



## I. Description of product tested

Tested product (prototype) cooker NORTH ECO wood burning cooker is used for heating rooms and it's manufactured and tested according to European standard EN 16510.

The top plate of the fireplace, firebox door and oven door is made of steel.

Firebox assembly are made of vermiculite. Connection for smoke drains being put on the plate and connected with screws (also made of gray cast iron). There is an option for a rear flue connection.

A detailed description is given in the operating and installation instructions.

Basic technical specifications of product:							tab. 1
Type	Main dimensions (mm)			Nominal heat output (kW)	Fuel consumption (kg/h) Wood	Diameter of flue gas connector (mm)	Operating draught (Pa)
	Height	Width	Depth				
NORTH ECO	852	903	657	8.3	2.1	120	12

Photo documentation:



*Picture of the installation of the appliance for all tests*



*Picture of fuel batch in combustion chamber*

## II. Sample tested

SZU reg. no.	Product name	Date of submission
Prototype 1	NORTH ECO	2025-10-07

The visual inspection, tests and verification were carried out by Ing. Radek Machara at the test station of Engineering Test Institute in KVALITET Serbia

The tests were performed using measuring and testing equipment with valid calibration.

The product has been selected in accordance with ČSN EN 16510-1 ed. 2:2024, supporting the choice of appliance(s) tested enabling it (them) to represent the family of appliances covered by the type test report with reference to the characteristics detailed in Table G.1

### III. Measuring and test equipment:

No.	Name	Inventory number:
1.	Barometer	022435/P2
2.	Thermometer – ambient	022435/T2
3.	Hygrometer	022435/T2
4.	Draught gauge	118510
5.	Scale	022333
6.	THERM 2285.2	021763
7.	Analytical scale Sartorius	021458
8.	Calliper	ME 543
9.	Combustion product analyser	022317
10.	Elemental analyser	022305
11.	Gravimat	022380

Note: X ... Verified with the use of calibration standards prior to measurement  
 + ... ± 5 % of measured values

#### Measurement uncertainty:

Parameter measured	Uncertainty of measurement
Gas analysis	
CO	≤ 6 % of the limit values in Table 8
CO <sub>2</sub>	≤ 2 %
O <sub>2</sub>	≤ 2 %
Temperature	
Flue gas	≤ 5 K
Ambient room	≤ 1.5 K
Water	≤ 0.5 K
Surface	≤ 2 K
Touchable Area	≤ 2 K
Water flow	≤ 0.005 m <sup>3</sup> /h
Static pressure	≤ 2 Pa
Mass	
- fuel consumption	± 20 g
- residue	± 5 g
- fuel load ≤ 7.5 kg	± 5 g
> 7.5 kg	± 10 g

Note: The stated extended measurement uncertainties are calculated as a factor of the measurement uncertainty and the extension coefficient k=2, corresponding to the coverage certainty of 95% as regards standard classification.

If a statement of conformity is provided, the decision rule pursuant to ILAC-G8:09/2019, Art. 4.2.1 - binary statement for the simple acceptance rule shall apply.

#### IV. Methods, results of tests and verifications

No.	Test objective	Requirement	Method of test	Test evaluation/ verification *
1.	Mechanical resistance and stability	-	-	0
2.	Safety in case of fire	ČSN EN 16510-2-3:2025, Art. 4.1 ČSN EN 16510-1 ed.2:2024, Art. 5.6, 6.2.2	ČSN EN 16510-1 ed.2:2024, Art. A.2.2, A.4.10	+
3.	Hygiene, health and the environment	ČSN EN 16510-2-3:2025, Art. 4.2, 4.3, 4.4, 4.5	ČSN EN 16510-1 ed.2:2024, Art. A.4, A.4.1, A.4.2, A.4.3, A.4.4, A.4.5, A.4.6, A.4.7, A.4.8	+
4.	Safety and accessibility in use	ČSN EN 16510-2-3:2025, Art. 4.6.2, 4.6.4, 4.6.6, 4.6.8 ČSN EN 16510-1 ed.2:2024, Art. 5.5, 6.2.1	ČSN EN 16510-1 ed.2:2024, Art. A.4.7, A.4.10.4, A.4.11	+
5.	Energy economy and heat retention	ČSN EN 16510-2-3:2025, Art. 4.7.1, 4.7.3, 4.7.7, 4.7.8	ČSN EN 16510-1 ed.2:2024, Art. A.4.7, A.6.2.1	+
<p>*) <b>Evaluation / statement of conformity:</b></p> <p>+ .....Requirement fulfilled          - .....Requirement not fulfilled</p> <p>0 .....Not applicable          x.....Not evaluated</p>				

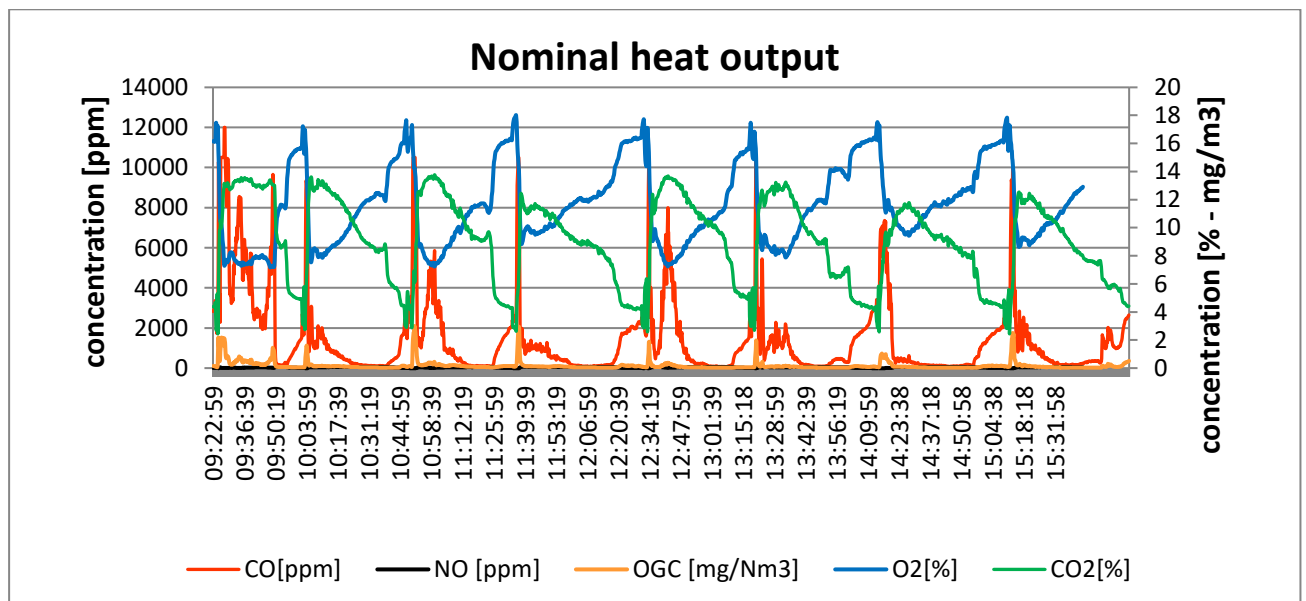
<b>Test objective:</b>	<b>Hygiene, health and the environment</b> <b>Safety and accessibility in use</b> <b>Energy economy and heat retention</b>						
<b>Exact name of the test procedure:</b>	1.4*, 1.5* - Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions						
<b>Test method:</b>	ČSN EN 16510-1 ed. 2:2024, Art. A.4, A.4.1, A.4.2, A.4.3, A.4.4, A.4.5, A.4.6, A.4.7, A.4.10.4, A.4.11, A.6.2.1						
<b>Sample tested:</b>	NORTH ECO						
<b>Measuring equipment used:</b>	see Chapter III						
<b>Date of test:</b>	2025-11-25						
<b>Ambient conditions:</b>	<table border="0" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%; text-align: center;">23°C</td> <td style="width:33%; text-align: center;">39%</td> <td style="width:33%; text-align: center;">98,9 kPa</td> </tr> <tr> <td style="text-align: center;">Temperature</td> <td style="text-align: center;">Relative humidity</td> <td style="text-align: center;">Barometric pressure</td> </tr> </table>	23°C	39%	98,9 kPa	Temperature	Relative humidity	Barometric pressure
23°C	39%	98,9 kPa					
Temperature	Relative humidity	Barometric pressure					

Variables measured and calculated: Nominal heat output	Unit	Tests n.				Limit according to:
		1	2	3	Average	ČSN EN 16510-2-3:2025
Fuel used: beech wood	mm	200				
Combustion air setting – primary/secondary	mm	0/9				
Fuel consumption	kg/hour	2.11	2,21	2.11	2.14	
Achieved input	kW	9.1	9.5	9.1	9.2	
Ambient temperature in the room and combustion air temperature	°C	22	23	23	23	
Chimney draught	Pa	12	12	12	12	
Combustion product average temperature	°C	144	145	138	142	
Flue gas outlet temperature	°C	170				
CO <sub>2</sub>	%	9.50	9.95	9.29	9.58	
CO – measured	%	0.0732	0.0876	0.0895	0.0834	
CO – at O <sub>2</sub> = 13%	%	0.0612	0.0699	0.0765	0.0692	
CO – at O <sub>2</sub> = 13%	mg/Nm <sup>3</sup>	765	874	956	865	≤ 1500
CO – at O <sub>2</sub> = 0%	mg/MJ	495	565	618	559	
NO <sub>x</sub> – measured	ppm	57	48	48	51	
NO <sub>x</sub> – at O <sub>2</sub> = 13 %	mg/Nm <sup>3</sup>	98	79	83	87	≤ 200
NO <sub>x</sub> – at O <sub>2</sub> = 0%	mg/MJ	63	51	54	56	
OGC– measured	ppm	66	49	57	57	
OGC– at O <sub>2</sub> = 13 %	mg/Nm <sup>3</sup>	99	71	87	85	≤ 120
OGC– at O <sub>2</sub> = 0%	mg/MJ	64	46	56	55	
Chimney loss	%	9.5	9.1	9.1	9.2	
Loss of gas underburning	%	0.5	0.5	0.6	0.6	
Loss of solid underburning	%	0.5	0.5	0,5	0.5	
Efficiency	%	89.5	89.8	89.8	90	
Total heat capacity achieved	kW	8.1	8.5	8.2	8.3	
Water heat output	kW	-	-	-	-	
Uncertainty of total heat output	kW	0,2	0,2	0,2	0,2	
Nominal capacity	kW	8.3				
Mass flow rate of dry combustion products	g/s	6.4	6.4	6.5	6.4	

Dust– measured	mg/Nm <sup>3</sup>	30	47	31	36	
Dust– at O <sub>2</sub> = 13 %	mg/Nm <sup>3</sup>	25	28	38	30	≤ 40
Dust– at O <sub>2</sub> = 0%	mg/MJ	16	18	24	19	

Energy efficiency			Limit according to: ČSN EN 16510-2-3:2025
At nominal heat output ( $e_{l_{max}}$ )	kW	-	
At minimum heat output ( $e_{l_{min}}$ )	kW	-	
In standby mode ( $e_{l_{sb}}$ )	kW	-	
Permanent pilot flame power requirement ( $P_{pilot}$ )	kW	-	
correction factor F2	%	0	
correction factor F3	%	0	
correction factor F4	%	0	
correction factor F5	%	0	
Seasonal space heating energy efficiency $\eta_s$	%	80	$\geq 65$
Energy Efficiency Index (EEI)	-	121	
Energy Efficiency Class	-	A+	

**Graphs of emission (CO, O<sub>2</sub>, CO<sub>2</sub>, NO<sub>x</sub>, OGC)**



## Fuel analysis

Type of fuel	Wood logs: Beech wood		
Analytical indicator	Symbol	Unit	Value
Carbon	C	[ % of mass ]	42.24
Hydrogen	H	[ % of mass ]	5.33
Oxygen	O <sub>2</sub>	[ % of mass ]	39.52
Total water in original state	W <sub>r t</sub>	[ % of mass ]	12.26
Ash	A	[ % of mass ]	0.59
Net calorific value	Q <sub>i</sub>	[ MJ/kg ]	15.516

Note: Sample in the original condition

## *Temperature rise of the operating components*

Measured point	Material	Temperature rise (K)	
		Measured	Limit
Loading door handle	Plastic	47	60
Oven handle	Plastic	40	60
Primary air regulation	Metal	59 *)	35
Secondary air regulation	Metal	20	35
Box under oven handle	Metal	23	35
Handle of heating flap	Metal	123 *)	35
Top of the box under oven	Metal	152**)	65

Note: The tables show the highest measured values

\*) ... Manufacturer supplies protective tools for safe manipulation with the stove

\*\*\*) ... The box under oven is not permitted for the storage of flammable materials.

Average combustion product temperature after the branch	°C	151	-
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<b>Test objective:</b>	<b>Safety in case of fire</b> <b>Mechanical resistance and stability</b>
<b>Exact name of the test procedure:</b>	1.4*, 1.5* - Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
<b>Test method:</b>	ČSN EN 16510-1 ed. 2:2024, Art. A.2.2, A.4.10, ČSN EN 16510-2-3 Art. A-I
<b>Sample tested:</b>	NORTH ECO
<b>Measuring equipment used:</b>	see Chapter III
<b>Date of test:</b>	2025-11-26

Ambient conditions:	24°C	38%	98.7 kPa
	Temperature	Relative humidity	Barometric pressure

Flue draught	15 Pa
Timber wood size	5 x 5 cm
Timber wood moisture	14,5 %
Quantity of fuel (150 % of the mass of the fuel for the nominal heat output test)	2,4 kg
Maximum temperature rise in the wood box	-
Load bearing capacity during thermal overload test	0 kg
The highest mean flue gas temperature	282 °C

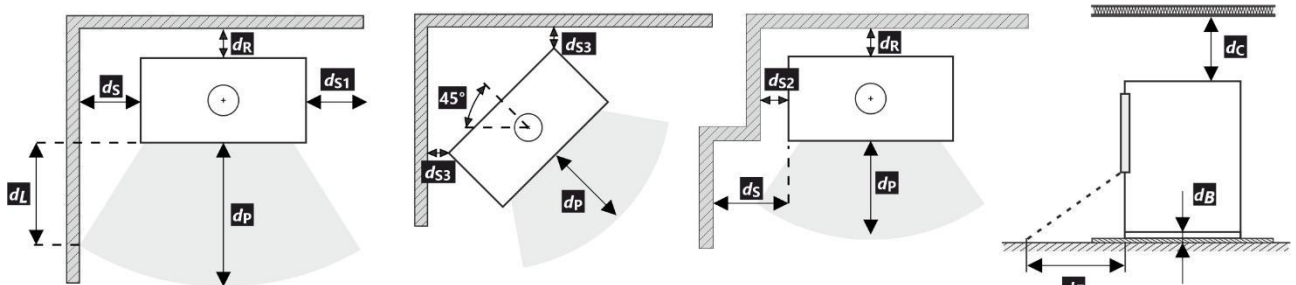
Protection of combustible materials	Clearance distance to combustion materials		Test corner - clearance	Maximum temperature rise 65 [ K ]
	Symbol	Unit		
Minimum Clearance between the Back and Flammable Materials	$d_R$	[mm]	350	62
Minimum Clearance between the Lateral Sides and Flammable Materials - right	$d_s$	[mm]	200	55
Minimum Clearance between the Top and Flammable Materials	$d_c$	[mm]	> 750	-
Minimum Clearance between the Front and Flammable Materials	$d_p$	[mm]	600	35
Minimum Clearance between the Bottom of Product and Flammable Materials	$d_F$	[mm]	300	27
Minimum Clearance between the Front and Flammable Materials for the Front Side Radiation Zones	$d_L$	[mm]	300	34
Minimum Clearance between the Bottom of Product (excluding the footing) and Flammable Materials	$d_B$	[mm]	0	63
Minimum Clearance between the Non-Combustible Walls	$d_{non}$	[mm]	50	-

Note: The tables show the highest values measured.

Limit is 65 K above room temperature at the hottest point of any adjacent walls.

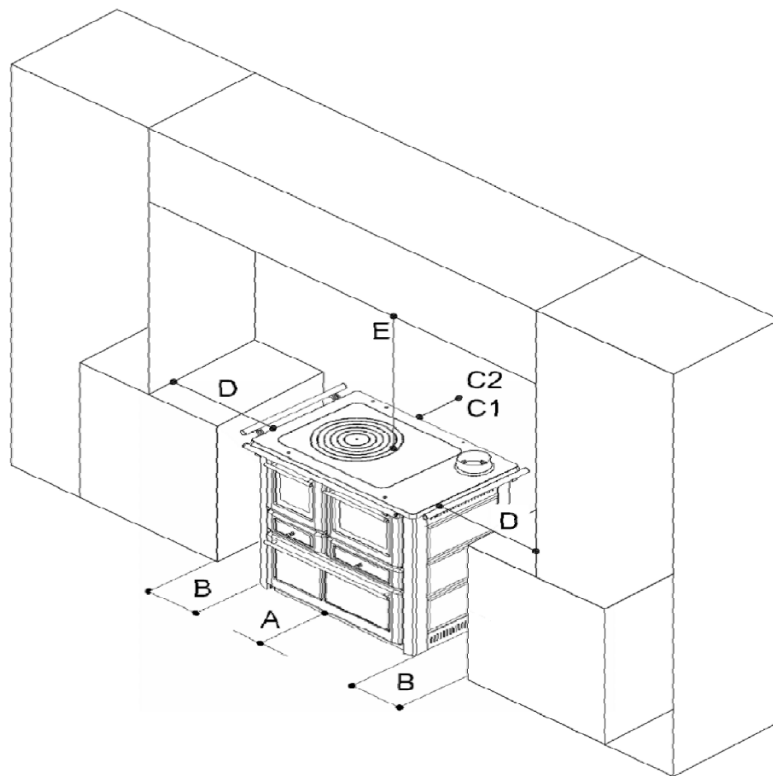
After the overload tests, there was no permanent deformation or damage to the appliance.

\*) in case limit 65 K is not superseded due to radiation on the floor in front and/or on the side walls,  $d_F$  and/or  $d_L$  can be declared 0 mm



<b>Test objective:</b>	<b>Safety in case of fire</b> <b>Mechanical resistance and stability</b>
<b>Exact name of the test procedure:</b>	1.4*, 1.5* - Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
<b>Test method:</b>	ČSN EN 16510-1 ed. 2:2024, Art. A.2.1, ČSN EN 16510-2-3 Art. A.303
<b>Sample tested:</b>	NORTH ECO_ spacer
<b>Measuring equipment used:</b>	see Chapter III
<b>Date of test:</b>	2025-11-27

Ambient conditions:	27°C	38%	99.0 kPa
	Temperature	Relative humidity	Barometric pressure



Mark	Description	Distance	Rise of temperature
	unit	[mm]	[K]
A	safety distance to the front	300	35
B	safety distance to the side (from the appliance side wall to combustible material)	0	24 right 20 left
C1	safety distance to the backside (from the appliance rear wall to combustible material)	350	62
C2	safety distance to the backside (radiation area of the hot plate)	300	64
D- right	safety distance to the side (radiation area of the hot plate + safety spacer)	200	41
D- left	safety distance to the side (radiation area of the hot plate radiation area of the hot plate + safety spacer)	200	38
E	safety distance on top (radiation area of the hot plate)	> 750	-
	Spacer	100	

Measured point	Material	Temperature rise (K)	Limits (K)
Top of the box for fuel	Metal	152**)	65

Note: The tables show the highest measured values

\*\*)... The box under oven is not permitted for the storage of flammable materials.

<b>Test objective:</b>	<b>Safety in case of fire</b> <b>Mechanical resistance and stability</b>
<b>Exact name of the test procedure:</b>	1.4*, 1.5* - Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
<b>Test method:</b>	ČSN EN 16510-1 ed. 2:2024, Art. A.2.2, A.4.10, ČSN EN 16510-2-3 Art. A-I
<b>Sample tested:</b>	NORTH ECO_spacer
<b>Measuring equipment used:</b>	see Chapter III
<b>Date of test:</b>	2025-11-27

Ambient conditions:	27°C	37%	99.1 kPa
	Temperature	Relative humidity	Barometric pressure

Flue draught	15 Pa
Timber wood size	5 x 5 cm
Timber wood moisture	14,5 %
Quantity of fuel (150 % of the mass of the fuel for the nominal heat output test)	2,4 kg
The highest mean flue gas temperature	290 °C

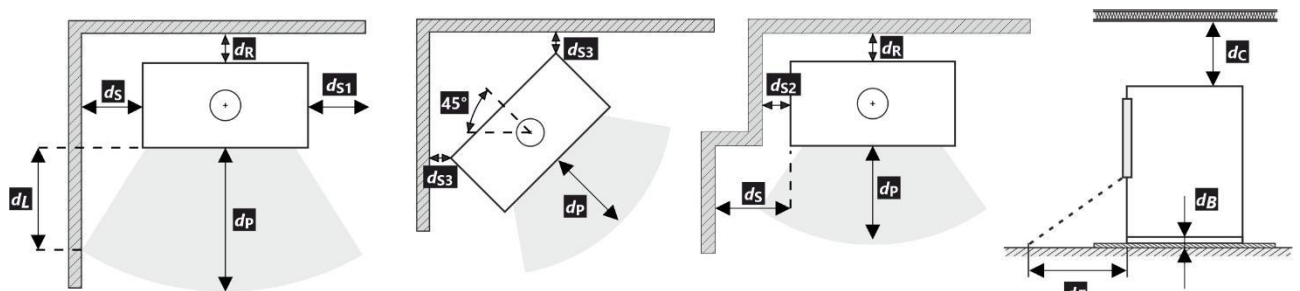
Protection of combustible materials	Clearance distance to combustion materials		Test corner - clearance	Protective insulation material	Maximum temperature rise 65 [ K ]
Minimum Clearance between the Back and Flammable Materials	$d_R$	[mm]	350	-	62
Minimum Clearance between the Lateral Sides and Flammable Materials - left	$d_S$	[mm]	0	100 mm	23
Minimum Clearance between the Lateral Sides and Flammable Materials - right	$d_{S1}$	[mm]	0	100 mm	18
Minimum Clearance between the Top and Flammable Materials	$d_C$	[mm]	> 750	-	-
Minimum Clearance between the Front and Flammable Materials	$d_P$	[mm]	600	-	37
Minimum Clearance between the Bottom of Product and Flammable Materials	$d_F$	[mm]	300	-	33
Minimum Clearance between the Front and Flammable Materials for the Front Side Radiation Zones	$d_L$	[mm]	300	-	34
Minimum Clearance between the Bottom of Product (excluding the footing) and Flammable Materials	$d_B$	[mm]	0	-	64
Minimum Clearance between the Non-Combustible Walls	$d_{non}$	[mm]	50	-	-

Note: The tables show the highest values measured.

Limit is 65 K above room temperature at the hottest point of any adjacent walls.

After the overload tests, there was no permanent deformation or damage to the appliance.

\*) in case limit 65 K is not superseded due to radiation on the floor in front and/or on the side walls,  $d_F$  and/or  $d_L$  can be declared 0 mm



<b>Test objective:</b>	Special tests for cookers
<b>Exact name of the test procedure:</b>	1.4*, 1.5* - Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
<b>Test method:</b>	ČSN EN 16510-1 ed. 2:2024 A.4.7 , ČSN EN 16510-2-3 Art. A-I
<b>Sample tested:</b>	NORTH ECO
<b>Measuring equipment used:</b>	see Chapter III

Date of test:	2025.11.26.	tok = 22	°C	r.h. = 39	%	pa = 98,8	kPa
Place of testing:	At SZU	At Manufacturer's	At Customer's	Other: <input checked="" type="checkbox"/> Kvalitet A.D. Niš			

Variables measured and calculated: Rated capacity	Unit	Measured value	Limit according to	Note
<b>A.4.301.2 Hotplate boiling test</b>				
Water temperature rise in the boiling vessel	°C	75		
Heating time on the heating plate	min.	16,0		
<b>Oven temperature</b>				
Average temperature at the oven's geometrical centre	°C	215		
Maximum temperature at the oven's geometrical centre	°C	240		
<b>A.4.301.3 Oven heating test</b>				
Course of baking:	Oven preheating time: approx. 200 min. Stabilization of temperature in the oven at 210°C The baking sheet with pastry was placed on the first level from the bottom. One side was baked for approx. 15 minutes and then the baking sheet was turned by 180° The other side was baked for a further 6 min. The total baking time was 21 min.			
Oven suitability for baking:	After 21 minutes the pastry was IDEALLY baked.			

 Tested by: Ing. Radek Machara

 Reviewed and approved by: Ing. Radek Machara

## **V. A list of referenced documents**

- Order of 2025-10-27 (Order reg. no. B-86355, received on 2025-10-29)
- Contract B-86355/30
- Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
- ČSN EN 16510-1 ed. 2:2024 - Residential solid fuel burning appliances - Part 1: General requirements and test methods
- ČSN EN 16510-2-3:2025 - Residential solid fuel burning appliances - Part 2-3: Cookers
- Technical documentation (drawings, manual)

Test Report compiled by: Jiří Dvořák

Test Report approved by: Milan Holomek  
Combustion Equipment Manager

– End of Test Report –