub>ta</sub>)) >= 0.2 MJ [kW] 3.01 192 492

(HRR<sub>av</sub> + t(THR<sub>ta</sub>)) >= 0.4 MJ [kW] 3.1 246 546

**THR<sub>ta</sub> (t0+600s) [MJ] 1.51 B or better**

THR<sub>ta</sub> (t0+900s) [MJ] 2.3

THR<sub>ta</sub> (t0+1200s) [MJ] 2.8

(t0 = 300s)

**Estimated class: B or better**

## Lateral flame spread

Till long wing end of specimen No No = not to long wing end of specimen

**Estimated class: B or better**

## Smoke production related

|                                     | [m <sup>2</sup> /s] | t-t0 (s) | t(s) |
|-------------------------------------|---------------------|----------|------|
| Peak SPR <sub>av</sub> (t<t0+600s)  | 0.05                | 597      | 897  |
| Peak SPR <sub>av</sub> (t<t0+900s)  | 0.05                | 597      | 897  |
| Peak SPR <sub>av</sub> (t<t0+1200s) | 0.05                | 597      | 897  |
| (t0 = 300s)                         |                     |          |      |

**Smogra max [m<sup>2</sup>/s<sup>2</sup>] 0.0 s1**

at SPR<sub>av</sub> [m<sup>2</sup>/s] n/a n/a n/a

t(SPR<sub>av</sub> >= 0.1 m<sup>2</sup>/s) n/a n/a

t(TSP<sub>ta</sub> >= 6 m<sup>2</sup>) 354 654

**TSP<sub>ta</sub> (t0\_t0+600s) [m<sup>2</sup>] 16 s1**

TSP<sub>ta</sub> (t0\_t0+900s) [m<sup>2</sup>] 29

TSP<sub>ta</sub> (t0\_t0+1200s) [m<sup>2</sup>] 41

(t0 = 300s)

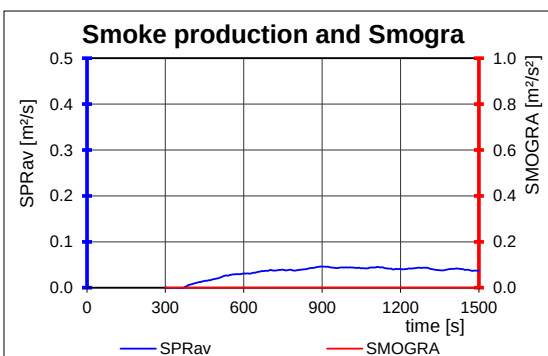
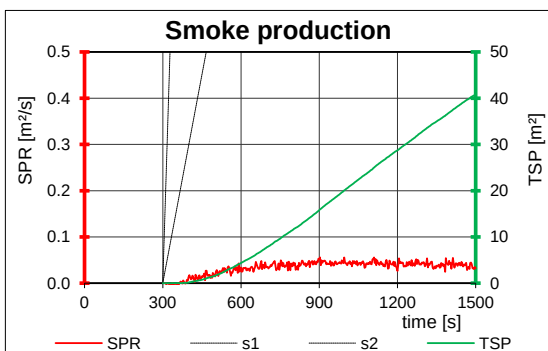
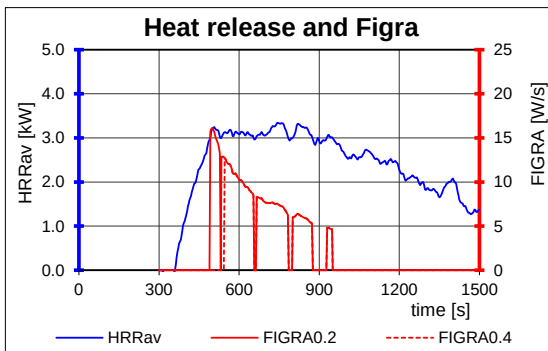
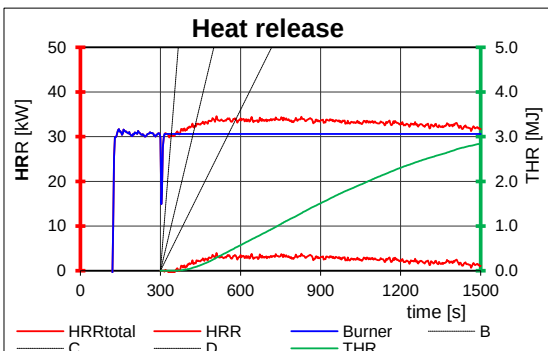
**Estimated class: s1**

## Flaming droplets/particles related

## Flaming droplets/particles

FDP (t0\_t0+600s) No No = no flaming droplets/particles  
FDP (t0\_t0+600s) F>10s No No = no flaming droplets/particles F>10s  
(not d0 or d1)

**Estimated class: d0**



| Classification criteria                     | A1*    | A2-B | C   | D         |
|---------------------------------------------|--------|------|-----|-----------|
| FIGRA <sub>0.2MJ</sub> [W/s] <=             | 20     | 120  |     |           |
| FIGRA <sub>0.4MJ</sub> [W/s] <=             |        |      | 250 | 750       |
| THR <sub>600s</sub> [kW] <=                 | 4      | 7.5  | 15  |           |
|                                             | s1, d0 | s1   | s2  | s3        |
| SMOGRA [m <sup>2</sup> /s <sup>2</sup> ] <= |        | 30   | 180 | not s1/s2 |
| TSP <sub>600s</sub> [m <sup>2</sup> ] <=    |        | 50   | 200 | not s1/s2 |

\* External non-substantial component having  
PCS > 2,0 MJ/kg and a PCS ≤ 2,0 MJ/m<sup>2</sup>

Final classification assessment is based on  
3 repetitive SBI tests and other tests:

- A1: EN ISO 1182 or EN ISO 1716  
- A2: EN ISO 1182 or EN ISO 1716  
- B, C, D: EN ISO 11925-2

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## Construction products

## General information

Date of test 05/09/2022  
Report identification number/file ENL-22-000438\_3.xls  
Operator VRA

## Specimen

Sponsor Murk Stone Creations  
Description Facade construction MSC flexible strips/Sword-C board Test 3

Standard used EN 13823:2020

## Fire attack

Start of test [s] 300  
Burner exposure time [s] 1200  
Burner exposure level [kW] 31.1

## Results

## Heat release related

|                                                  | [kW] | t-t <sub>0</sub> [s] | t[s] |
|--------------------------------------------------|------|----------------------|------|
| Peak HRR <sub>av</sub> (t<t <sub>0</sub> +600s)  | 3.6  | 420                  | 720  |
| Peak HRR <sub>av</sub> (t<t <sub>0</sub> +900s)  | 3.6  | 420                  | 720  |
| Peak HRR <sub>av</sub> (t<t <sub>0</sub> +1200s) | 3.6  | 420                  | 720  |
| (t <sub>0</sub> = 300s)                          |      |                      |      |

|             |       |    |             |
|-------------|-------|----|-------------|
| Figra0.2 MJ | [W/s] | 18 | B or better |
| Figra0.4 MJ | [W/s] | 13 |             |

| Figra                                        | [W/s] | 18  | B or better |
|----------------------------------------------|-------|-----|-------------|
| Figra0.2 MJ: Corresponding HRR <sub>av</sub> | [kW]  | 3.1 | 168         |
| Figra0.4 MJ: Corresponding HRR <sub>av</sub> | [kW]  | 3.1 | 231         |

|                                                      |      |      |     |
|------------------------------------------------------|------|------|-----|
| t(HRR <sub>av</sub> ≥ 3 kW)                          |      | 168  | 468 |
| (HRR <sub>av</sub> + t(THR <sub>ta</sub> )) ≥ 0.2 MJ | [kW] | 3.09 | 168 |
| (HRR <sub>av</sub> + t(THR <sub>ta</sub> )) ≥ 0.4 MJ | [kW] | 3.1  | 231 |

| THR <sub>ta</sub> (t <sub>0</sub> +600s)  | [MJ] | 1.60 | B or better |
|-------------------------------------------|------|------|-------------|
| THR <sub>ta</sub> (t <sub>0</sub> +900s)  | [MJ] | 2.2  |             |
| THR <sub>ta</sub> (t <sub>0</sub> +1200s) | [MJ] | 2.7  |             |
| (t <sub>0</sub> = 300s)                   |      |      |             |

Estimated class: B or better

## Lateral flame spread

Till long wing end of specimen No No = not to long wing end of specimen

Estimated class: B or better

## Smoke production related

|                                                  | [m <sup>2</sup> /s] | t-t <sub>0</sub> (s) | t(s) |
|--------------------------------------------------|---------------------|----------------------|------|
| Peak SPR <sub>av</sub> (t<t <sub>0</sub> +600s)  | 0.05                | 552                  | 852  |
| Peak SPR <sub>av</sub> (t<t <sub>0</sub> +900s)  | 0.05                | 552                  | 852  |
| Peak SPR <sub>av</sub> (t<t <sub>0</sub> +1200s) | 0.05                | 552                  | 852  |
| (t <sub>0</sub> = 300s)                          |                     |                      |      |

| Smogra max           | [m <sup>2</sup> /s <sup>2</sup> ] | 0.0 | s1  |
|----------------------|-----------------------------------|-----|-----|
| at SPR <sub>av</sub> | [m <sup>2</sup> /s]               | n/a | n/a |

|                                              |  |     |     |
|----------------------------------------------|--|-----|-----|
| t(SPR <sub>av</sub> ≥ 0.1 m <sup>2</sup> /s) |  | n/a | n/a |
| t(TSP <sub>ta</sub> ≥ 6 m <sup>2</sup> )     |  | 321 | 621 |

| TSP <sub>ta</sub> (t <sub>0</sub> _t <sub>0</sub> +600s)  | [m <sup>2</sup> ] | 19 | s1 |
|-----------------------------------------------------------|-------------------|----|----|
| TSP <sub>ta</sub> (t <sub>0</sub> _t <sub>0</sub> +900s)  | [m <sup>2</sup> ] | 33 |    |
| TSP <sub>ta</sub> (t <sub>0</sub> _t <sub>0</sub> +1200s) | [m <sup>2</sup> ] | 45 |    |
| (t <sub>0</sub> = 300s)                                   |                   |    |    |

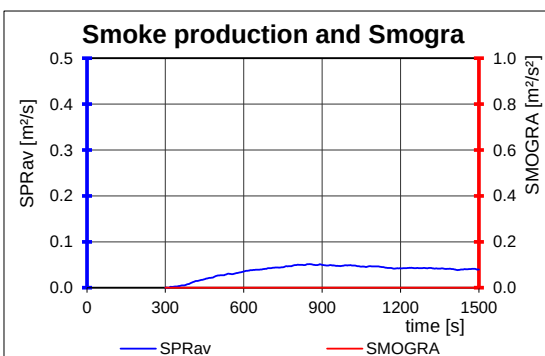
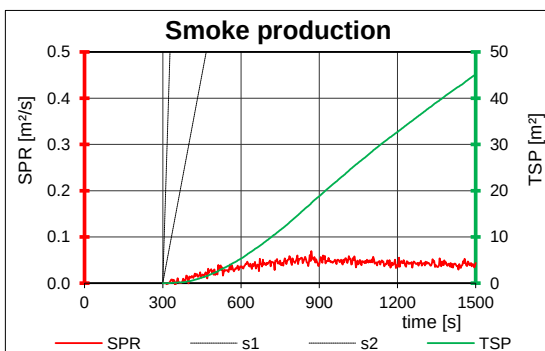
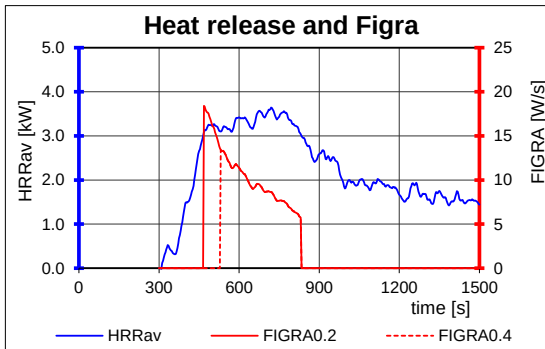
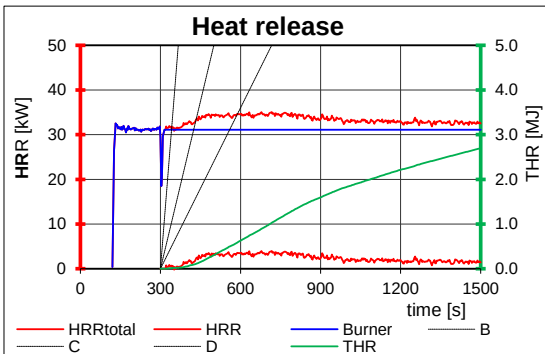
Estimated class: s1

## Flaming droplets/particles related

## Flaming droplets/particles

|                                                                 |    |                                          |
|-----------------------------------------------------------------|----|------------------------------------------|
| FDP (t <sub>0</sub> _t <sub>0</sub> +600s)                      | No | No = no flaming droplets/particles       |
| FDP (t <sub>0</sub> _t <sub>0</sub> +600s) F>10s (not d0 or d1) | No | No = no flaming droplets/particles F>10s |

Estimated class: d0



| Classification criteria | A1*          | A2-B | C         | D  |
|-------------------------|--------------|------|-----------|----|
| FIGRA <sub>0.2MJ</sub>  | [W/s] ≤ 20   | 120  |           |    |
| FIGRA <sub>0.4MJ</sub>  | [W/s] ≤ 250  | 750  |           |    |
| THR <sub>600s</sub>     | [kW] ≤ 4     | 7.5  | 15        |    |
|                         | s1, d0       | s1   | s2        | s3 |
| SMOGRA                  | [m²/s²] ≤ 30 | 180  | not s1/s2 |    |
| TSP <sub>600s</sub>     | [m²] ≤ 50    | 200  | not s1/s2 |    |

\* External non-substantial component having PCS > 2,0 MJ/kg and a PCS ≤ 2,0 MJ/m<sup>2</sup>

Final classification assessment is based on 3 repetitive SBI tests and other tests:

- A1: EN ISO 1182 or EN ISO 1716  
- A2: EN ISO 1182 or EN ISO 1716  
- B, C, D: EN ISO 11925-2

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