

TFI Report 20-001472-01

Reaction to fire test

Customer

Novalis International Ltd.
Unit F, 10th Floor, CNT Tower, 338 Hennessy Road
Wanchai
HONG KONG

Product

resilient floor covering
Novalis Luxury Vinyl Tile Light Commercial 2,0 / 0,30

This report includes 3 pages and 3 annexes.

Responsible at TFI

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Aachen, 11 February 2021



Dr. Andreas Zoëga

- head of testing laboratory -

The present document is provided with an advanced electronic signature.

This report only applies to the tested samples and has been established to the best of our knowledge. Only the entire report shall be reproduced. Under no circumstances, extracts shall be used. Furthermore, we apply the "General Terms and Conditions for the Execution of Contracts" of the TFI Aachen GmbH, also with regard to the order execution.

1 Transaction

Test order	Reaction to fire test for construction products according to EN ISO 9239-1:2010
Order date	19 November 2021
Your reference	Candy Ren, L.Grüter
Product designation	Novalis Luxury Vinyl Tile Light Commercial 2,0 / 0,30 Article no.: 5663191, Batch no.: 201116A
TFI sample number	2002117
Date of manufacture	16 November 2020
Date of sample receipt	02 December 2020
Sampling performed by	Customer cf. sampling report
CE group	Novalis Luxury Vinyl Tile
Certificate of Constancy of Performance (CE)	1658-CPR-3443

2 Product Specification

Use surface	PVC*
Construction	heterogeneous
Structure	flat
Pattern	tonal effect without pattern
Colour of the use surface	beige, light grey
Type of delivery	modules
Total thickness [mm]	2.05
Total mass per unit area [g/m ²]	3380
	*customer information

3 Results

Burning behaviour using a radiant heat source according to EN ISO 9239-1:2010

Average critical heat flux production direction [kW/m ²]	≥ 11.0
Average critical heat flux cross production direction [kW/m ²]	≥ 11.0
Integrated smoke density production direction [% x min]	201
Integrated smoke density cross production direction [% x min]	205
Requirements for relevant properties product standard (EN ISO 10582:2012)	fulfilled



Adhesion	none
Substrate according to EN 13238:2010	fibre cement board

Floor coverings meet the requirements for the reaction to fire classification (Euro fire-class) according to EN 13501-1:2010 provided that the mean value over 3 tests reaches the critical heat flux mentioned below

$$B_{fi-s1}: \geq 8,0 \text{ kW/m}^2$$

$$C_{fi-s1}: \geq 4,5 \text{ kW/m}^2$$

$$D_{fi-s1}: \geq 3,0 \text{ kW/m}^2$$

and that the smoke density amounts to $\leq 750 \% \times \text{min.}$

Furthermore, the requirements for material class E_{fi} shall be fulfilled.

If the results are confirmed after having performed a complete test in compliance with EN ISO 9239-1:2010, the product can be classified as follows with regard to its fire behaviour: **B_{fi-s1}**.

This orientating test will not replace any classification report.

The measurement results are evaluated without consideration of the measurement uncertainty with reference to compliance with limit values, unless otherwise specified by the test standard.

The test results relate to the behaviour of the test specimens of a construction 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 construction product in use.

4 Annexes

Photographs	F 20-001472-01
Reaction to Fire ^a	RP 20-001472-01
Sampling report	

The annexes marked ^a are based on tests accredited in accordance with EN ISO/IEC 17025.

Annex F - Photographs

1 Transaction

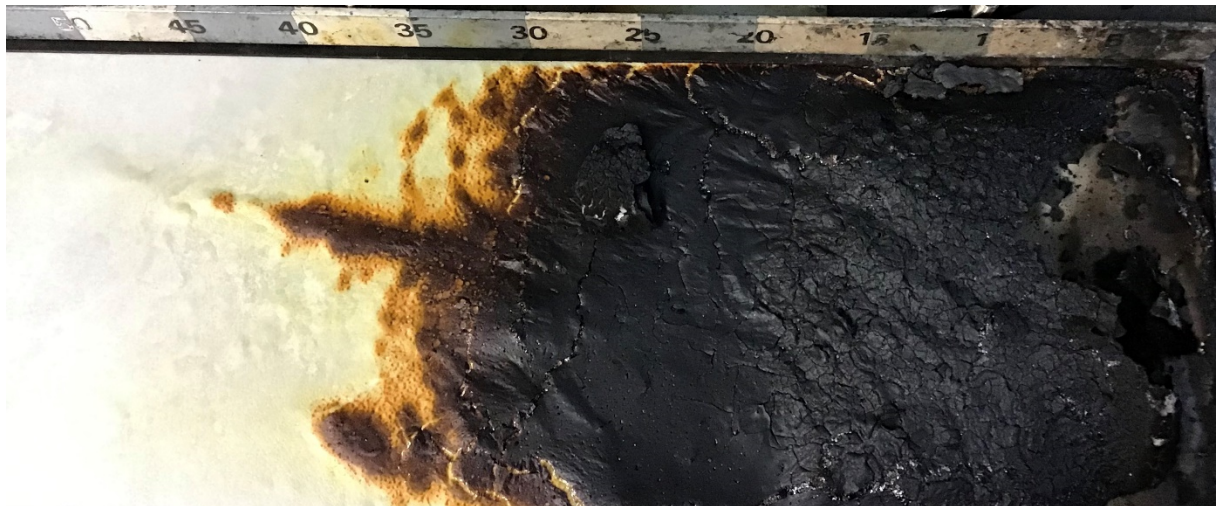
Product designation	Novalis Luxury Vinyl Tile Light Commercial 2,0 / 0,30
TFI sample number	2002117
Testing period	25 January 2021

2 Test Method / Requirements

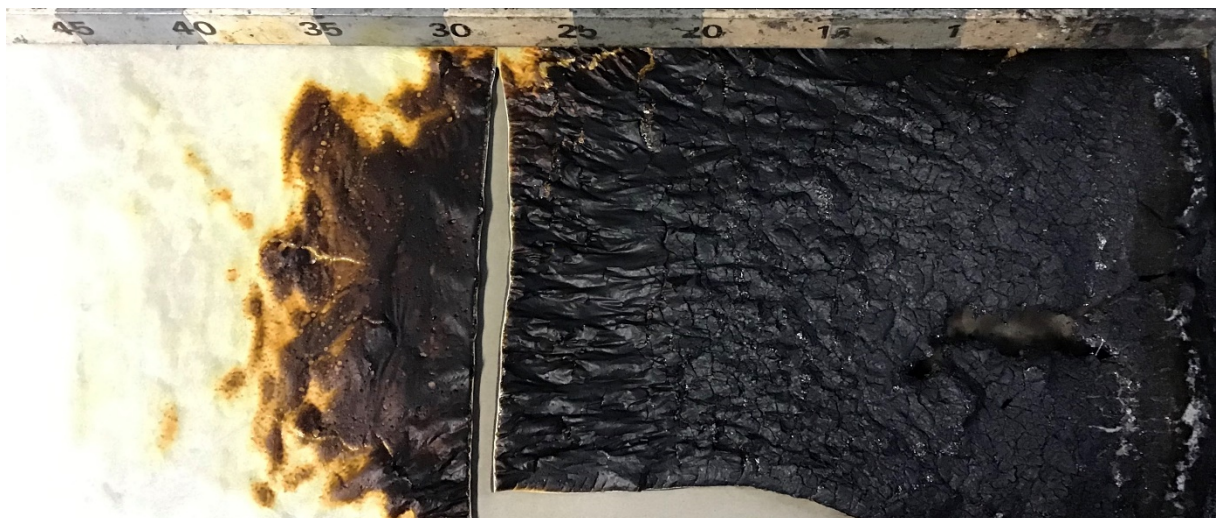
-not specified-

3 Results

3.1 Specimen 1, in production direction



3.2 Specimen 2, cross production direction



Annex RP – Reaction to Fire

1 Transaction

Product designation	Novalis Luxury Vinyl Tile Light Commercial 2,0 / 0,30
TFI sample number	2002117
Testing period	25 January 2021

2 Test Method / Requirements

EN ISO 9239-1:2010 Part 1	Determination of the burning behaviour using a radiant heat source
Substrate according to EN 13238:2010	Fibre cement board
Adhesion	-none -
Joint according to EN ISO 9239-1:2010	No
Conditioning	Conditioning according to EN 13238:2010
Deviation	<ul style="list-style-type: none">reduced number of specimens (1 in production direction, 1 cross production direction)

3 Results

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Annex RP - Burning behaviour

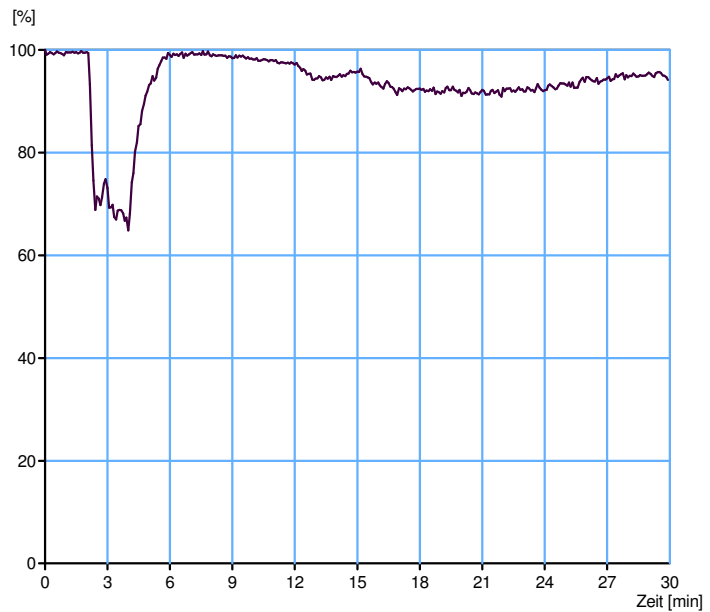
Sample designation 2002117
Sample
 Sample No.: 1
 Direction: in production direction

Observation
 molten/singed during pre-radiation up to 0 mm
 buckled/contracted from pilot flame area up to 0 mm
 penetration of flame through substrate -
 transitory flaming -
 blistering x
 glowing, after flame has extinguished -

Results

Smoke density

Position [mm]	Time [min:s]	Heat Flow [kW/m ²]
50	02:34	11.90
100	-	-
150	-	-
200	-	-
250	-	-
300	-	-
350	-	-
400	-	-
450	-	-
500	-	-
550	-	-
600	-	-
650	-	-
700	-	-
750	-	-
800	-	-
850	-	-
900	-	-
950	-	-
1000	-	-



Time [min:s]	Position [mm]	Heat Flow [kW/m ²]
10:00	75	11.50
20:00	75	11.50
30:00	75	11.50

CHF [kW/m ²]	>= 11
HF_30 [kW/m ²]	11.50
Smoke density integral [%*min]	201.0
Flame extinguished after [min:s]	12:00
max. burnt distance [mm]	75
max. light attenuation [%]	35.1



Annex RP - Burning behaviour

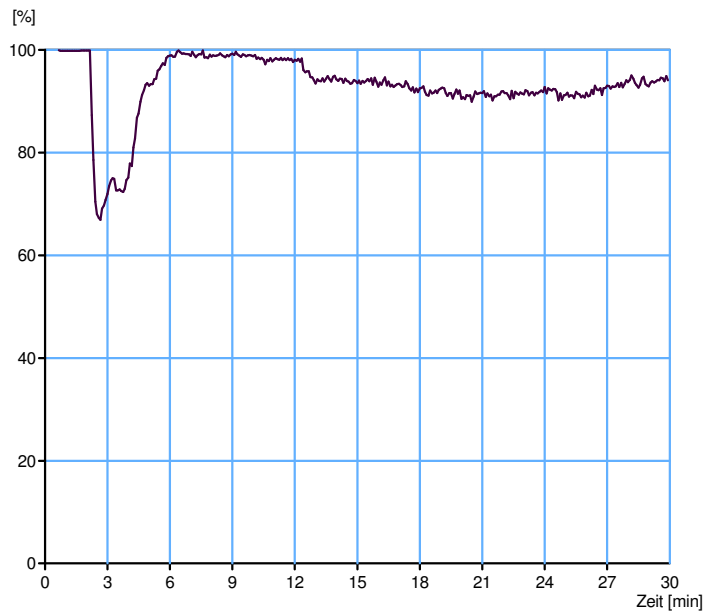
Sample designation 2002117
Sample
 Sample No.: 1
 Direction: cross production direction

Observation
 molten/singed during pre-radiation up to 0 mm
 buckled/contracted from pilot flame area up to 0 mm
 penetration of flame through substrate -
 transitory flaming -
 blistering x
 glowing, after flame has extinguished -

Results

Smoke density

Position [mm]	Time [min:s]	Heat Flow [kW/m ²]
50	03:25	11.90
100	-	-
150	-	-
200	-	-
250	-	-
300	-	-
350	-	-
400	-	-
450	-	-
500	-	-
550	-	-
600	-	-
650	-	-
700	-	-
750	-	-
800	-	-
850	-	-
900	-	-
950	-	-
1000	-	-



Time [min:s]	Position [mm]	Heat Flow [kW/m ²]
10:00	61	11.72
20:00	61	11.72
30:00	61	11.72

CHF [kW/m²] >= 11
 HF_30 [kW/m²] 11.72
 Smoke density integral [%*min] 204.5
 Flame extinguished after [min:s] 12:00
 max. burnt distance [mm] 61
 max. light attenuation [%] 33.0



Sampling Report for floor coverings according to EN14041/14342 (Order No. 20-000992)

Testing laboratory:	TFI Aachen GmbH
Sampler: (Organisation and name of person)	<i>Candy Pen</i>
Manufacturer / Contractor:	Novalis International Ltd.
Sampling site (factory):	63, Guangyuan Rd, Dantu, Zhenjiang China

Product name:	Novalis Luxury Vinyl Tile Light Commercial 2,0 / 0,30	Article number:	<i>5663191</i>
Group/product range:	<input checked="" type="checkbox"/> CE: 1658-CPR-3443 <input type="checkbox"/> DIBt: <input checked="" type="checkbox"/> TÜV-Interior: 70 710 6478-2	Sample type:	<input type="checkbox"/> textile floor covering <input checked="" type="checkbox"/> resilient floor covering <input type="checkbox"/> laminate <input type="checkbox"/> wood flooring <input type="checkbox"/> surface for sports areas <input type="checkbox"/>
Batch no.:	<i>201116A</i>	Production date of batch:	<i>2020/11/16</i>

Sampling date and time:	<i>11 / 19</i>
Sample taken from:	<input type="checkbox"/> production <input checked="" type="checkbox"/> stock <input type="checkbox"/> retain sample
Storage location:	Zhenjiang
Size of sample:	<i>304,8 x 609,6 mm</i>
Storage mode:	<input type="checkbox"/> exposed <input checked="" type="checkbox"/> packed
Packaging material:	<i>aluminium foil</i>

Particular remarks: (Possible negative impacts caused by emissions at the sampling site, problems, questions etc.)	<input type="checkbox"/> taken as retain sample according to MVV TB instructions <input type="checkbox"/> gas driven forklift <input type="checkbox"/> monitoring testing based on approval principles
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Planned tests:	<input checked="" type="checkbox"/> construction features <input type="checkbox"/> determination of fire class (RP) <input type="checkbox"/> emission testing (Initial type test) <input checked="" type="checkbox"/> TÜV-Interior Emission Monitoring <input type="checkbox"/> TÜV-Interior Quality Monitoring	<input type="checkbox"/> formaldehyde <input checked="" type="checkbox"/> RP red. number of samples <input type="checkbox"/> emission testing (Monitoring) <input type="checkbox"/> Standard <input type="checkbox"/> Premium	<input type="checkbox"/> PCP <input type="checkbox"/> Small Burner Test Allocation criteria V1,2
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Fire class: Bfl-s1	<input checked="" type="checkbox"/> unglued	<input type="checkbox"/> glued with:
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<input type="checkbox"/> technical datasheet will be submitted to TFI within 3 days	<input checked="" type="checkbox"/> technical datasheet is attached
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Hereby the signatories confirm the correctness of the above information. The sample was hand selected and packed in accordance with the sampling instructions.

Candy Pen

Signature of the sampler (in case of third party sampling)

Novalis

Signature of the company

(Vorlage 303 - Rev. 4 vom 08.03.2018)



Notified Body
No. 1688

Testing laboratory,
inspection and certification
body recognised by the DIBt
(Deutsches Institut für Bautechnik)



Accredited for the methods indicated
in the annex to the DAkkS certificate

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