

## TESTING LABORATORY

“ITEM Consult” Ltd. — Testing Laboratory, Sofia 1220, 8 Istorla Slavlanobulgarska Blvd

### TEST REPORT

*from testing the product type according to system 3*

№ CPR 530A/09.02.2026

#### 1. Manufacturer:

Company: “MAK ENDÜSTRİYEL ÜRETİM VE TİCARET A.Ş.”

Address: Mimar Sinan Mah. Ankara Yolu 5. Cadde No: 33 Çorum / TÜRKİYE

Appliance name: ECO MINI

Type, serial number (type or prototype): Prototype

Year of manufacture: 2026

#### 2. Applicant:

Application: № CPR 332A/20.01.2026

Company: “MAK ENDÜSTRİYEL ÜRETİM VE TİCARET A.Ş.”

Address: Mimar Sinan Mah. Ankara Yolu 5. Cadde No: 33 Çorum / TÜRKİYE

#### 3. Test method:

Testing of a biofuel heating device according to:

“Residential solid fuel burning appliances – Part 2-1: Roomheaters”; BDS EN 16510-2-1:2023

“Residential solid fuel burning appliances – Part 1: General requirements and test methods”; BDS EN 16510-1:2023.

Performance tested according to the test method:

- Mechanical resistance and stability: load-bearing capacity – p. 4.1
- Fire safety: protection of combustible materials – p. 4.2
- Hygiene, health and environment: at nominal heat output – p. 4.3; p. 4.4; p. 4.5; p. 4.6; heat output at part load – p. 4.3; p. 4.4; p. 4.5; p. 4.6
- Safety and accessibility in use: chimney connection data at nominal heat output – p. 4.7.2; p. 4.7.4; p. 4.7.6; chimney connection data at partial heat output – p. 4.7.3; p. 4.7.5; p. 4.7.7; chimney connection data related to fire safety at safe heat output – p. 4.7.8
- Energy saving and heat retention: heat output and efficiency at nominal heat output – p. 4.8.1; p. 4.8.2; p. 4.8.3; heat output and efficiency at part load – p. 4.8.4; p. 4.8.5; p. 4.8.6; room heating efficiency – p. 4.8.7; p. 4.8.8; electrical consumption at nominal, part heat output and standby – p. 4.8.9; p. 4.8.10; p. 4.8.11

#### 4. Date of receipt: 20.01.2026

#### 5. Test date: 20.01.2026 – 09.02.2026

#### 6. Place of testing:

“ITEM Consult” Ltd. – Testing Laboratory, Sofia 1220, 8 Istorla Slavlanobulgarska Blvd

#### 7. Description according to the technical documentation of the appliance:

##### Appliance Classification – Type “B”

Gravity-fed pellet stove. It operates completely mechanically, without electricity. The pellets are fed into the combustion chamber automatically by gravity. Features mechanical side levers to adjust the burning intensity.



#### 8. Technical specifications provided by the manufacturer:

|                             |                     |
|-----------------------------|---------------------|
| Nominal heat output:        | 8.0 kW              |
| Efficiency in nominal mode: | 89 %                |
| Dimensions:                 | 330 × 555 × 1043 mm |
| Flue gas outlet diameter:   | Ø130 mm             |
| Weight:                     | 60 kg               |

Distance from the walls of the stand to the appliance – specified by the manufacturer:

|                                      |         |
|--------------------------------------|---------|
| A. From left and right to the stand: | 500 mm  |
| B. Back to stand:                    | 200 mm  |
| C. Hearth on stand:                  | 100 mm  |
| D. Safety distance in front:         | 1000 mm |

#### 9. Fuels used:

9.1. Wooden pellets (EN 14961-2) A1 – Ø6 mm

Test report for the fuel № 10119/11.12.2025, Eurotest – Control EAD

|                                          |             |
|------------------------------------------|-------------|
| – Net calorific value of the fuel:       | 4.79 kWh/kg |
| – Net calorific value of the fuel:       | 17.25 MJ/kg |
| – Upper calorific value of working fuel: | 18.65 MJ/kg |
| – Moisture:                              | 6.22 %      |
| – Ash:                                   | 0.34 %      |
| – Nitrogen:                              | 0.31 %      |
| – Hydrogen:                              | 6.50 %      |
| – Carbon:                                | 50.75 %     |

#### 10. Test conditions:

1. Installation of the device in a three-walled structure in accordance with the installation instructions – developed according to the requirements of BDS EN 16510-1:2023: p. A.2.2
2. Environment – according to the requirements of the standard
3. Operating modes set by the manufacturer:
  - A. Nominal: 8.0 kW
  - B. Thermal output at partial load: not applicable
4. Calculation of values: according to the formulas specified in A.6.2 of BDS EN 16510-1:2023
5. Measuring instruments used: listed in p. 21.

#### 11. Recording environmental conditions – (05.02.2026)

| Point from BDS EN 16510-1:2022 | Indicator                       | Unit of measurement | Measured or calculated value | Limits | Conformity |
|--------------------------------|---------------------------------|---------------------|------------------------------|--------|------------|
| A.1.1                          | Ambient temperature in the room | °C                  | 20.9                         |        | Yes        |
| A.1.2                          | Cross-draught                   | m/s                 | 0.04                         | < 0.5  | Yes        |
| A.1.3                          | External sources                | –                   | Missing                      |        | Yes        |
| –                              | Barometric pressure             | hPa                 | 972                          |        | Yes        |

## 12. Performance test at nominal heat output, p. A.4.7 of BDS EN 16510-2-1:2023

| Conditions for conducting the test               | Name                  | Unit of measurement     | Test 1 | Test 2 | Test 3 | Average value |
|--------------------------------------------------|-----------------------|-------------------------|--------|--------|--------|---------------|
| <b>Combustion process</b>                        |                       |                         |        |        |        |               |
| Calculating the fuel to be refueled, f. A.2      | <i>Ma</i>             | <i>kg</i>               | 2.73   | 2.73   | 2.73   | 2.73          |
| Test time                                        |                       | <i>min</i>              | 40     | 40     | 40     | 40            |
| Fuel consumption                                 | <i>Mh</i>             | <i>kg</i>               | 1.83   | 1.83   | 1.83   | 1.83          |
| Average flue draught                             |                       | <i>Pa</i>               | 11     | 11     | 11     | 11            |
| <b>Measured values</b>                           |                       |                         |        |        |        |               |
| Measured O <sub>2</sub> concentration            | <i>O<sub>2</sub></i>  | %                       | 10.06  | 10.20  | 10.46  | 10.24         |
| Measured CO <sub>2</sub> concentration           | <i>CO<sub>2</sub></i> | %                       | 10.94  | 10.74  | 10.54  | 10.74         |
| Measured CO concentration                        | <i>CO</i>             | <i>mg/m<sup>3</sup></i> | 234    | 256    | 299    | 263           |
| Ambient temperature                              | <i>Ta</i>             | °C                      | 20.2   | 20.7   | 21.9   | 20.9          |
| Average flue gas temperature                     | <i>Tfg</i>            | °C                      | 140    | 146    | 151    | 146           |
| <b>Heat output of water – if applicable</b>      |                       |                         |        |        |        |               |
| Outlet water temperature                         | <i>T1</i>             | °C                      | –      | –      | –      | –             |
| Inlet water temperature                          | <i>T2</i>             | °C                      | –      | –      | –      | –             |
| Temperature difference                           | <i>ΔTw</i>            | °C                      | –      | –      | –      | –             |
| Water flow rate                                  | <i>Φw</i>             | <i>kg/h</i>             | –      | –      | –      | –             |
| <b>Measuring wall temperatures</b>               |                       |                         |        |        |        |               |
| Maximum left wall temperature                    |                       | °C                      | 55.3   | 55.4   | 56.1   | 55.6          |
| Maximum rear wall temperature                    |                       | °C                      | 54.9   | 55.9   | 56.0   | 54.1          |
| Maximum floor temperature of the measuring angle |                       | °C                      | 51.4   | 52.5   | 52.7   | 52.2          |
| Maximum temperature in front of the appliance    |                       | °C                      | 43.3   | 43.6   | 44.5   | 43.8          |
| <b>Measurement of surface temperatures</b>       |                       |                         |        |        |        |               |
| Maximum handle temperature 1                     |                       | °C                      | 44.1   | 44.6   | 44.8   | 44.5          |
| Maximum handle temperature 2                     |                       | °C                      | 41.1   | 41.3   | 41.5   | 41.3          |
| Maximum handle temperature 3                     |                       | °C                      | –      | –      | –      | –             |
| Maximum fuel tank temperature                    |                       | °C                      | 44.0   | 44.1   | 45.4   | 44.5          |

| Conditions for conducting the test                                          | Name         | Unit of measurement | Test 1  | Test 2  | Test 3  | Average value  |
|-----------------------------------------------------------------------------|--------------|---------------------|---------|---------|---------|----------------|
| <b>Electricity consumption – if applicable</b>                              |              |                     |         |         |         |                |
| Electricity consumption at nominal mode                                     | $el_{max}$   | $kW$                | –       | –       | –       | –              |
| <b>Calculated results – according to Art. A6 “Calculation methods”</b>      |              |                     |         |         |         |                |
| <b>Heat loss and efficiency</b>                                             |              |                     |         |         |         |                |
| Efficiency                                                                  | $\eta$       | %                   | 91      | 90      | 90      | 90             |
| Carbon content of the residue, relative to the amount of test fuel burned   | $Cr$         | %                   | 0.27    | 0.27    | 0.27    | 0.27           |
| <b>Heat loss in flue gases</b>                                              |              |                     |         |         |         |                |
| Heat loss in flue gases relative to the unit mass of the fuel under test    | $Qa$         | $kJ/kg$             | 1528.36 | 1626.67 | 1694.95 | 1616.66        |
| Proportion of specific heat losses in flue gases                            | $qa$         | %                   | 8.59    | 9.14    | 9.52    | 9.08           |
| <b>Heat loss due to combustible ingredients in the residue</b>              |              |                     |         |         |         |                |
| Chemical heat loss in flue gases relative to the unit mass of the test fuel | $Qb$         | $kJ/kg$             | 20.40   | 22.73   | 27.04   | 23.39          |
| Proportion of latent heat losses in flue gases $Qb$                         | $qb$         | %                   | 0.11    | 0.13    | 0.15    | 0.13           |
| <b>Energy efficiency for seasonal space heating</b>                         |              |                     |         |         |         |                |
| Energy efficiency for seasonal space heating                                | $\eta_s$     | %                   | 81      | 80      | 80      | 80             |
| <b>Energy Efficiency Index (EEI)</b>                                        |              |                     |         |         |         |                |
| Energy Efficiency Index                                                     | $EEI$        | –                   | 122     | 121     | 120     | 121 – Class A+ |
| <b>Total heat output</b>                                                    |              |                     |         |         |         |                |
| Total heat output                                                           | $P$          | $kW$                | 8.2     | 8.2     | 8.1     | 8.2            |
| <b>Heat output of water</b>                                                 |              |                     |         |         |         |                |
| Heat output of water                                                        | $P_w$        | $kW$                | –       | –       | –       | –              |
| <b>Space heat output</b>                                                    |              |                     |         |         |         |                |
| Space heat output                                                           | $P_{sh}$     | $kW$                | 8.2     | 8.2     | 8.1     | 8.2            |
| <b>Flue gas mass flow rate</b>                                              |              |                     |         |         |         |                |
| Flue gas mass flow rate                                                     | $\Phi_{f,g}$ | $g/s$               | 6.2     | 6.3     | 6.4     | 6.3            |
| <b>Specific thermal value of combustion products</b>                        |              |                     |         |         |         |                |
| Specific heat of dry flue gases under standard conditions                   | $C_{p,fg}$   | $kJ/K \cdot m^3$    | 1.35    | 1.35    | 1.35    | 1.35           |
| Specific heat of water vapor                                                | $C_{p,fgw}$  | $kJ/K \cdot m^3$    | 1.51    | 1.51    | 1.51    | 1.51           |
| <b>Nitrogen oxide (NOx) content in flue gases</b>                           |              |                     |         |         |         |                |
| Nitric oxide                                                                | $NO_x$       | $mg/m^3$            | 85      | 99      | 104     | 96             |
| <b>Organic gaseous carbon (OGC) content in flue gases</b>                   |              |                     |         |         |         |                |

| Conditions for conducting the test     | Name | Unit of measurement | Test 1 | Test 2 | Test 3 | Average value |
|----------------------------------------|------|---------------------|--------|--------|--------|---------------|
| Organic gaseous carbon                 | OGC  | mg/m <sup>3</sup>   | 15     | 18     | 22     | 19            |
| <b>Dust (PM) content in flue gases</b> |      |                     |        |        |        |               |
| Measured dust concentration            | PM   | mg/m <sup>3</sup>   | 14     | 15     | 16     | 15            |

**13. Part load test – not applicable**

**14. Slow burning and recovery test – not applicable**

**15. Safety tests**

15.1 Load-bearing capacity test – Meets the requirement regarding the technical data sheet

15.2 Temperature safety test for wood-burning appliances – not applicable

**16. Pressure testing for water heaters – not applicable**

**17. Test for the functioning of the heat unloading device and the safety heat exchanger – not applicable**

**18. Appliance leak tightness tests – not applicable**

**19. Checked characteristics**

| Point from BDS EN 16510-2-1:2023 | Name of the characteristic                                                                                                 | Standard requirements          | Result of the inspection                                      | Requirements met (Yes/No) |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------|---------------------------|
| <b>p. 4.3</b>                    | Carbon monoxide emissions at nominal and partial heat output                                                               | Table 2 at 13 % O <sub>2</sub> | Verified during device testing                                | Yes – done                |
| <b>p. 4.4</b>                    | Nitrogen oxide emissions at nominal and partial heat output                                                                | Table 3 at 13 % O <sub>2</sub> | Verified during device testing                                | Yes – done                |
| <b>p. 4.5</b>                    | Emissions of organic gaseous compounds at nominal and partial heat output                                                  | Table 4 at 13 % O <sub>2</sub> | Verified during device testing                                | Yes – done                |
| <b>p. 4.6</b>                    | Particulate matter emissions at nominal and partial heat output                                                            | Table 5 at 13 % O <sub>2</sub> | Verified during device testing                                | Yes – done                |
| <b>p. 5.3</b>                    | <i>Materials and structural elements – production documentation provided:</i>                                              |                                |                                                               |                           |
|                                  | The specification of the materials used in the construction of the appliance:                                              | Cert. №                        | Certificates submitted in electronic form, stored in the file | Yes – done                |
|                                  | Heat exchanger in contact with fuel combustion:                                                                            | min 4 mm                       | Measured .....                                                | Not applicable            |
| –                                | Input materials:                                                                                                           | Lack of harmful materials      | Verified; no harmful material inserted                        | Yes – done                |
| <b>p. 5.3.3</b>                  | <i>If the appliance is equipped with a boiler or water heat exchanger, the following additional data must be provided:</i> |                                |                                                               |                           |
| –                                | the welding process used in the manufacture of the boiler body;                                                            | Weld symbols indicated         | Verified                                                      | Not applicable            |
| –                                | the maximum permissible operating water temperature, in °C;                                                                | – °C                           | ..... °C during testing                                       | Not applicable            |
| –                                | the maximum permissible operating pressure, in bar;                                                                        | – bar                          | ..... bar verified during testing                             | Not applicable            |
| –                                | the standard test pressure, in bar;                                                                                        | 2 × P(work)                    | – bar                                                         | Not applicable            |

| Point from BDS EN 16510-2-1:2023 | Name of the characteristic                                               | Standard requirements                                                              | Result of the inspection                                      | Requirements met (Yes/No) |
|----------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------|
| –                                | the thermal power of the water, in kW.                                   | –                                                                                  | <i>Obtained during testing</i>                                | Not applicable            |
| <b>p. 5.4</b>                    | <i>Risk of burning fuel falling out</i>                                  |                                                                                    |                                                               |                           |
|                                  | When opening the loading door, it is not permissible to:                 | <i>Flue gas leakage; Falling out of embers</i>                                     | <i>Verified when tested</i>                                   | Yes – done                |
|                                  | Ember holding device:                                                    | <i>Mounted fire strips</i>                                                         | <i>Verified when tested</i>                                   | Not applicable            |
| <b>p. 5.5</b>                    | <i>Increasing the temperature in the fuel storage:</i>                   |                                                                                    |                                                               |                           |
|                                  | does not exceed the ambient temperature in the room by more than 65 K    | $t_{ok} + 65 = 85.9\text{ }^{\circ}\text{C}$                                       | <i>Measured <math>t = 44.5\text{ }^{\circ}\text{C}</math></i> | Not applicable            |
| <b>p. 5.6</b>                    | <i>Temperature increase of operating components</i>                      |                                                                                    |                                                               |                           |
|                                  | temperatures measured only in the areas that are touched must not exceed | <i>for metal (handle): <math>t_{ok} + 35 = 55.9\text{ }^{\circ}\text{C}</math></i> | <i>Measured <math>t = 44.5\text{ }^{\circ}\text{C}</math></i> | Yes – done                |
| <b>p. 5.8.1</b>                  | Cleaning heating surfaces:                                               | –                                                                                  | <i>Easy cleaning</i>                                          | Yes – done                |
| <b>p. 5.8.3</b>                  | Ashtray volume:                                                          | $0.3\text{ dm}^3\text{ per kW}$                                                    | <i>Verified</i>                                               | Yes – done                |
| –                                | Manipulation with the ashtray                                            | <i>Quick and easy</i>                                                              | <i>Verified when tested</i>                                   | Yes – done                |
|                                  | Primary combustion air control device                                    | <i>Register</i>                                                                    | <i>Verified</i>                                               | Yes – done                |
| <b>p. 4.4.19</b>                 | <i>Oven door of cookers acc. to EN 16510-1:2023</i>                      |                                                                                    |                                                               |                           |
|                                  | Opening angle:                                                           | $\geq 90^{\circ}$                                                                  | <i>Measured —</i>                                             | Not applicable            |

**Declaration:** IL declares that the verified essential characteristics with regard to:

- The requirements for materials, design and construction are fulfilled in accordance with the requirements of the standard and are supported by actual measured values and accompanying documentation (drawings and certificates);
- Definitions in the operating instructions for the loading interval at nominal heat output cover the requirement for combustion during the entire test period at nominal heat output;
- Thermal gloves are required for handling a heated ashtray during cleaning (specified in the instructions);
- The accompanying documentation (installation and operation instructions) meets the requirements of the standard;
- The safety requirements specified in point 5 are met and the appliance is not risky;
- The accompanying documentation (installation and operation instructions for protective equipment) meets point 7 of the standard.

## 20. Measurement equipment

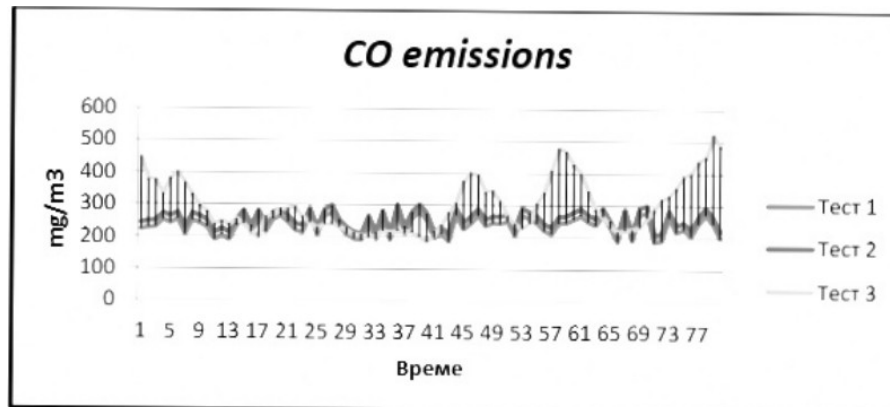
| №  | Name, type, manufacturer                   | Latest calibration certificate, № / date, issued by |
|----|--------------------------------------------|-----------------------------------------------------|
| 1. | Electronic scale, type B600P               | № 02-M-550/13.10.2025, “Kalibra-Bulgaria”           |
| 2. | Electronic scale DE 60K1DL, KERN – Germany | № 02-M-583/23.08.2024, “KALIBRA –                   |

| №   | Name, type, manufacturer                                                                | Latest calibration certificate, № / date, issued by                  |
|-----|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------|
|     |                                                                                         | BULGARIA” OOD                                                        |
| 3.  | Digital pressure gauge, type Testo 512, TESTO AG – Germany                              | № 0670/24.04.2023, “UNISIST” OOD                                     |
| 4.  | Air speed meter Testo 405 V1                                                            | № 19280/24.04.2023, “TOTAL TEST”                                     |
| 5.  | Steel measuring tape, class II                                                          | № 0194-D-02/22.02.2023, “Kalabsi” OOD, Sofia                         |
| 6.  | Digital thermometer Testo 922, Germany                                                  | № 21113/23.01.2025, “Total Test” OOD                                 |
| 7.  | Electronic stopwatch 696, Hong Kong                                                     | № 027-IVCh/27.03.2025, BIM GD NCM                                    |
| 8.  | Infrared thermometer                                                                    | № 21156/04.02.2025, “Total Test” OOD                                 |
| 9.  | Gas analysis appliance “MRU AIR MC APRIME Q”, serial № 064802, Germany, Type 400GD      | Factory calibration certificate / 30.04.2024, “MRU GmbH, Fuchshalde” |
| 10. | Dry sterilizer Ditem, № 0911/2016; Digital thermometer, type 4001, range 0 °C to 250 °C | № 2021 of 21.10.2025, “UNISIST” OOD, Sofia                           |
| 11. | Electronic analytical scale, 82 g, 0.1 mg, Type ABS 80-4N, № S.N. WB16AN0052            | № 0-2-M-549/13.10.2025, KALIBRA BULGARIA OOD, Sofia                  |
| 12. | Digital thermohygrometer Testo-608 H1, № 30115603, Germany                              | № 19646/10.08.2023, “Total Test” OOD, Sofia                          |
| 13. | Digital barometer, type Testo 511 – ser. № 39112944601                                  | № 1291/30.06.2025, “UNISIST” OOD, Sofia                              |
| 14. | Flowmeter for air with built-in aspirator, type LIFETEK55XP-P, № 55057                  | № 1270/18.07.2025, “HIGITEST” OOD, Sofia                             |

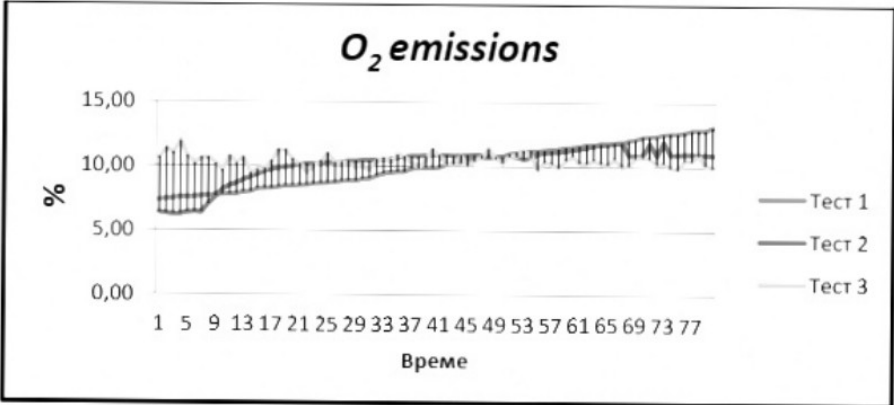
## 21. Graphical presentation of the results

### 21.1. Graphical representation of the test results at rated power

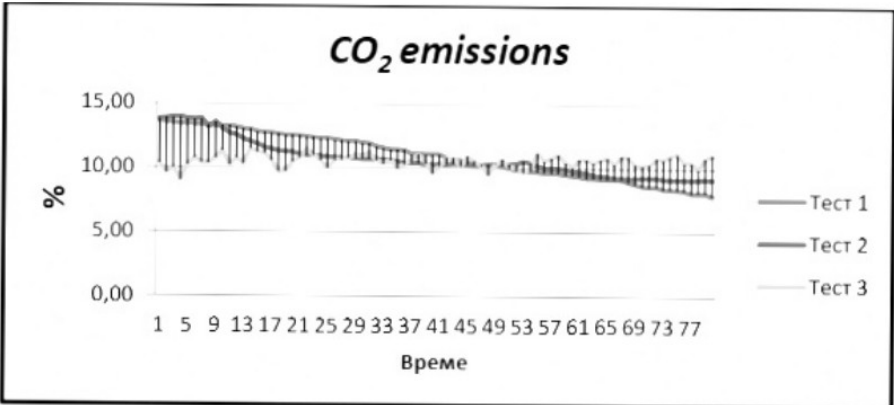
#### 21.1.1. CO emissions:



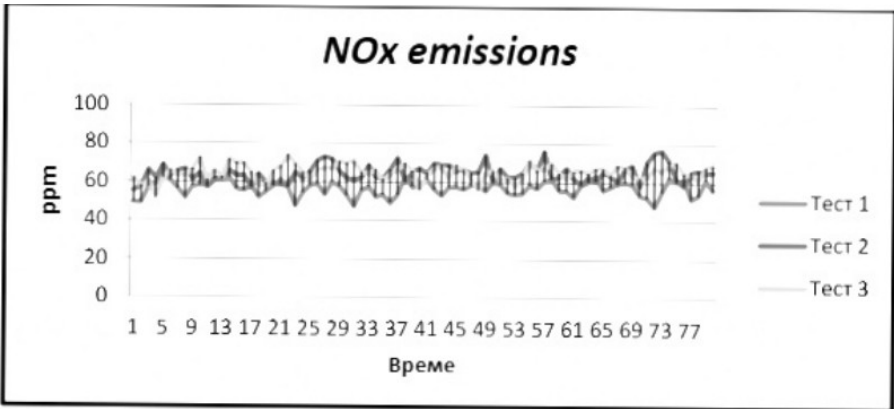
#### 21.1.2. O<sub>2</sub> emissions:



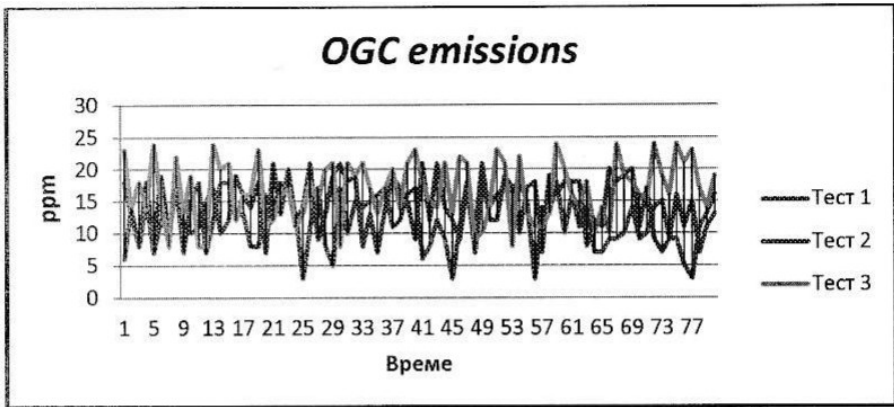
21.1.3. CO<sub>2</sub> emissions:



21.1.4. NO<sub>x</sub> emissions:



21.1.5. OGC emissions:



CONCLUSION



**HEATING APPLIANCE “ECO MINI” MEETS THE REQUIREMENTS OF BDS EN 16510-2-1:2023  
for the tested/verified parameters.**

**Comments:** 1. The test results refer only to the test specimen.

2. Extracts from the test report may not be prepared and distributed without the written consent of the testing laboratory.

**Date:** 09.02.2026

**TESTED BY:**

Dipl. eng. Tihomir Genov

**VERIFIED BY:**

Dipl. eng. Nayden Evtimov

**HEAD OF THE LABORATORY:**

Dipl. eng. Raycho Sahatchiev

*(Signatures and laboratory stamp appear in the original bilingual report. Photograph and emission charts above are reproduced from the original scanned report.)*