

LIMITED LIABILITY COMPANY
"SCIENTIFIC AND TESTING CENTER "EUROSTANDARD"

International Laboratory Accreditation Cooperation (ILAC)

National Accreditation Agency of Ukraine

№ 2H1069 (DSTU ISO/IEC 17025:2006)

Approved by
Director of the LLC S&T Center "Eurostandard"
Illytskyi O.
"04"__02__2019

PROTOCOL №1/ГГ-19

of the qualification tests - determination of the combustibility group
according to

DSTU B B.2.7-19-95(GOST 30244-94)

Finishing material, flexible tile on a sand-polymer composition, that is used for producing:

Flexible clinker "IN-CLINKER"

Flexible brick "IN-BRICK"

Flexible ceramics "IN-KERAM"

manufactured by LLC "IN DEMAND"

Indicator G1

(low combustibility)

Copy 1 - Owner

Copy 2 - Client

Client:

LLC "IN-DEMAND", 37710, Ukraine, Poltava reg., Orzhitsky dist., Lazirky, Tsentralna st. 2B/2

Testing center:

LLC "SCIENTIFIC AND TESTING CENTER "EUROSTANDARD"

Legal-actual address: Lviv reg., Gorodotsky dist., Cherlyany, Polyova st. 99A;

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License of the State Department of Fire Safety of the Ministry of Emergencies of Ukraine No. 518682 dated 03.04.2010 p.,

Accreditation certificate No. 2H1069 issued by the National Accreditation Agency of Ukraine dated September 25, 2014, valid until September 24, 2019.

Testing was performed in accordance with:

1. Application letter

Testing object: Finishing material, flexible tile on a sand-polymer composition which is used to produce:

Flexible clinker **"IN-CLINKER"**

Flexible brick **"IN-BRICK"**

Flexible ceramics **"IN-KERAM"**

Registration number "БЛ No. **Д2-343**"

Testing methodology:

According to DSTU B B.2.7-19-95 (GOST 30244-94) "Building materials. The combustibility test methods" building materials are divided into non-combustible (NC) and combustible (C).

The essence of the testing method to determine the combustibility group of the combustible building materials according to p.7 of DSTU B B.2.7-19-95 (GOST 30244-94) consists in simultaneously putting four samples, fixed in a holder, into the combustion chamber and the samples being impacted by the flame from the ignition source with the given parameters (fixed gas and air consumption).

The method is applied to all homogeneous and laminated combustible building materials, including those that are used as finishing and facing ones, and also the paintworks.

For each test, 12 samples are produced, 1000mm in length and 190mm in width. The width of the samples must correspond to the width of the material used in real conditions. If the width of the material is 70mm, the width of the samples must be 70mm. The width of the paintworks must correspond to the one declared in technical documentation, but to have not more than 4 layers.

It is necessary to perform three tests for each material. Each of the three tests consists of the simultaneous testing of 4 samples of the material.

The measurement system for the temperature of smoke gases is to be checked and for this it is needed to turn on the measurement instruments and the air supply. The described operation is performed with the combustion chamber's doors being closed and the ignition source being off. Deviation in results of each of the four thermocouples from their average value should be not more than 5°C.

The four samples are to be weighted, placed into the holder and the holder to be put into the combustion chamber.

To turn on the measurement instruments, air supply, exhaust ventilation, ignition source and to close the chamber's doors.

The duration of impact on the sample by the flame of the ignition source should be not more than 10 min. After 10 minutes are over, the ignition source is turned off. In case of presence of flame or smoldering signs, the duration of spontaneous combustion (smoldering) is recorded. The testing is considered finished after the samples are being cooled down to the temperature of the environment.

For each testing, the following characteristics are determined:

- temperature of the smoke gases;
- duration of independent combustion and (or) smoldering;
- length of the damage of the sample;
- sample mass before and after testing.

During testing the following observations are also recorded: time of reaching the maximum temperature of the smoke gases; flame spread to the edges and surface of the samples that are not being heated; burn through the samples; creation of the combustible fusion. After the testing is finished, the length of the segments of the non-damaged samples part is measured and the remaining mass of the samples is determined.

The non-damaged part of the sample is considered to be the one that did not burn or char either on surface or inside. Soot deposition, sample discoloration, local chipping, sintering, melting, swelling, shrinkage, gouging, sample shape change, and surface roughness are not considered as damages.

The non-damaged part of the samples that is left on the holder is weighted.

According to the results of the testing, the combustible (C) building materials depending on the values of the parameters of the material combustion are divided into 4 combustion groups:

- C1 (low combustibility);
- C2 (moderate combustibility);
- C3 (medium combustibility);
- C4 (high combustibility) - according to table 1.

Table 1.

Classification of the combustible building materials according to the
DSTU B B.2.7-19-95(GOST 30244-94)

Group of the material combustibility	Combustibility parameters			
	Temperature of smoke gases T, °C	Level of damage by length S _л , %	Level of damage by mass S _м , %	Duration of independent combustion T _{ав} , sec
C1	≤ 135	≤ 65	≤ 20	0
C2	≤ 235	≤ 85	≤ 50	≤ 30
C3	≤ 450	> 85	≤ 50	≤ 300
C4	> 450	> 85	> 50	> 300

Note:

For the materials of C1-C3 combustibility groups, it is not allowed to have the creation of fusion drops that combust during the test.

Testing samples:

Finishing material, flexible tile on a sand-polymer composition of 3-5mm width

Flexible clinker **"IN-CLINKER"**

Flexible brick **"IN-BRICK"**

Flexible ceramics **"IN-KERAM"**

The samples are put onto the asbestos-cement sheet of the size 1000mmx190mm.

Conditions for testing performance:

- date 01.02.2019;
- air temperature: 16 °C;
- relative air humidity: 66%;
- atmospheric pressure: 100.3 kPa.

Test equipment:

The following equipment was used for testing:

1. Installation for tapping into a gas pipeline ("YBF-1") for determination of the combustibility group of the building materials.
2. Measuring equipment, described in table 2.

Table 2

Measuring equipment

№	Name of equipment or instrument	Factory number	Measurement range	Measurement error	Date of the next verification
1	2	3	4	5	6
1	Metallic ruler	-	from 0 to 500 mm	±3 mm	2 qtr 2019
2	Tape line	-	from 0 to 8 m	accuracy class 3	4 qtr 2019
3	Caliper of type 1	00913574	from 0 to 125 mm	±0.05%	4 qtr 2019
4	Aspiration psychrometer (MB-4M)	4507	from -25 to 50°C/ from 10 to 100%)	±2°C/±4%	2 qtr 2019
5	Mechanical stopwatch (COC np-26-2-000.4295B)	0779	from 0 to 60 sec; from 60 to 3600 sec	±6 sec/ ±1.8 sec	4 qtr 2019
6	Aneroid meteorological barometer (БАММ-1)	353	from 80 to 106 kPa	0.02%	2 qtr 2019
7	Scales WPT 03/06 C4	107867	from 0 to 600 gr	accuracy class 2	4 qtr 2019
8	Rotameter ("PM-0,4 ГY3")	3513	from 0 to 6,300 m ³ /hour	10%	2 qtr 2019

Pic. 1. Sample after testing.

Table 3

No of test	No of testing samples	Initial temperature inside installation T_i , °C	Maximum temperature of smoke gases T , °C	Average temperature of smoke gases T_{av} , °C	Length of samples damage L , cm	Average value of samples damage by length ΔL_{av} , cm	Level of samples damage by length S , %	Mass of the samples before testing m_1 , g	Mass of the samples after testing m_2 , g	Average value of samples damage by mass Δm_{av} , g	Level of samples damage by mass S , %	Duration of independent combustion of samples τ , sec
1	1	17	111	108	8	7	7	5012	4957	53	1	0
	2	18	109		6			4897	4851			
	3	18	107		7			4985	4926			
	4	18	105		8			4968	4917			
2	5	18	108	105	8	8	8	5012	4968	64	1	0
	6	19	106		9			5062	4972			
	7	18	104		7			5041	4963			
	8	19	102		7			5032	4989			
3	9	18	110	103	6	8	8	5074	5007	45	1	0
	10	19	100		8			5021	4989			
	11	19	101		7			5032	4992			
	12	18	102		9			5051	5012			
Average value for 3 tests				105			8				1	0

Conclusion: The material of the samples of finishing material, flexible tile on a sand-polymer composition of 3-5mm width - produced by LLC "IN-DEMAND" according to DSTU B B.2.7-19-95 (GOST 30244-94) is of group C1 (low combustibility).

Note:

1. The protocol № "1-Г3-19" relates only to the samples that were under testing.
2. The protocol is a complete document and can be rewritten only in full with the written confirmation from the LLC "SCIENTIFIC AND TESTING CENTER "EUROSTANDARD".
3. The document is valid for 3 years.

4. The copies of the protocols are valid only after being signed at the LLC "SCIENTIFIC AND TESTING CENTER "EUROSTANDARD".

Acting head of the laboratory

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