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FIRE AND RESCUE DEPARTMENT UNDER THE MINISTRY OF THE INTERIOR OF THE REPUBLIC OF LITHUANIA
FIRE RESEARCH CENTRE
PRODUCTS RESEARCH DIVISION

1. Introduction

This classification report defines the classification assigned to multiwall polycarbonate sheets "SOTEX", "SOTEX PRO", "SOTEX ECO", "SOTEX SOLID", "OSKAR", "BORREX", "BEROLUX", "ZEPPLAST", "IZOPOL", "CTM", "ECOPOL", "SOTALUX", "SOTALIGHT", "Siberian Greenhouse", "BAUGLAS ST", "BAUGLAS FSX" and "SOTOTHERM" in accordance with procedures given in LST EN 13501-1:2019

CLASSIFICATION OF REACTION TO FIRE IN ACCORDANCE WITH LST EN 13501-1:2019

Customer:	UG-OIL PLAST DOO BEOGRAD-SURČIN, Bobija Fišera str. 10, 11271 Surčin, Republic of Serbia Ph. +381 62442923
Prepared by:	Fire Research Centre Švitrigailos str. 18, LT-03223 Vilnius, Lithuania
Notified Body No.:	**1796**
Product name:	Multiwall polycarbonate sheets "SOTEX", "SOTEX PRO", "SOTEX ECO", "SOTEX SOLID", "OSKAR", "BORREX", "BEROLUX", "ZEPPLAST", "IZOPOL", "CTM", "ECOPOL", "SOTALUX", "SOTALIGHT", "Siberian Greenhouse", "BAUGLAS ST", "BAUGLAS FSX" and "SOTOTHERM"
Classification report No.:	20-2.2021.24N
Issue number:	Exemplar No. 1 *(Classification report was prepared only in English).*
Date of issue:	25th of February 2021
Base:	Contract of work performance No. 57-69(2GB/2KL) of 8th of August 2020. Request for assessment of performance, reg. No. 54-6/20

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2. Details of classified product

2.1 General

The product, "SOTEX", "SOTEX PRO", "SOTEX ECO", "SOTEX SOLID", "OSKAR", "BORREX", "BEROLUX", "ZEPPLAST", "IZOPOL", "CTM", "ECOPOL", "SOTALUX", "SOTALIGHT", "Siberian Greenhouse", "BAUGLAS ST", "BAUGLAS FSX" and "SOTOTHERM", is defined as light transmitting flat multiwall polycarbonate sheet for internal and external use in roofs, walls and ceilings in accordance with LST EN 16153:2013+A1:2015.

2.2 Product description

In accordance with customer declaration multiwall polycarbonate sheets "SOTEX", "SOTEX PRO", "SOTEX ECO", "SOTEX SOLID", "OSKAR", "BORREX", "BEROLUX", "ZEPPLAST", "IZOPOL", "CTM", "ECOPOL", "SOTALUX", "SOTALIGHT", "Siberian Greenhouse", "BAUGLAS ST", "BAUGLAS FSX" and "SOTOTHERM" have this the same mix-composition: polycarbonate granules "Makrolon ET3113" (manufacturer "Covestro") or "LEXAN 103R" (manufacturer "Sabic") and UV protective layer "Makrolon ETUV110" (manufacturer "Covestro") or "3XPCKU603900" (manufacturer "Kafrit"). Coloring of polycarbonate sheets: colorless – no colorant; transparent red, orange, green, light blue, dark blue, grey, black, brown, terracotta, yellow, claret, bronze – colorants' manufacturers "Clariant", "Basko" or "Kafrit"; opaque (not transparent) opal – colorant manufacturers "Clariant", "Basko" or "Kafrit".
Other multiwall polycarbonate sheets parameters in accordance with declaration of manufacturer are:

Identification of product	Nominal thickness, mm	Nominal mass per unit area, kg/m^2	Structure of sheet	Thickness of the UV protective layer, µm
SOTEX / SOTEX PRO/ SOTEX ECO/ SOTEX SOLID/ OSKAR/ BORREX/ BEROLUX/ ZEPPLAST/ IZOPOL/ CTM/ ECOPOL/ SOTALUX/ SOTALIGHT/ Siberian Greenhouse/ BAUGLAS ST/ BAUGLAS FSX/ SOTOTHERM	4	0,6	2R	40 on the top
	6	1	2R	40 on the top
	8	1,2	2R	40 on the top
	10	1,4	R	40 on the top
	16	2,4	5RX	50 on the top

Tests according to LST EN 13823:2020 and LST EN ISO 11925-2:2020 firstly were performed with products made from polycarbonate granules of different manufacturers, then tests were done ascertaining influence of UV layer (product of asymmetric construction), mass per unit area/thickness and the color of sheet.
4 mm sheets failed test LST EN ISO 11925-2:2020 with flame exposition 30 s, so then tests for 4 mm sheets were done with flame exposition period 15 s and separately was tested group with thickness 6 mm – 16 mm with flame exposition period 30 s.
For the tests according to LST EN 13823:2020 12 mm thick calcium silicate backing board was positioned behind each wing of the test assembly using spacers to give a maximum air gap between the rear surface of the specimen and the backing board.

3. Reports and results in support of classification

3.1 Reports

Name of Laboratory	Name of sponsor	Report ref. no.	Test method and date Field of application rules and date
Fire Research Centre Products Research Division	UG-OIL PLAST DOO BEOGRAD-SURČIN	20-5.2021.5	LST EN ISO 11925-2:2020
Fire Research Centre Products Research Division	UG-OIL PLAST DOO BEOGRAD-SURČIN	20-4.2021.3	LST EN 13823:2020

3.2 Results

Test method	Parameter	No. tests	Results	
			Continuous parameter – mean (m)	Compliance with parameters
LST EN ISO 11925-2 Surface flame attack, flame exposition period 30 s (sheets thickness 6 mm and 16 mm)	Fs≤150 mm within 60 s	12	Yes	Compliant
	Ignition of filter paper		No	Compliant
LST EN ISO 11925-2 Surface flame attack, flame exposition period 15 s (sheets thickness 4 mm)	Fs≤150 mm within 20 s	10	Yes	Compliant
	Ignition of filter paper		No	Compliant
LST EN 13823 (sheets thickness 16 mm)	$FIGRA_{0,2MJ} \leq 120$ W/s LFS<edge of specimen $THR_{600s} \leq 7,5$ MJ	3	2 Yes 0,3	Compliant Compliant Compliant
	SMOGRA ≤ 30 m²/s² $TSP_{600s} \leq 50$ m²		2 18	Compliant Compliant
	Within 600 s there are any flaming droplets/particles		Yes	Compliant

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with LST EN 13501-1:2019 chapter 11.

4.2 Classification

The product, "SOTEX", "SOTEX PRO", "SOTEX ECO", "SOTEX SOLID", "OSKAR", "BORREX", "BEROLUX", "ZEPPLAST", "IZOPOL", "CTM", "ECOPOL", "SOTALUX", "SOTALIGHT", "Siberian Greenhouse", "BAUGLAS ST", "BAUGLAS FSX" and "SOTOTHERM" with nominal sheet thickness ≥ 6 mm and ≤ 16 mm, in relation to its reaction to fire behaviour is classified:

B

Additional classifications for smoke production:

s1

The additional classification in relation to flaming droplets/particles is:

d0

The format of reaction to fire classification construction products excluding floorings and linear pipe thermal insulation products is:

Fire behaviour		Smoke production			Flaming droplets	
B	-	s	1	,	d	0

i.e. B-s1,d0

Reaction to fire classification: B-s1,d0

The product, "SOTEX", "SOTEX PRO", "SOTEX ECO", "SOTEX SOLID", "OSKAR", "BORREX", "BEROLUX", "ZEPPLAST", "IZOPOL", "CTM", "ECOPOL", "SOTALUX", "SOTALIGHT", "Siberian Greenhouse", "BAUGLAS ST", "BAUGLAS FSX" and "SOTOTHERM" with nominal sheet thickness 4 mm, in relation to its reaction to fire behaviour is classified:

E

The format of reaction to fire classification construction products excluding floorings and linear pipe thermal insulation products is:

Fire behaviour		Smoke production			Flaming droplets	
E	-	-	-	,	-	-

i.e. E

Reaction to fire classification: E

4.3 Field of application

This classification is valid only for in chapter 2.2 listed product parameters for the following end use application:

- product shall be mounted on any metal frame or on not less than A2-s1,d0 reaction to fire class according to LST EN 13501-1 substrate with density ≥ 615 kg/m^3, thickness ≥ 12 mm with air gap between product and substrate ≥ 80 mm.

5. Limitations

This classification document does not represent certification of the product.

The classification assigned to the product in this report is appropriate to a declaration of performance by the manufacturer within the context of AVoCP (assessment and verification of constancy of performance) system 3 and CE marking under the Construction Product Regulation (EU) No. 305/2011.

The manufacturer has made a declaration, which is held on file. This confirms that the products design requires no specific processes, procedures or stages that are aimed at enhancing the fire performance in order to obtain the classification achieved. As a consequence, the manufacturer has concluded that AVoCP system 3 is appropriate.

The test laboratory has, therefore, played no part in sampling the product for the test, although it holds appropriate references, supplied by the manufacturer, to provide for traceability of the samples tested and manufacturer obligation for ensuring a future stability of production submitted for assessment of performance.

Classification Report prepared by:

Chief Specialist
Aurelija Kindurienė

Classification Report approved by:

Chief Specialist
Andrejus Jefimovas

Gaisrinių tyrimų centras

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FIRE AND RESCUE DEPARTMENT UNDER THE MINISTRY OF THE INTERIOR OF THE REPUBLIC OF LITHUANIA

FIRE RESEARCH CENTRE
PRODUCTS RESEARCH DIVISION

TEST REPORT
No. 20-5.2021.5

DATE OF ISSUE	23rd of February 2021
TEST METHOD	LST EN ISO 11925-2:2020 Reaction to fire tests – Ignitability of products subjected to direct impingement of flame – Part 2: Single-flame source test (ISO 11925-2:2020)
CUSTOMER	UG-OIL PLAST DOO BEOGRAD-SURČIN, Bobija Fišera str. 10, 11271 Surčin, Republic of Serbia Ph. +381 62442923
OBJECT	Multiwall polycarbonate sheets "BEROLUX", "BAUGLAS ST", "SOTALUX" and "CTM"
PRODUCER	UG-OIL PLAST DOO BEOGRAD-SURČIN
BASE	Contract of work performance No. 57-69(2GB/2KL) of 8th of August 2020. Request for assessment of performance, reg. No. 54-6/20
ISSUE	Exemplar No. 1 *(Test report was prepared only in English)*
TEST DATE	18th of February 2021
TEST PLACE	Miško str. 7, Valčiūnai vil., LT-13221, Vilnius distr., Lithuania

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OBJECT DESCRIPTION

Multiwall polycarbonate sheets parameters in accordance with declaration of manufacturer listed in Table 1.

Table 1

Identification of product (specimen No.)	Nominal thickness, mm	Nominal mass per unit area, kg/m²	Thickness of the UV protective layer, µm	Raw material name	Color	Colorant
BEROLUX (Table 2, specimens No.: 3 and 4; Table 3, specimens No.: 1, 2, 5 and 6)	4	0,6	40 µm on the top	1. Polycarbonate granules: "Makrolon ET3113" (manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (manufacturer "Covestro")	colorless	-
BEROLUX (Table 2, specimens No.: 1 and 2; Table 3, specimens No.: 3 and 4)				1. Polycarbonate granules: "LEXAN 103R" (manufacturer "Sabic") 2. UV protective layer: "Makrolon ETUV110" (manufacturer "Covestro")		
BEROLUX (Table 2, specimen No.5; Table 3, specimens No.: 7 and 8)				1. Polycarbonate granules: "Makrolon ET3113" (manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (manufacturer "Covestro")	opal (opaque)	opal, (manufacturer "Clariant")
BAUGLAS ST (Table 2, specimen No.6; Table 3, specimens No.: 9 and 10)				1. Polycarbonate granules: "Makrolon ET3113" (manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (manufacturer "Covestro")	grey (transparent)	grey, (manufacturer "Kafrit")
CTM (Table 4, specimens No.: 1, 2, 5 and 6)	6	1,0		1. Polycarbonate granules: "Makrolon ET3113" (manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (manufacturer "Covestro")	bronze (transparent)	bronze, (manufacturer "Kafrit")
CTM (Table 4, specimens No.: 3 and 4)				1. Polycarbonate granules: "LEXAN 103R" (manufacturer "Sabic") 2. UV protective layer: "Makrolon ETUV110" (manufacturer "Covestro")		
CTM (Table 4, specimens No.: 7 and 8)				1. Polycarbonate granules: "Makrolon ET3113" (manufacturer "Covestro") 2. UV protective layer: "3XPCKU603900" (manufacturer "Kafrit")	opal (opaque)	opal, (manufacturer "Clariant")
SOTALUX (Table 4, specimens No.: 9 and 10)				1. Polycarbonate granules: "Makrolon ET3113" (manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (manufacturer "Covestro")	colorless	-
CTM (Table 4, specimens No.: 11 and 12)	16	2,4	50 µm on the top	1. Polycarbonate granules: "Makrolon ET3113" (manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (manufacturer "Covestro")	bronze (transparent)	bronze, (manufacturer "Kafrit")

SAMPLING ORDER OF OBJECT

In accordance with Manufacturer Declaration of 11th of December 2020 the object was sampled by customer, production address Magnetna polja bb, 2400 Subotica, Republic of Serbia, number and date of production "BEROLUX" (colorless, made from "Makrolon ET3113" No. 36, 28.06.2020; colorless, made from "LEXAN 103R" No. 60, 21.08.2020; opal, No. 50, 01.08.2020), "BAUGLAS ST" (No. 56, 14.08.2020), "CTM" (6 mm bronze, made from "Makrolon ET3113" and 6 mm bronze, made from "LEXAN 103R", and 6 mm opal, made from "Makrolon ET3113", and 16 mm bronze, made from "Makrolon ET3113" No. 56, 14.08.2020) and "SOTALUX" (No. 36, 28.06.2020).

DATE OF OBJECT DELIVERY

27th of October and 11th of November 2020.

SPECIMENS PREPARATION

28 pieces of specimens which dimensions were 250 mm × 90 mm (length × width) were prepared by customer.

SPECIMENS CONDITIONING

Conditioning time: longer than 2 weeks;
Relative humidity: (50 ± 5) %;
Ambience temperature: (23 ± 2) °C.

TEST CONDITIONS

Ambient temperature: 22 °C; relative humidity: 64 %; air velocity: 0,72 m/s.

TEST PURPOSE

1. Determination of ignition;
2. Whether the flame tip reaches 150 mm limit;
3. Time when the flame tip reaches 150 mm limit;
4. Ignition of filter paper;
5. Physical properties of specimen.

TEST RESULTS

According to the standard LST EN 16153:2013+A1:2015 point 5.8.2 the flame was applied only to the surface of the test specimen, specimens were tested with air channels in a vertical direction, the channels were closed with aluminium foil on top and bottom to prevent chimney effect.
Test results are given in Tables 2-4.

Table 2. Sheet thickness 4 mm, flame exposition period 30 s

Parameters	Specimen No.					
	1	2	3	4	5	6
Ignition of specimen (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes
Flame spread to 150 mm limit (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes
Time of flame spread to 150 mm limit, s	42	41	39	37	33	52
Ignition of filter paper (Yes/No)	No	No	No	No	No	No

No. 1 and No. 3 – UV side; No. 2, No. 4-6 – not UV side.

Table 3. Sheet thickness 4 mm, flame exposition period 15 s

Parameters	Specimen No.									
	1	2	3	4	5	6	7	8	9	10
Ignition of specimen (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Flame spread to 150 mm limit (Yes/No)	No	No	No	No	No	No	No	No	No	No
Time of flame spread to 150 mm limit, s	-	-	-	-	-	-	-	-	-	-
Ignition of filter paper (Yes/No)	No	No	No	No	No	No	No	No	No	No

No. 5 and No. 6 – UV side; No. 1-4 and No. 7-10 – not UV side.

Table 4. Sheet thickness 6 mm and 16 mm, flame exposition period 30 s

Parameters	Specimen No.											
	1	2	3	4	5	6	7	8	9	10	11	12
Ignition of specimen (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Flame spread to 150 mm limit (Yes/No)	No	No	No	No	No	No	No	No	No	No	No	No
Time of flame spread to 150 mm limit, s	-	-	-	-	-	-	-	-	-	-	-	-
Ignition of filter paper (Yes/No)	No	No	No	No	No	No	No	No	No	No	No	No

No. 5 and No. 6 – UV side; No. 1-4 and No. 7-12 – not UV side.

DEFLECTION FROM TEST METHOD

No deflection from test method.

TEST OBSERVATIONS

In case of specimens, which results are presented in table 2, all specimens were flaming and were extinguished after 60 s; the soot shorts longer than 150 mm limit were formed; specimens didn't emit any droplets.

In case of specimens, which results are presented in table 3, all specimens were flaming and were extinguished after 20 s; specimens didn't emit any droplets.

In case of specimens, which results are presented in table 4, all specimens were flaming; specimens No. 7, 8 and 10 were extinguished after 60 s; specimens No. 1, 2, 3, 4 and 9 extinguished itself in 50 s – 59 s; specimens No. 5 and 6 extinguished itself in 24 s – 25 s; specimens No. 11 and 12 extinguished itself in 44 s – 47 s; specimens No. 2 and 3 emitted per one droplet, but they didn't caused ignition of filter paper, other specimens didn't emit any droplets.

DECLARATION

The test results relate only to the behaviour of the test specimen of a product under particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard in use.

NOTE

For this test method the flexible accreditation procedure was applied.

Tests were performed and report made by:
Chief Specialist Aurelija Kindurienė

Report approved by:
Technical Manager Vitold Kostiukevič

Chief Specialist Andrejus Jefimovas

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FIRE AND RESCUE DEPARTMENT UNDER THE MINISTRY OF THE INTERIOR OF THE REPUBLIC OF LITHUANIA

FIRE RESEARCH CENTRE
PRODUCTS RESEARCH DIVISION

LIETUVOS NACIONALINIS AKREDITACIJOS BIURAS
BANDYMAI ISO/IEC 17025 Nr. LA.01.032

TEST REPORT
No. 20-4.2021.3

DATE OF ISSUE	25th of February 2021
TEST METHOD	LST EN 13823:2020 "Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by a single burning item".
CUSTOMER	UG-OIL PLAST DOO BEOGRAD-SURČIN, Bobija Fišera str. 10, 11271 Surčin, Republic of Serbia Ph. +381 62442923
OBJECT	Multiwall polycarbonate sheets "BEROLUX" and "CTM".
PRODUCER	UG-OIL PLAST DOO BEOGRAD-SURČIN
BASE	Contract of work performance No. 57-69(2GB/2KL) of 8th of August 2020. Request for assessment of performance, reg. No. 54-6/20
ISSUE	Exemplar No. 1 *(Test report was prepared only in English)*
TEST DATE	22nd and 23rd of February 2021
TESTING PLACE	Miško str. 7, Valčiūnai vil., LT-13221, Vilnius distr., Lithuania

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OBJECT DESCRIPTION

Multiwall polycarbonate sheets parameters in accordance with declaration of manufacturer are:

Identification of product (specimen No.)	Thickness, mm	Mass per unit area, kg/m^2	Thickness of the protective UV layer (cap layer), µm	Composition of sheets	Color	Colorant
CTM Specimen No. 1	16	2,40	50 µm on the top	1. Polycarbonate granules "LEXAN 103R" (basic, manufacturer "Sabic") 2. UV protective layer "Makrolon ETUV110" (cap layer, manufacturer "Covestro")	colorless	-
CTM Specimens No. 2 and No. 3	16	2,40	50 µm on the top	Polycarbonate granules: "Makrolon ET3113" (basic, manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (cap layer, manufacturer "Covestro")	colorless	-
BEROLUX Specimen No. 4	4	0,6	40 µm on the top	Polycarbonate granules: "Makrolon ET3113" (basic, manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (cap layer, manufacturer "Covestro")	colorless	-
CTM Specimen No. 5	16	2,40	50 µm on the top	Polycarbonate granules: "Makrolon ET3113" (basic, manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (cap layer, manufacturer "Covestro")	bronze (transparent)	bronze, (manufacturer "Kafrit")
CTM Specimen No. 6	16	2,40	50 µm on the top	Polycarbonate granules: "Makrolon ET3113" (basic, manufacturer "Covestro") 2. UV protective layer: "3XPCKU603900" (cap layer, manufacturer "Kafrit")	opal (opaque)	opal, (manufacturer "Basko")

SELECTION ORDER OF TESTING OBJECT

In accordance with Manufacturer Declaration of 11th of December 2020 the object was sampled by customer, production address Magnetna polja bb, 24000 Subotica, Republic of Serbia, number and date of production "BEROLUX" (4 mm thickness, colorless, made from "Makrolon ET3113" No. 36, 28.06.2020; "CTM" (16 mm thickness, colorless, made from "LEXAN 103R") No. 51, 03.08.2020; "CTM" (16 mm thickness, bronze and opal, made from "Makrolon ET3113") No. 56, 14.08.2020.

DATE OF SAMPLES DELIVERY

27th of October and 11th of November 2020

SAMPLES CONDITIONING

Conditioning time: >2 weeks.
Relative humidity: (50 ± 5) %.
Ambience temperature: (23 ± 2) °C.

SPECIMENS PREPARATION

Specimens were prepared by customer. Specimens (6 pcs.) concludes of a long wing 1,0 m x 1,5 m and short wing 0,5 m x 1,5 m. Specimens were prepared in accordance with requirements of LST EN 16153:2013+A1:2015 5.8 chapter.
12 mm thick calcium silicate backing board, which meets the requirements of LST EN 13238:2010 standard calcium silicate board base, was positioned behind each wing of the test assembly using spacers to give a maximum air gap between the rear surface of the specimen and the backing board.
Specimen No. 1 – 16 mm thickness multiwall polycarbonate sheet made from "LEXAN 103R" was tested from not UV side.
Specimen No. 2 – 16 mm thickness multiwall polycarbonate sheets made from "Makrolon ET3113" was tested from not UV side.
Specimen No. 3 – 16 mm thickness multiwall polycarbonate sheets made from "Makrolon ET3113" was tested from UV side.
Specimen No. 4 – 4 mm thickness multiwall polycarbonate sheets made from "Makrolon ET3113" was tested from not UV side
Specimen No. 5 bronze color and No. 6 opal color – 16 mm thickness multiwall polycarbonate sheets made from "Makrolon ET3113" were tested from not UV side.
Pictures of testing object before the test and after the test are given in annex B.

TEST CONDITIONS

Test No.	1	2	3	4	5	6
Testing date	22-02-2021	22-02-2021	22-02-2021	22-02-2021	23-02-2021	23-02-2021
Ambient temperature [°C]	18	20	20	20	21	19
Relative humidity [%]	37	35	35	42	33	41
Ambient pressure [kPa]	101	100	100	100	101	101

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MEASURED PARAMETERS

$FIGRA_{0,2\ MJ}$ – maximum of the quotient of heat release rate from the specimen and the time of its occurrence using a THR threshold of 0,2 MJ, W/s;

$FIGRA_{0,4\ MJ}$ – maximum of the quotient of heat release rate from the specimen and the time of its occurrence using a THR threshold of 0,4 MJ, W/s;

THR_{600s} – total heat release from the specimen in the first 600 s of exposure to the main (primary) burner flames, MJ;

TSP_{600s} – total smoke production from the specimen in the first 600 s of exposure to the main (primary) burner flames, m^2;

SMOGRA (smoke growth rate) – maximum of the quotient of smoke production rate from the specimen and the time of its occurrence, m^2/s^2;

$FDP_{f\leq 10s}$ – the fall of a flaming droplet/particle, in the given time interval and area, that remains flaming for not more than 10 s after falling;

$FDP_{f>10s}$ – the fall of a flaming droplet/particle, in the given time interval and area, that remains flaming for more than 10 s after falling;

LFS – lateral flame spread on the long specimen wing.

TEST RESULTS

Test results are given in the table and testing graphical charts in the annex A.

Measured parameters	Test No.						
	1	2*	3	4	5*	6*	Average
$FIGRA_{0,2\ MJ}$ [W/s]	0,0	0,0	0,0	0,0	0,0	5,5	2
$FIGRA_{0,4\ MJ}$ [W/s]	0,0	0,0	0,0	0,0	0,0	5,5	2
THR_{600s} [MJ]	0,2	0,3	0,2	0,1	0,1	0,5	0,3
SMOGRA [m^2/s^2]	0,0	3,5	0,0	0,0	2,0	1,9	2
TSP_{600s} [m^2]	9,4	20,1	12,8	9,3	14,2	20,0	18
$FDP_{f\leq 10s}$	No	No	No	No	No	No	No
$FDP_{f>10s}$	No	No	No	No	No	No	No
LFS	No	No	No	No	No	No	No

*- test results included in the average calculation.

RUN OF THE TEST

00 min. 00 s – start of test,
05 min. 00 s – main burner is on,
26 min. 00 s – main burner is switched off,
27 min. 05 s – end of data registration.

OBSERVATIONS MADE DURING THE TEST

After the main burner is on, specimen's surface which was touched by flame was smelting for a couple of minutes.

DEVIATIONS FROM THE TEST METHOD

There were no deviations from the test method

DECLARATION

The test results relate only to the behaviour of the test specimen of a product under particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard in use.

NOTE

For this test method the flexible accreditation procedure was applied.

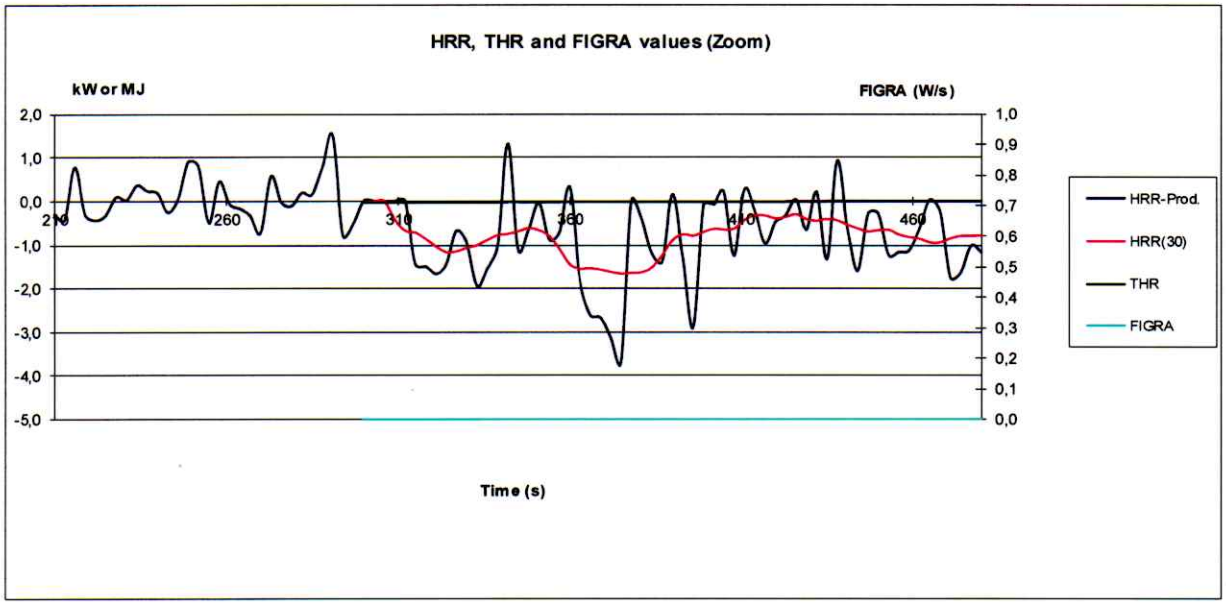
Tests performed and report prepared by:
Chief Specialist — Valdas Striška

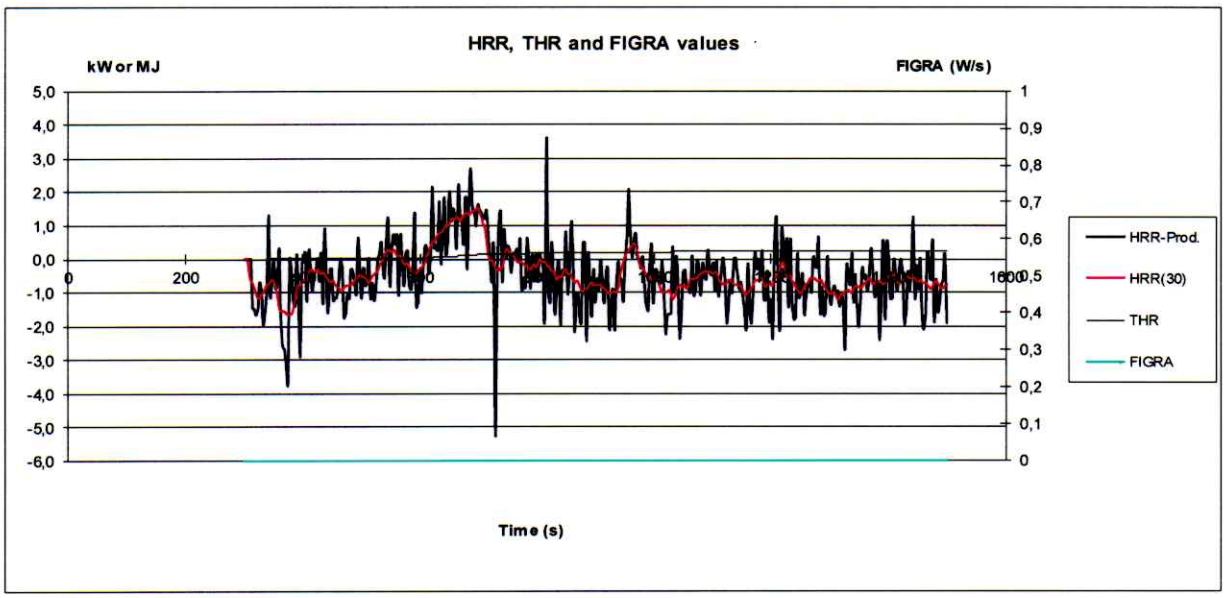
Test report approved by:
Technical Manager — Vitold Kostiukevič

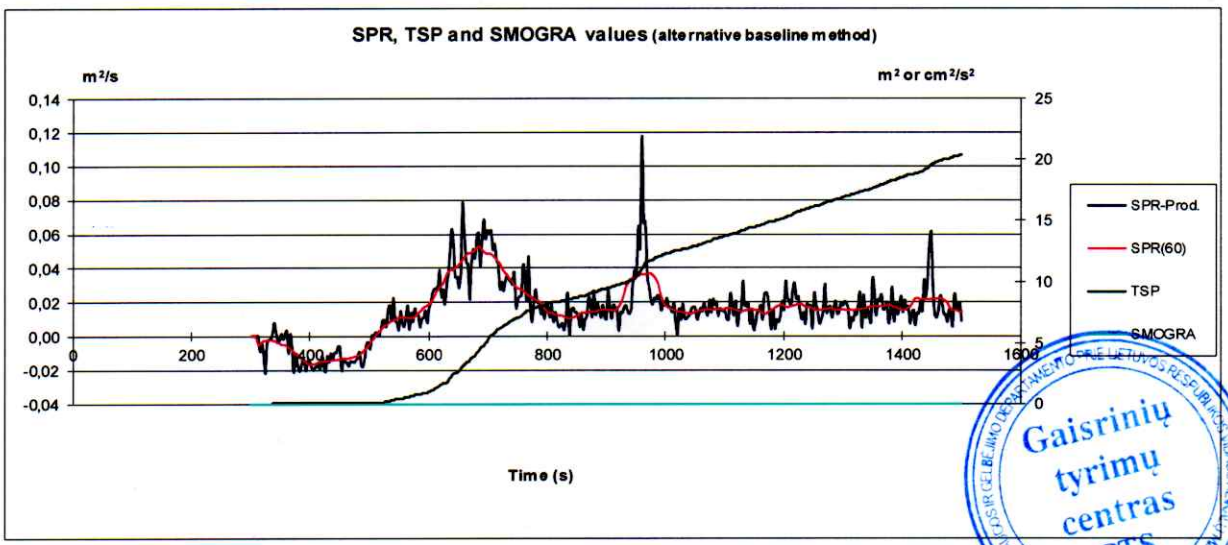
Chief Specialist — Andrejus Jefimovas

Annex A

Test 1

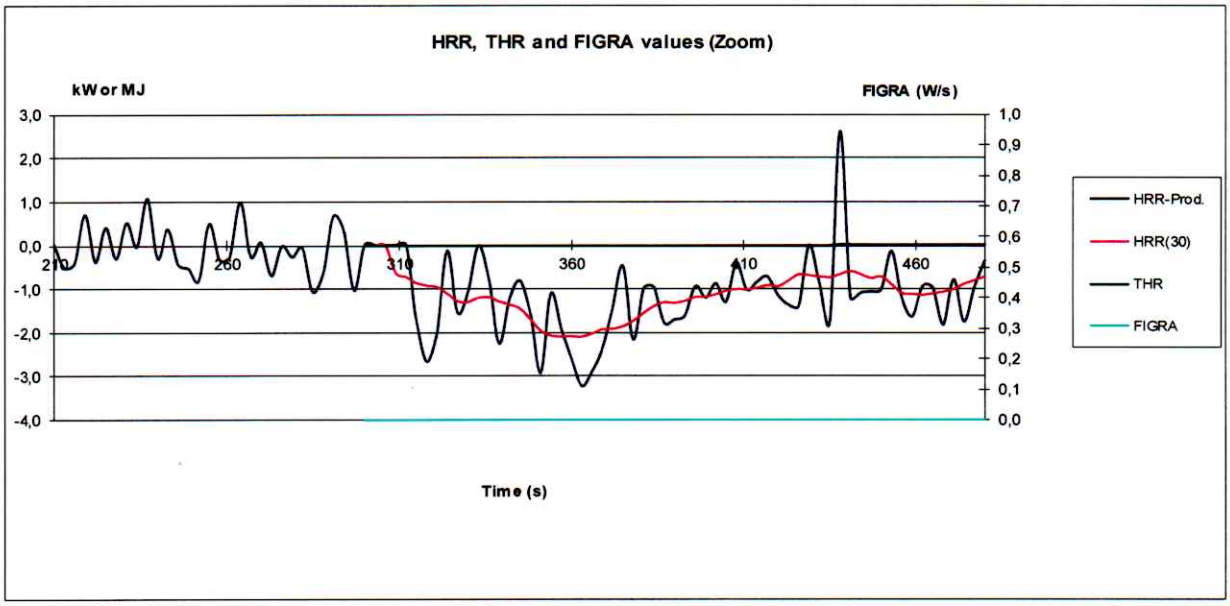


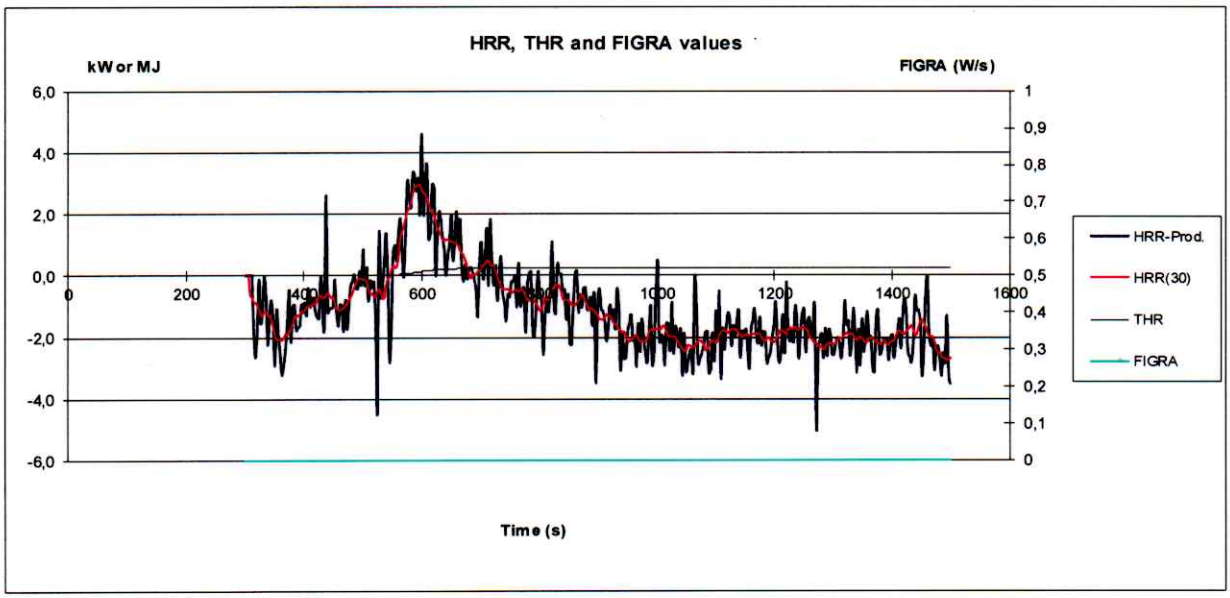


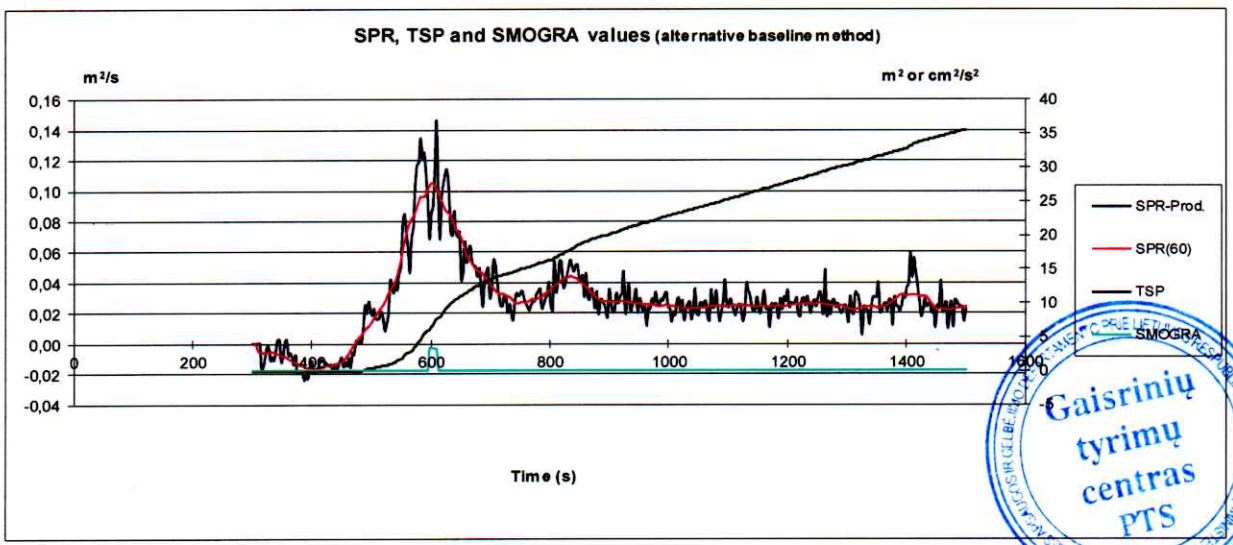


Annex A

Test 2

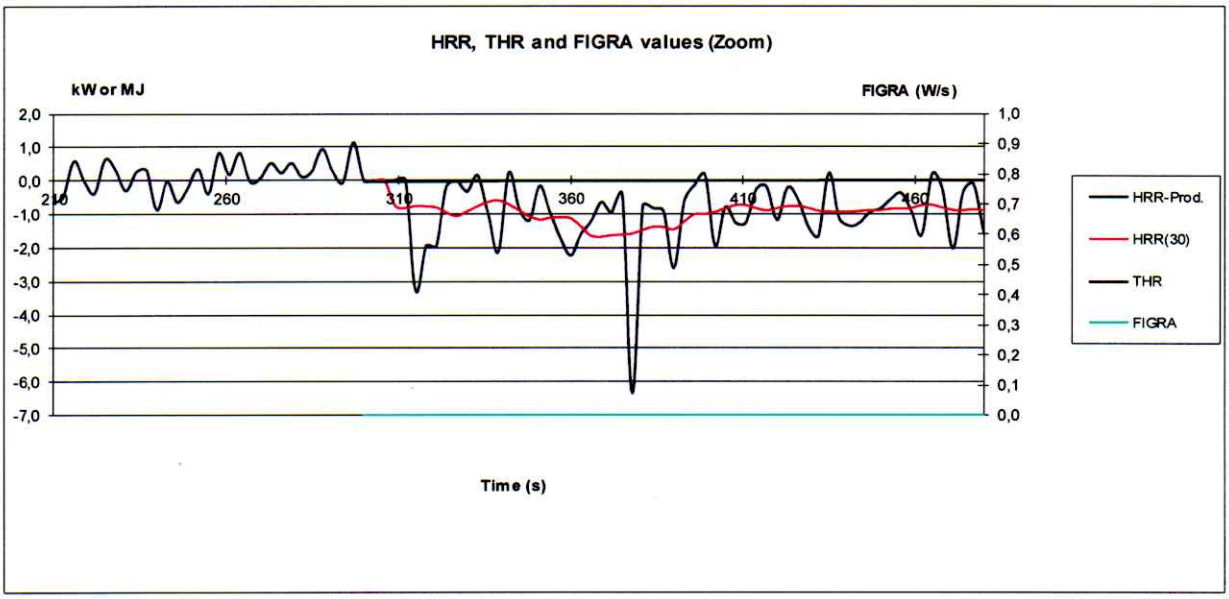


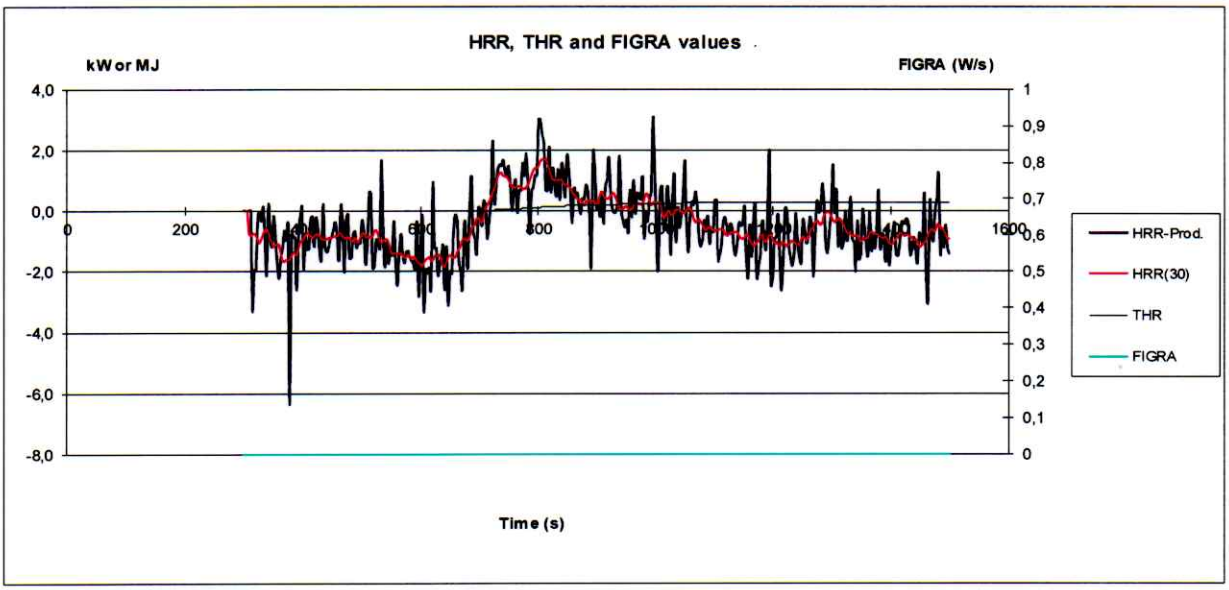


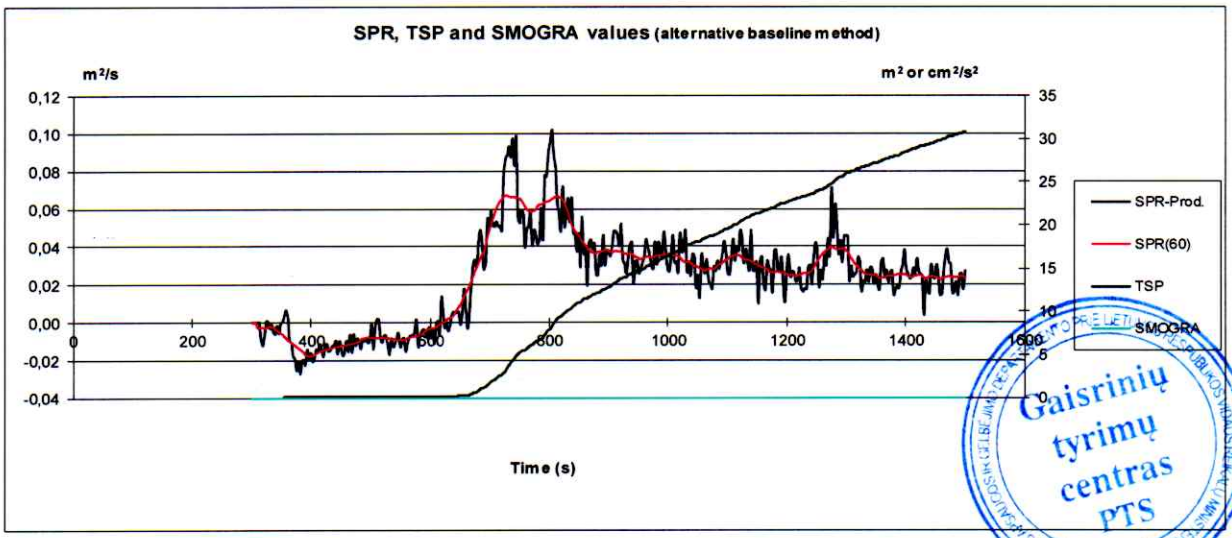


Annex A

Test 3

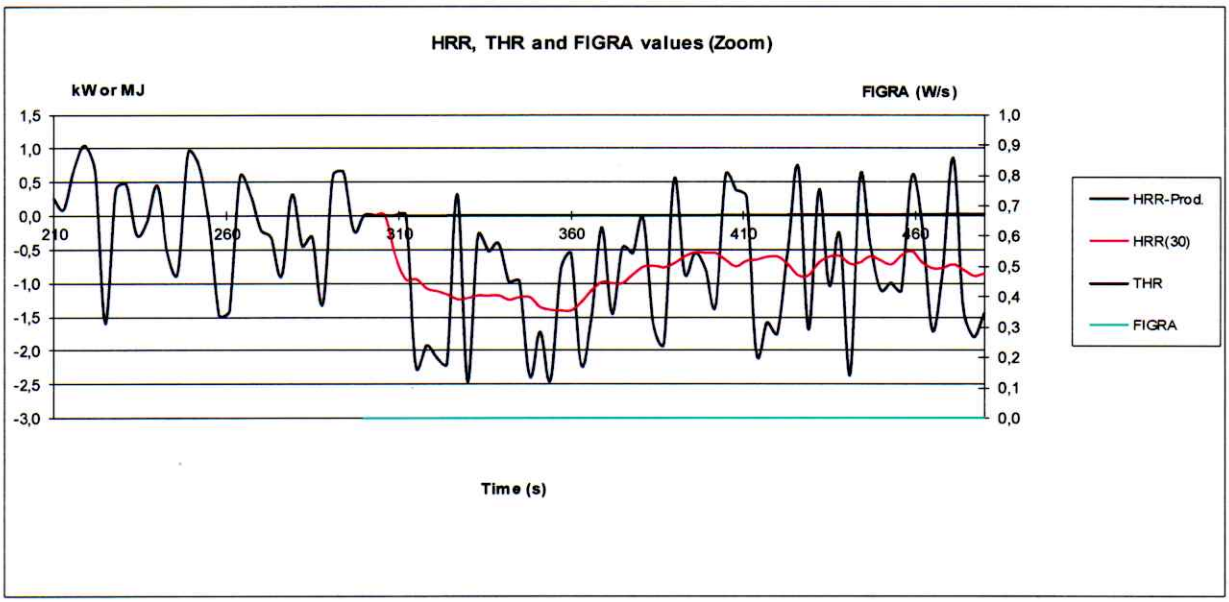


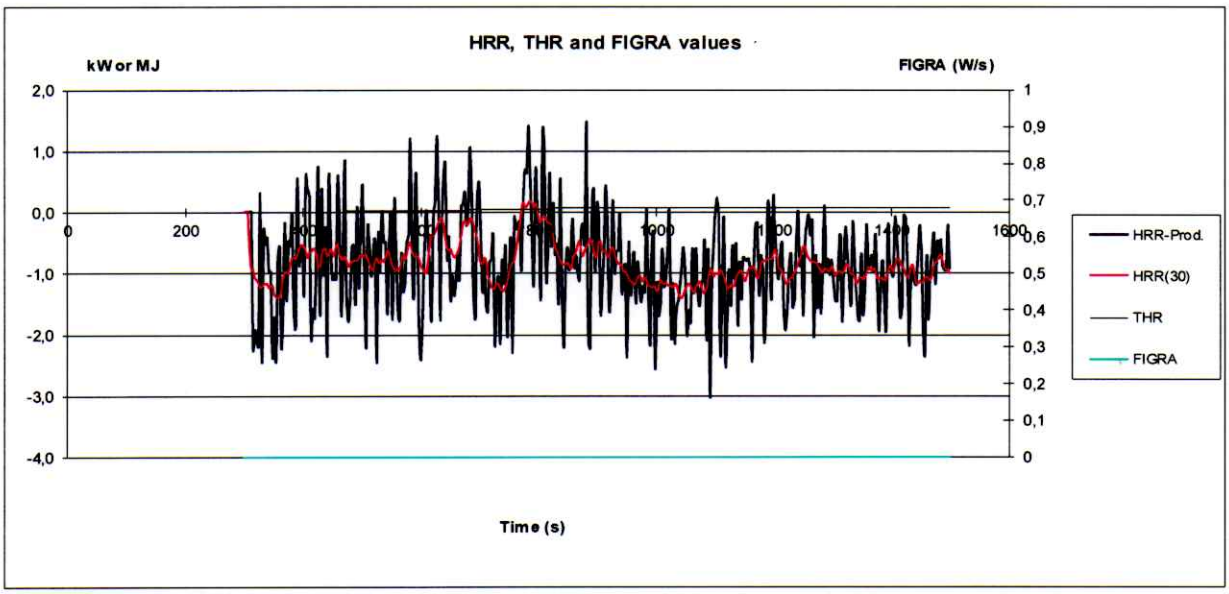


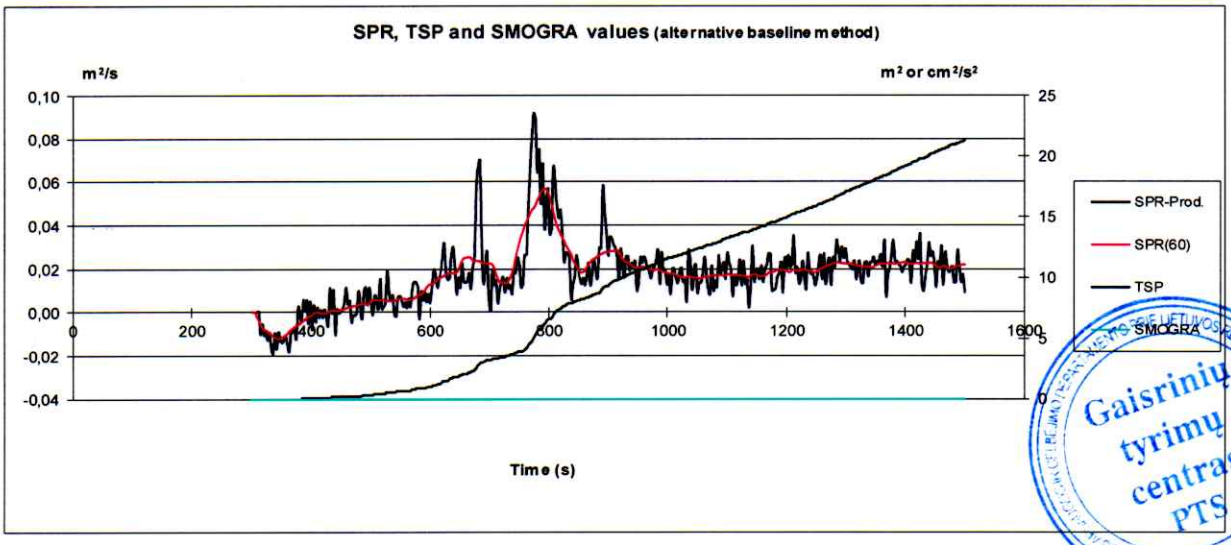


Annex A

Test 4

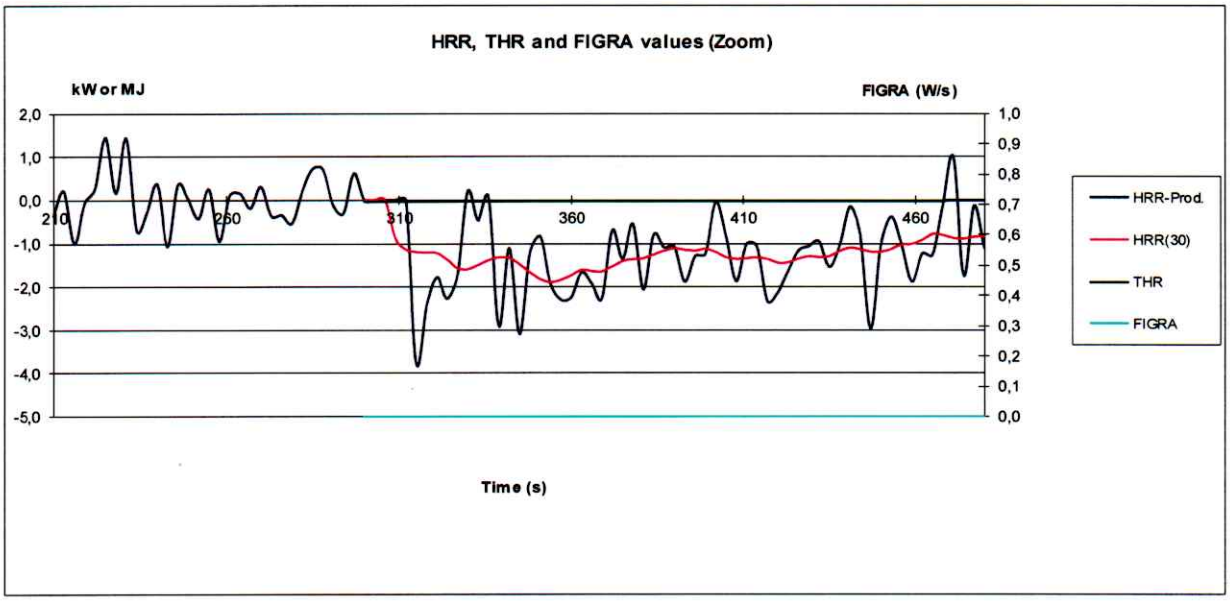


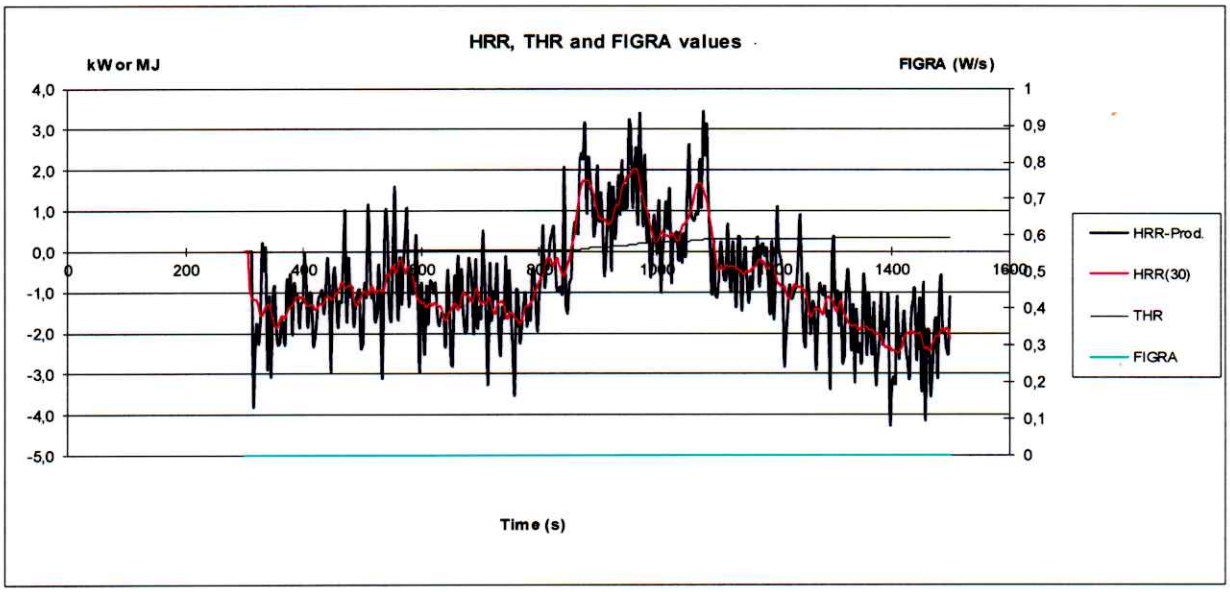


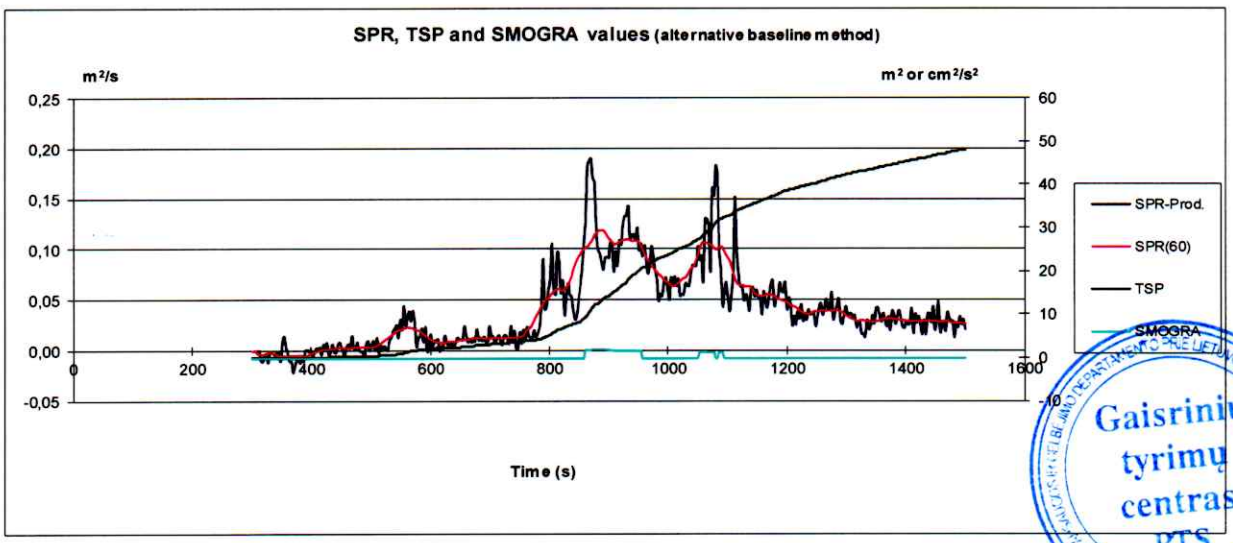


Annex A

Test 5

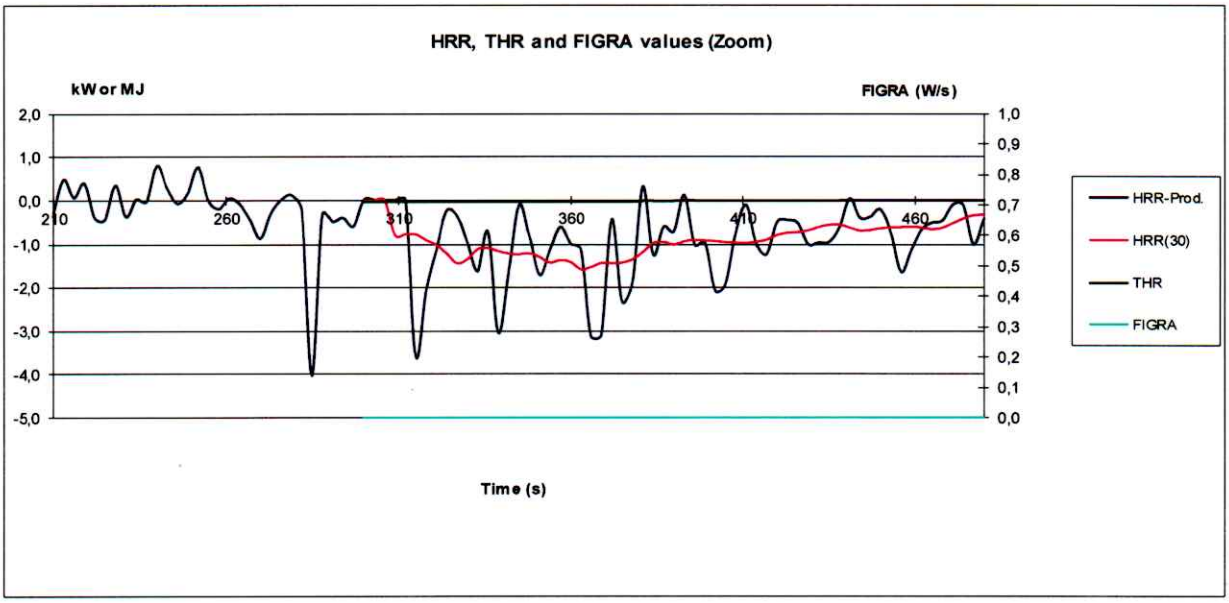


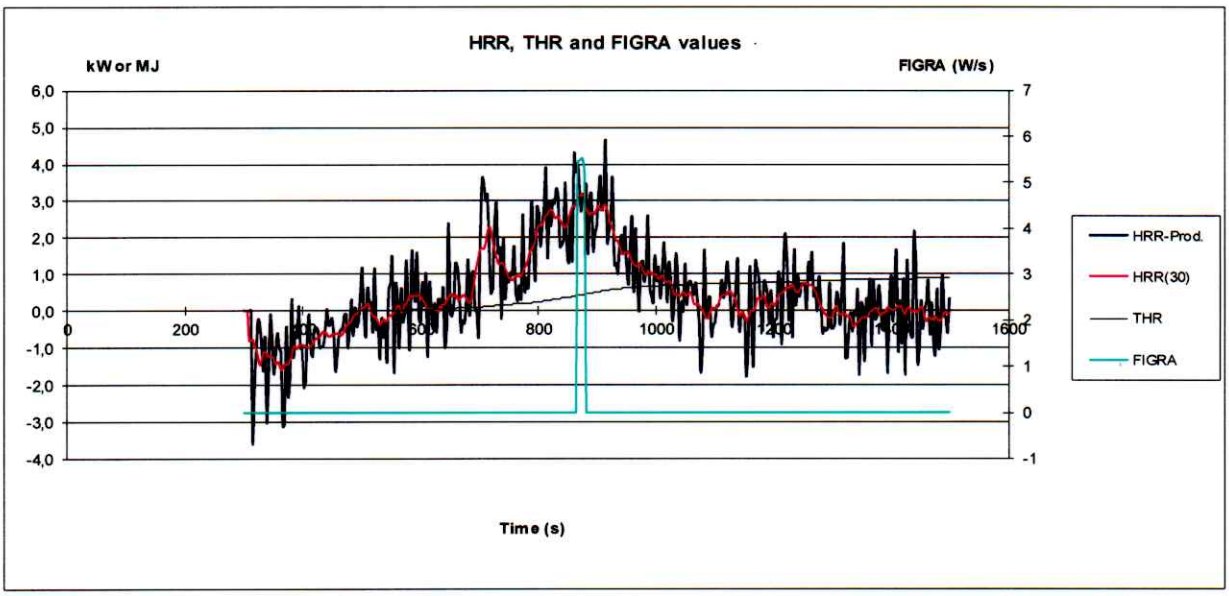


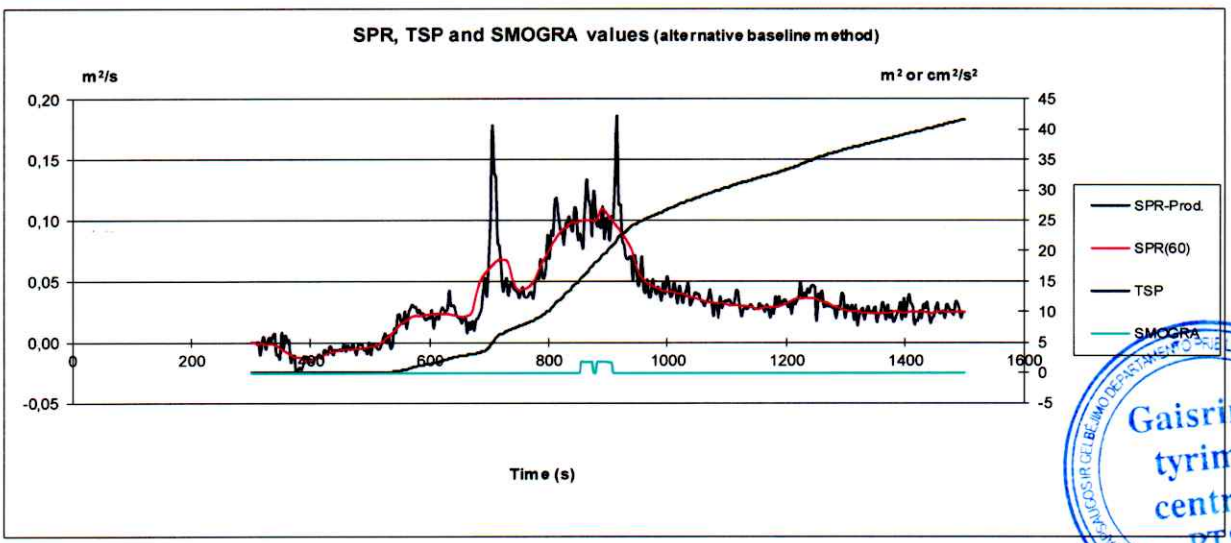


Annex A

Test 6







Annex B

Fig. 1. Specimen No. 1 sight of long wing

Fig. 2. Specimen No. 1 sight of both wings

Fig. 3. Specimen No. 1 sight of testing sample after the test

Gaisrinių tyrimų centras PTS

Annex B

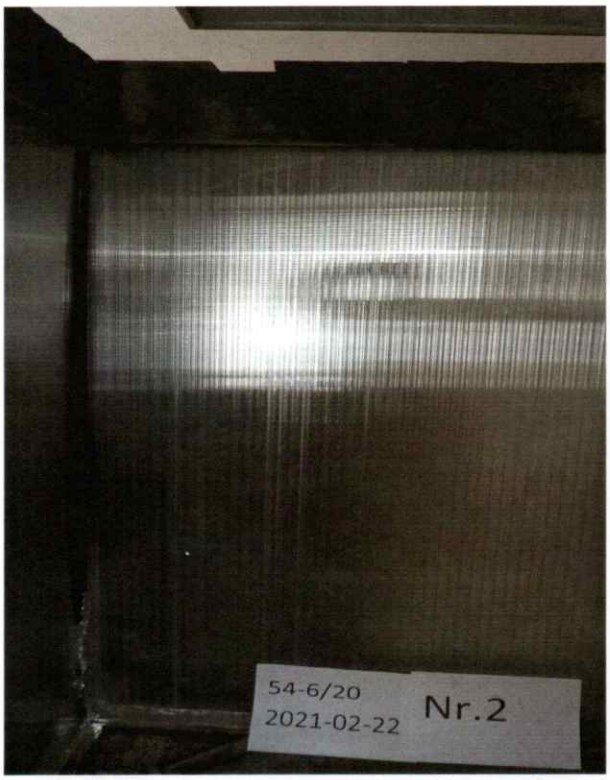


Fig. 4. Specimen No. 2 sight of long wing

Fig. 5. Specimen No. 2 sight of both wings

Fig. 6. Specimen No. 2 sight of testing sample after the test

Annex B

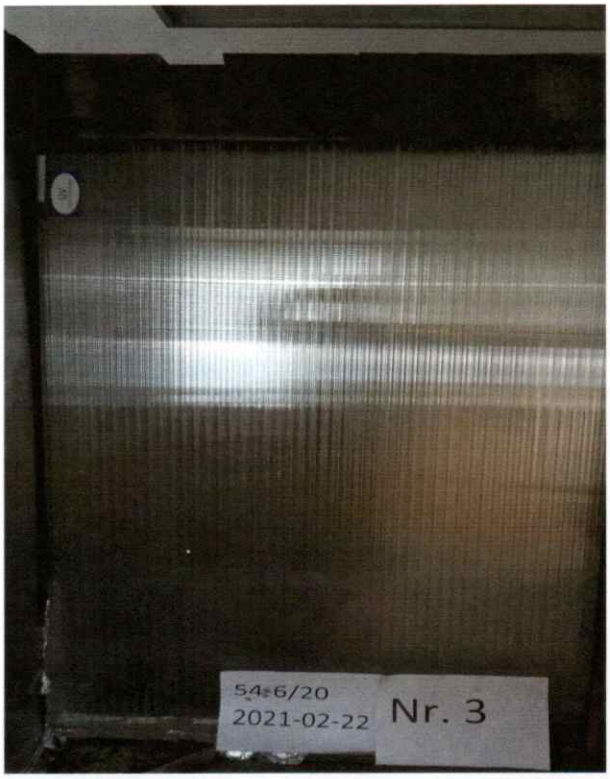


Fig. 7. Specimen No. 3 sight of long wing

Fig. 8. Specimen No. 3 sight of both wings

Fig. 9. Specimen No. 3 sight of testing sample after the test

Annex B

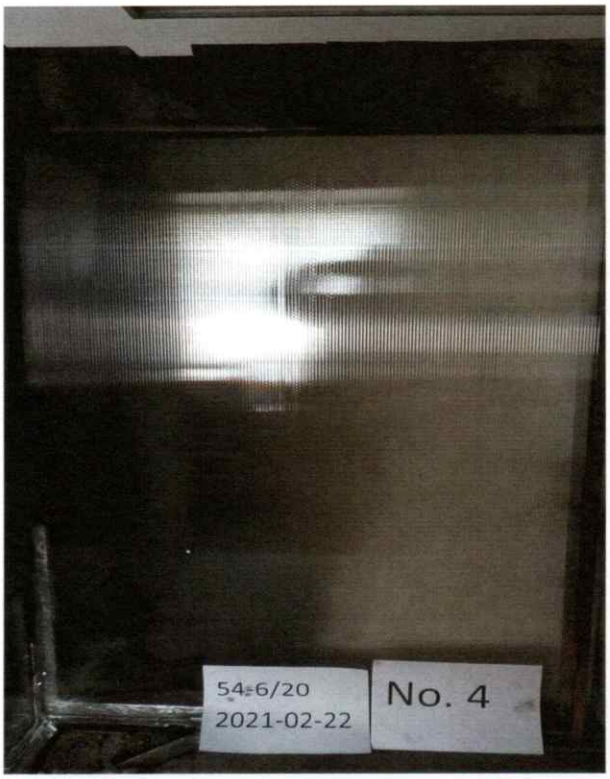


Fig. 10. Specimen No. 4 sight of long wing

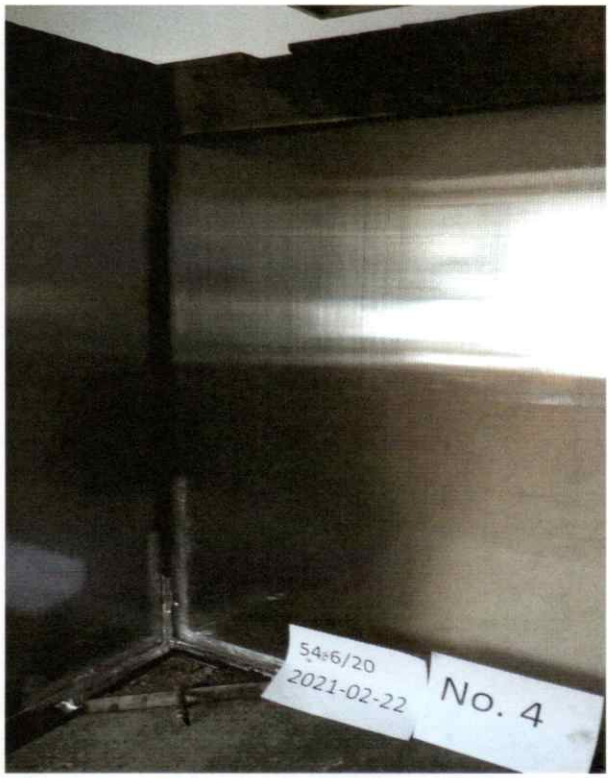


Fig. 11. Specimen No. 4 sight of both wings

Fig. 12. Specimen No. 4 sight of testing sample after the test

Annex B

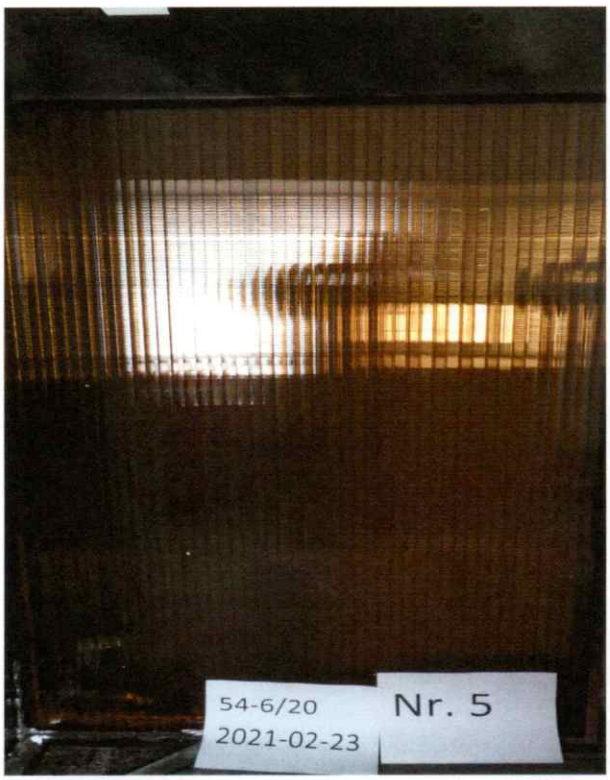


Fig. 13. Specimen No. 5 sight of long wing

Fig. 14. Specimen No. 5 sight of both wings

Fig. 15. Specimen No. 5 sight of testing sample after the test

Annex B

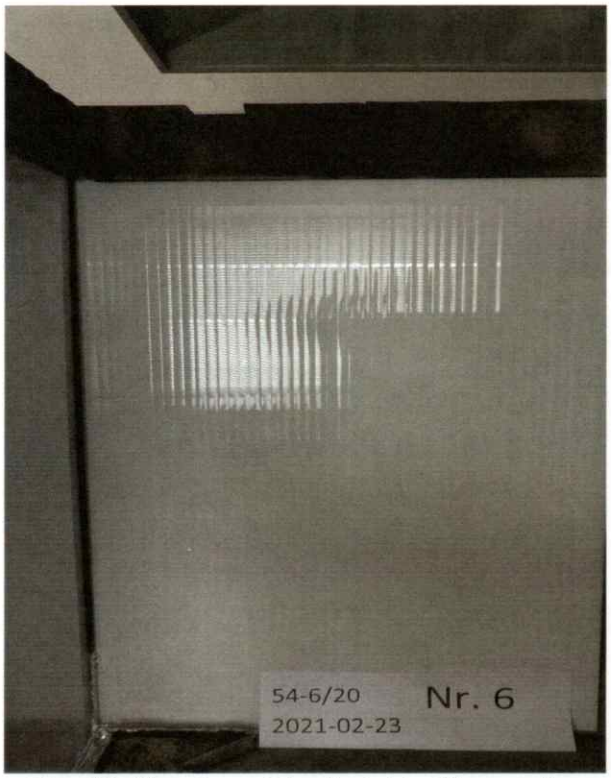


Fig. 16. Specimen No. 6 sight of long wing

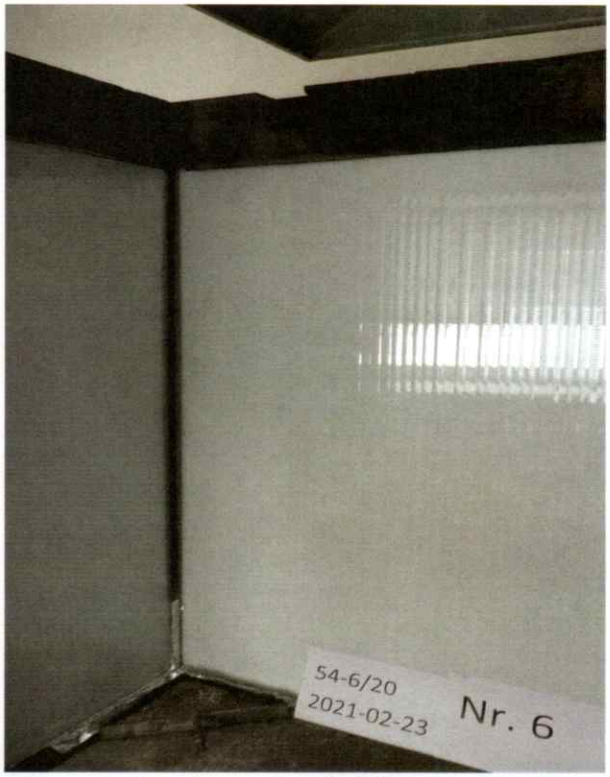


Fig. 17. Specimen No. 6 sight of both wings

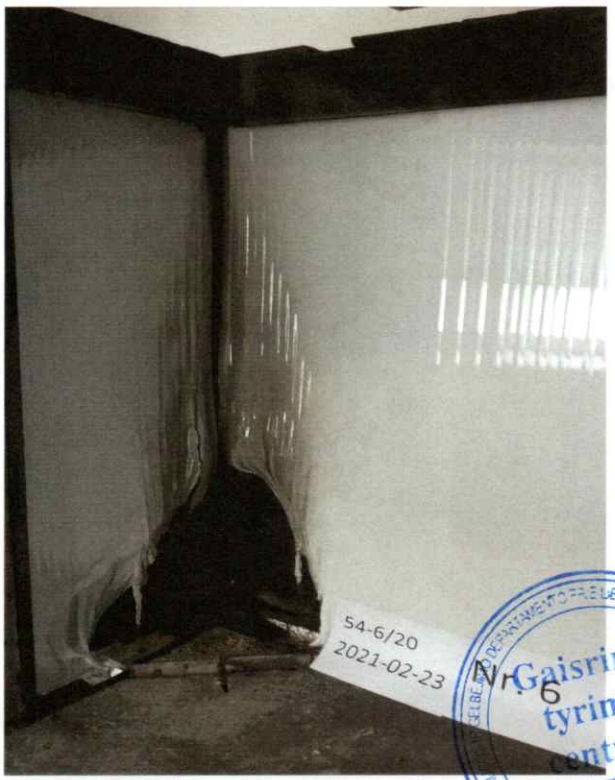


Fig. 18. Specimen No. 6 sight of testing sample after the test

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FIRE AND RESCUE DEPARTMENT UNDER THE MINISTRY OF THE INTERIOR OF THE REPUBLIC OF LITHUANIA
FIRE RESEARCH CENTRE
PRODUCTS RESEARCH DIVISION

1. Introduction

This classification report defines the classification assigned to solid polycarbonate sheets "SOTEX", "SOTEX PRO", "SOTEX ECO", "SOTEX SOLID", "OSKAR", "BORREX", "BEROLUX", "ZEPPLAST", "IZOPOL", "CTM", "ECOPOL", "SOTALUX", "SOTALIGHT", "BAUGLAS ST", "BAUGLAS FSX", "SOTOTHERM" and "RUGGED" in accordance with procedures given in LST EN 13501-1:2019

CLASSIFICATION OF REACTION TO FIRE IN ACCORDANCE WITH LST EN 13501-1:2019

Customer:	UG-OIL PLAST DOO BEOGRAD-SURČIN, Bobija Fišera str. 10, 11271 Surčin, Republic of Serbia Ph. +381 62442923
Prepared by:	Fire Research Centre Švitrigailos str. 18, LT-03223 Vilnius, Lithuania
Notified Body No.:	**1796**
Product name:	Solid polycarbonate sheets "SOTEX", "SOTEX PRO", "SOTEX ECO", "SOTEX SOLID", "OSKAR", "BORREX", "BEROLUX", "ZEPPLAST", "IZOPOL", "CTM", "ECOPOL", "SOTALUX", "SOTALIGHT", "BAUGLAS ST", "BAUGLAS FSX", "SOTOTHERM" and "RUGGED"
Classification report No.:	20-1.2021.24N
Issue number:	Exemplar No. 1 *(Classification report was prepared only in English).*
Date of issue:	25th of February 2021
Base:	Contract of work performance No. 57-69(2GB/2KL) of 8th of August 2020. Request for assessment of performance, reg. No. 54-7/20

This classification report consists of four pages and may only be used or reproduced in its entirety.

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2. Details of classified product

2.1 General

The product, "SOTEX", "SOTEX PRO", "SOTEX ECO", "SOTEX SOLID", "OSKAR", "BORREX", "BEROLUX", "ZEPPLAST", "IZOPOL", "CTM", "ECOPOL", "SOTALUX", "SOTALIGHT", "BAUGLAS ST", "BAUGLAS FSX", "SOTOTHERM" and "RUGGED", is defined as light transmitting flat solid polycarbonate sheet for internal and external use in roofs, walls and ceilings in accordance with LST EN 16240:2014.

2.2 Product description

In accordance with customer declaration solid polycarbonate sheets "SOTEX", "SOTEX PRO", "SOTEX ECO", "SOTEX SOLID", "OSKAR", "BORREX", "BEROLUX", "ZEPPLAST", "IZOPOL", "CTM", "ECOPOL", "SOTALUX", "SOTALIGHT", "BAUGLAS ST", "BAUGLAS FSX", "SOTOTHERM" and "RUGGED" have this the same mix-composition: polycarbonate granules "Makrolon ET3113" (manufacturer "Covestro") or "LEXAN 103R" (manufacturer "Sabic") and UV protective layer "Makrolon ETUV110" (manufacturer "Covestro") or "3XPCKU603900" (manufacturer "Kafrit"). Coloring of polycarbonate sheets: colorless – no colorant; transparent red, orange, green, light blue, dark blue, grey, black, brown, terracotta, yellow, claret, bronze – colorants' manufacturers "Clariant", "Basko" or "Kafrit"; opaque (not transparent) opal – colorant manufacturers "Clariant", "Basko" or "Kafrit".

Other solid polycarbonate sheets parameters in accordance with declaration of manufacturer are:

Identification of product	Nominal thickness, mm	Nominal mass per unit area, kg/m^2	Thickness of the UV protective layer, µm
SOTEX/ SOTEX PRO/ SOTEX ECO/ SOTEX SOLID/ OSKAR/ BORREX/ BEROLUX/ ZEPPLAST/ IZOPOL/ CTM/ ECOPOL/ SOTALUX/ SOTALIGHT/ BAUGLAS ST/ BAUGLAS FSX/ SOTOTHERM/RUGGED	1	1,2	50 µm on the top and 50 µm on the bottom
	2	2,4	
	3	3,6	
	4	4,8	
	5	6	
	6	7,2	
	7	8,4	
	8	9,6	70 µm on the top and 70 µm on the bottom
	9	10,8	
	10	12	
	12	14,4	
	15	18	

Tests according to LST EN 13823:2020 and LST EN ISO 11925-2:2020 firstly were performed with products made from polycarbonate granules of different manufacturers, then tests were done ascertaining influence of mass per unit area/thickness and the color of sheet.

For the tests according to LST EN 13823:2020 12 mm thick calcium silicate backing board was positioned behind each wing of the test assembly using spacers to give a maximum air gap between the rear surface of the specimen and the backing board.

3. Reports and results in support of classification

3.1 Reports

Name of Laboratory	Name of sponsor	Report ref. no.	Test method and date Field of application rules and date
Fire Research Centre Products Research Division	UG-OIL PLAST DOO BEOGRAD-SURČIN	20-4.2021.5	LST EN ISO 11925-2:2020
Fire Research Centre Products Research Division	UG-OIL PLAST DOO BEOGRAD-SURČIN	20-3.2021.3	LST EN 13823:2020

3.2 Results

Test method	Parameter	No. tests	Results	
			Continuous parameter – mean (m)	Compliance with parameters
LST EN ISO 11925-2 Surface flame attack Flame exposition period 30 s* (sheets thickness 1 mm and 15 mm)	Fs≤150 mm within 60 s	10	Yes	Compliant
	Ignition of filter paper		No	Compliant
LST EN 13823 (sheets thickness 3 mm)	$FIGRA_{0,2MJ} \leq 120$ W/s LFS<edge of specimen $THR_{600s} \leq 7,5$ MJ	3	7 Yes 0,6	Compliant Compliant Compliant
	$SMOGRA \leq 30$ m²/s² $TSP_{600s} \leq 50$ m²		3 28	Compliant Compliant
	Within 600 s there are any flaming droplets/particles		Yes	Compliant

*- this note relevant only to products with nominal thickness greater than 3 mm: tests were performed with 30 s fire exposure, but according to EGOLF Recommendation 002-2016 materials which pass EN ISO 11925-2 test with flame exposure time of 30 s, shall be considered as passing the test with the 15 s flame exposure time.

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with LST EN 13501-1:2019 chapter 11.

4.2 Classification

The product, "SOTEX", "SOTEX PRO", "SOTEX ECO", "SOTEX SOLID", "OSKAR", "BORREX", "BEROLUX", "ZEPPLAST", "IZOPOL", "CTM", "ECOPOL", "SOTALUX", "SOTALIGHT", "BAUGLAS ST", "BAUGLAS FSX", "SOTOTHERM" and "RUGGED" with nominal sheet thickness ≥ 1 mm and ≤ 3 mm, in relation to its reaction to fire behaviour is classified:

B

Additional classifications for smoke production:

s1

The additional classification in relation to flaming droplets/particles is:

d0

The format of reaction to fire classification construction products excluding floorings and linear pipe thermal insulation products is:

Fire behaviour		Smoke production			Flaming droplets	
B	-	s	1	,	d	0

i.e. B-s1,d0

Reaction to fire classification: B-s1,d0

The product, "SOTEX", "SOTEX PRO", "SOTEX ECO", "SOTEX SOLID", "OSKAR", "BORREX", "BEROLUX", "ZEPPLAST", "IZOPOL", "CTM", "ECOPOL", "SOTALUX", "SOTALIGHT", "BAUGLAS ST", "BAUGLAS FSX", "SOTOTHERM" and "RUGGED" with nominal sheet thickness > 3 mm in relation to its reaction to fire behaviour is classified:

E

The format of reaction to fire classification construction products excluding floorings and linear pipe thermal insulation products is:

Fire behaviour		Smoke production			Flaming droplets	
E	-	-	-	,	-	-

i.e. E

Reaction to fire classification: E

4.3 Field of application

This classification is valid only for in chapter 2.2 listed product parameters for the following end use application:

- product shall be mounted on any metal frame or on not less than A2-s1,d0 reaction to fire class according to LST EN 13501-1 substrate with density ≥ 615 kg/m^3, thickness ≥ 12 mm with air gap between product and substrate ≥ 80 mm.

5. Limitations

This classification document does not represent certification of the product.

The classification assigned to the product in this report is appropriate to a declaration of performance by the manufacturer within the context of AVoCP (assessment and verification of constancy of performance) system 3 and CE marking under the Construction Product Regulation (EU) No. 305/2011.

The manufacturer has made a declaration, which is held on file. This confirms that the products design requires no specific processes, procedures or stages that are aimed at enhancing the fire performance in order to obtain the classification achieved. As a consequence, the manufacturer has concluded that AVoCP system 3 is appropriate.

The test laboratory has, therefore, played no part in sampling the product for the test, although it holds appropriate references, supplied by the manufacturer, to provide for traceability of the samples tested and manufacturer obligation for ensuring a future stability of production submitted for assessment of performance.

Classification Report prepared by:

Chief Specialist
Aurelija Kindurienė

Classification Report approved by:

Chief Specialist
Andrejus Jefimovas

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FIRE AND RESCUE DEPARTMENT UNDER THE MINISTRY OF THE INTERIOR OF THE REPUBLIC OF LITHUANIA

FIRE RESEARCH CENTRE
PRODUCTS RESEARCH DIVISION

TEST REPORT
No. 20-4.2021.5

DATE OF ISSUE	23rd of February 2021
TEST METHOD	LST EN ISO 11925-2:2020 Reaction to fire tests – Ignitability of products subjected to direct impingement of flame – Part 2: Single-flame source test (ISO 11925-2:2020)
CUSTOMER	UG-OIL PLAST DOO BEOGRAD-SURČIN, Bobija Fišera str. 10, 11271 Surčin, Republic of Serbia Ph. +381 62442923
OBJECT	Solid polycarbonate sheets "BAUGLAS ST", "BAUGLAS FSX", "CTM" and "OSKAR"
PRODUCER	UG-OIL PLAST DOO BEOGRAD-SURČIN
BASE	Contract of work performance No. 57-69(2GB/2KL) of 8th of August 2020. Request for assessment of performance, reg. No. 54-7/20
ISSUE	Exemplar No. 1 *(Test report was prepared only in English)*
TEST DATE	18th of February 2021
TEST PLACE	Miško str. 7, Valčiūnai vil., LT-13221, Vilnius distr., Lithuania

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E-mail: gtc@vpgt.lt
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Products Research Division
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LT-13221 Vilnius distr.
Ph. +370 5 249 1317
Ph./fax.: +370 5 249 1315

OBJECT DESCRIPTION

Solid polycarbonate sheets parameters in accordance with declaration of manufacturer listed in Table 1.

Table 1

Identification of product (specimen No. in Table 2)	Nominal thickness, mm	Mass per unit area, kg/m²	Thickness of the UV protective layer, µm	Raw material name	Color	Colorant
BAUGLAS ST (specimens No. 1 and No. 2)	1	1,2	50 µm on the top and 50 µm on the bottom	1. Polycarbonate granules: "Makrolon ET3113" (manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (manufacturer "Covestro")	colorless	-
BAUGLAS FSX (specimens No. 3 and No. 4)				1. Polycarbonate granules: "LEXAN 103R" (manufacturer "Sabic") 2. UV protective layer: "Makrolon ETUV110" (manufacturer "Covestro")		
CTM (specimens No. 5 and No. 6)				1. Polycarbonate granules: "Makrolon ET3113" (manufacturer "Covestro") 2. UV protective layer: "3XPCKU603900" (manufacturer "Kafrit")	opal (opaque)	opal, (manufacturer "Basko")
CTM (specimens No. 7 and No. 8)				1. Polycarbonate granules: "Makrolon ET3113" (manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (manufacturer "Covestro")	bronze (transparent)	Bronze (manufacturer "Kafrit")
OSKAR (specimens No. 9 and No. 10)	15	18	70 µm on the top and 70 µm on the bottom	1. Polycarbonate granules: "Makrolon ET3113" (manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (manufacturer "Covestro")	colorless	-

SAMPLING ORDER OF OBJECT

In accordance with Manufacturer Declaration of 11th of December 2020 the object was sampled by customer, production address Magnetna polja bb, 2400 Subotica, Republic of Serbia, number and date of production "BAUGLAS ST" (No. 74, 20.09.2020), "BAUGLAS FSX" (No. 79, 06.10.2020), "CTM" (opal, No. 71, 03.09.2020 and bronze, No. 79, 06.10.2020) and "OSKAR" (No. 57, 14.08.2020).

DATE OF OBJECT DELIVERY

27th of October and 11th of November 2020.

SPECIMENS PREPARATION

10 pieces of specimens with dimensions 250 mm × 90 mm (length × width) were prepared by customer.

SPECIMENS CONDITIONING

Conditioning time: longer than 2 weeks;
Relative humidity: (50 ± 5) %;
Ambience temperature: (23 ± 2) °C.

TEST CONDITIONS

Ambient temperature: 22 °C; relative humidity: 64 %; air velocity: 0,72 m/s.

TEST PURPOSE

1. Determination of ignition;
2. Whether the flame tip reaches 150 mm limit;
3. Time when the flame tip reaches 150 mm limit;
4. Ignition of filter paper;
5. Physical properties of specimen.

TEST RESULTS

According to the standard LST EN 16240:2014 point 5.7.2 the flame was applied only to the surface of the test specimen. Test results are given in Table 2.
Flame exposition period 30 s.

Table 2

Parameters	Specimen No.									
	1	2	3	4	5	6	7	8	9	10
Ignition of specimen (Yes/No)	No	No	No	No	No	No	No	No	No	No
Flame spread to 150 mm limit (Yes/No)	No	No	No	No	No	No	No	No	No	No
Time of flame spread to 150 mm limit, s	-	-	-	-	-	-	-	-	-	-
Ignition of filter paper (Yes/No)	No	No	No	No	No	No	No	No	No	No

DEFLECTION FROM TEST METHOD

No deflection from test method.

TEST OBSERVATIONS

Specimens were not flaming and didn't emit any flaming droplets.

DECLARATION

The test results relate only to the behaviour of the test specimen of a product under particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard in use.

NOTE

For this test method the flexible accreditation procedure was applied.

Tests were performed and report made by:
Chief Specialist Aurelija Kindurienė

Report approved by:
Technical Manager Vitold Kostiukevič

Chief Specialist Andrejus Jefimovas

Gaisrinių tyrimų centras PTS

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FIRE AND RESCUE DEPARTMENT UNDER THE MINISTRY OF THE INTERIOR OF THE REPUBLIC OF LITHUANIA

FIRE RESEARCH CENTRE
PRODUCTS RESEARCH DIVISION

TEST REPORT
No. 20-3.2021.3

DATE OF ISSUE	25th of February 2021
TEST METHOD	LST EN 13823:2020 "Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by a single burning item".
CUSTOMER	UG-OIL PLAST DOO BEOGRAD-SURČIN, Bobija Fišera str. 10, 11271 Surčin, Republic of Serbia Ph. +381 62442923
OBJECT	Solid polycarbonate sheets "RUGGED", "CTM", "BAUGLAS FSX" and "BORREX".
PRODUCER	UG-OIL PLAST DOO BEOGRAD-SURČIN
BASE	Contract of work performance No. 57-69(2GB/2KL) of 8th of August 2020. Request for assessment of performance, reg. No. 54-7/20
ISSUE	Exemplar No. 1 *(Test report was prepared only in English)*
TEST DATE	23rd and 24th of February 2021
TESTING PLACE	Miško str. 7, Valčiūnai vil., LT-13221, Vilnius distr., Lithuania

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OBJECT DESCRIPTION

Solid polycarbonate sheets parameters in accordance with declaration of manufacturer are:

Identification of product (specimen No.)	Thickness, mm	Mass per unit area, kg/m^2	Thickness of the protective UV layer (cap layer), µm	Composition of sheets	Color	Colorant
RUGGED Specimen No. 1	3	3,60	50 µm on both sides	1. Polycarbonate granules "LEXAN 103R" (basic, manufacturer "Sabic") 2. UV protective layer "Makrolon ETUV110" (cap layer, manufacturer "Covestro")	colorless	-
CTM Specimen No. 2	3	3,60	50 µm on both sides	Polycarbonate granules: "Makrolon ET3113" (basic, manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (cap layer, manufacturer "Covestro")	colorless	-
BAUGLAS FSX Specimen No. 3	1	1,2	50 µm on both sides	Polycarbonate granules: "Makrolon ET3113" (basic, manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (cap layer, manufacturer "Covestro")	colorless	-
BORREX Specimen No. 4	3	3,60	50 µm on both sides	Polycarbonate granules: "Makrolon ET3113" (basic, manufacturer "Covestro") 2. UV protective layer: "Makrolon ETUV110" (cap layer, manufacturer "Covestro")	bronze (transparent)	bronze (manufacturer "Kafrit")
CTM Specimen No. 5	3	3,60	50 µm on both sides	Polycarbonate granules: "Makrolon ET3113" (basic, manufacturer "Covestro") 2. UV protective layer: "3XPCKU603900" (cap layer, manufacturer "Kafrit")	opal (opaque)	opal, (manufacturer "Basko")

SELECTION ORDER OF TESTING OBJECT

In accordance with Manufacturer Declaration of 11th of December 2020 the object was sampled by customer, production address Magnetna polja bb, 24000 Subotica, Republic of Serbia, number and date of production "RUGGED" (3 mm thickness, colorless, made from "LEXAN 103R" No. 53, 06.08.2020); "BAUGLAS FSX" (1 mm thickness, colorless, made from "Makrolon ET3113" No. 79, 06.10.2020), "CTM" (3 mm thickness, colorless, opal and bronze, made from "Makrolon ET3113") No. 57, 14.08.2020; "BORREX" (3 mm thickness, made from "Makrolon ET3113") No. 57, 14.08.2020.

DATE OF SAMPLES DELIVERY

27th of October and 11th of November 2020

SAMPLES CONDITIONING

Conditioning time: >2 weeks.
Relative humidity: (50 ± 5) %.
Ambience temperature: (23 ± 2) °C.

SPECIMENS PREPARATION

Specimens were prepared by customer. Specimens (5 pcs.) concludes of a long wing 1,0 m x 1,5 m and short wing 0,5 m x 1,5 m. Specimens were prepared in accordance with requirements of LST EN 16153:2013+A1:2015 5.8 chapter.
12 mm thick calcium silicate backing board, which meets the requirements of LST EN 13238:2010 standard calcium silicate board base, was positioned behind each wing of the test assembly using spacers to give a maximum air gap between the rear surface of the specimen and the backing board.
Specimen No. 1 – 3 mm thickness solid polycarbonate sheets made from "LEXAN 103R".
Specimen No. 2 – 3 mm thickness solid polycarbonate sheets made from "Makrolon ET3113".
Specimen No. 3 – 1 mm thickness solid polycarbonate sheets made from "Makrolon ET3113".
Specimen No. 4 – 3 mm thickness solid bronze color polycarbonate sheets made from "Makrolon ET3113".
Specimen No. 5 – 3 mm thickness solid opal color polycarbonate sheets made from "Makrolon ET3113".
Pictures of testing object before the test and after the test are given in annex B.

TEST CONDITIONS

Test No.	1	2	3	4	5
Testing date	23-02-2021	24-02-2021	24-02-2021	24-02-2021	24-02-2021
Ambient temperature [°C]	18	18	18	18	18
Relative humidity [%]	41	43	47	47	47
Ambient pressure [kPa]	101	101	101	101	101

MEASURED PARAMETERS

$FIGRA_{0,2\ MJ}$ – maximum of the quotient of heat release rate from the specimen and the time of its occurrence using a THR threshold of 0,2 MJ, W/s;
$FIGRA_{0,4\ MJ}$ – maximum of the quotient of heat release rate from the specimen and the time of its occurrence using a THR threshold of 0,4 MJ, W/s;
THR_{600s} – total heat release from the specimen in the first 600 s of exposure to the main (primary) burner flames, MJ;
TSP_{600s} – total smoke production from the specimen in the first 600 s of exposure to the main (primary) burner flames, m^2;
SMOGRA (smoke growth rate) – maximum of the quotient of smoke production rate from the specimen and the time of its occurrence, m^2/s^2;
$FDP_{f\leq 10s}$ – the fall of a flaming droplet/particle, in the given time interval and area, that remains flaming for not more than 10 s after falling;
$FDP_{f>10s}$ – the fall of a flaming droplet/particle, in the given time interval and area, that remains flaming for more than 10 s after falling;
LFS – lateral flame spread on the long specimen wing.

TEST RESULTS

Test results are given in the table and testing graphical charts in the annex A.

Measured parameters	Test No.					
	1	2*	3	4*	5*	Average
$FIGRA_{0,2\ MJ}$ [W/s]	9,7	13,6	0,0	5,9	0,0	7
$FIGRA_{0,4\ MJ}$ [W/s]	7,0	12,7	0,0	5,9	0,0	6
THR_{600s} [MJ]	0,8	1,2	0,1	0,4	0,3	0,6
SMOGRA [m^2/s^2]	2,3	4,9	0,0	2,0	2,4	3
TSP_{600s} [m^2]	26,0	46,6	16,0	14,7	23,3	28
$FDP_{f\leq 10s}$	No	No	No	No	No	No
$FDP_{f>10s}$	No	No	No	No	No	No
LFS	No	No	No	No	No	No

*- test results included in the average calculation.

RUN OF THE TEST

00 min. 00 s – start of test,
05 min. 00 s – main burner is on,
26 min. 00 s – main burner is switched off,
27 min. 05 s – end of data registration.

OBSERVATIONS MADE DURING THE TEST

After the main burner is on, specimen's surface which was touched by flame was smelting for a couple of minutes.

DEVIATIONS FROM THE TEST METHOD

There were no deviations from the test method

DECLARATION

The test results relate only to the behaviour of the test specimen of a product under particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard in use.

NOTE

For this test method the flexible accreditation procedure was applied.

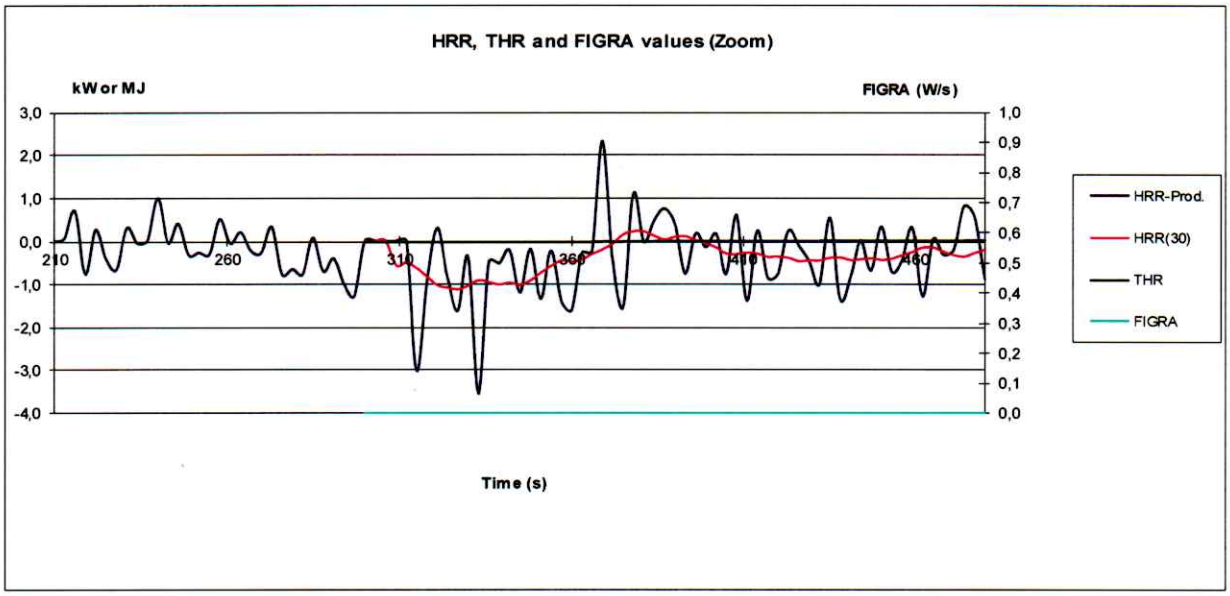
Tests performed and report prepared by:
Chief Specialist — Valdas Striška

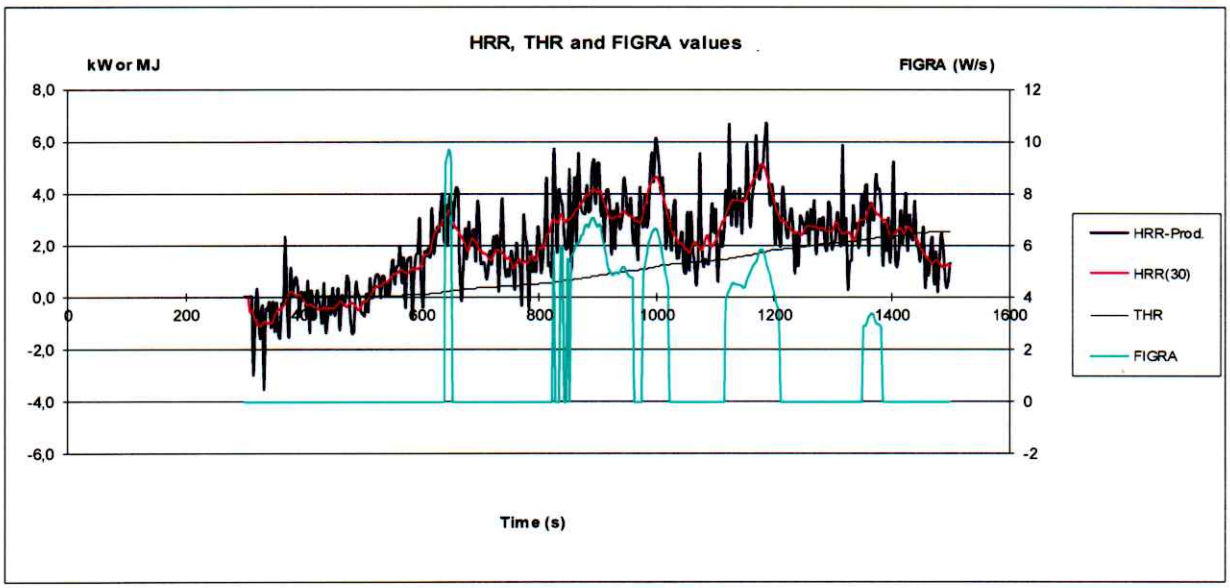
Test report approved by:
Technical Manager — Vitold Kostiukevič

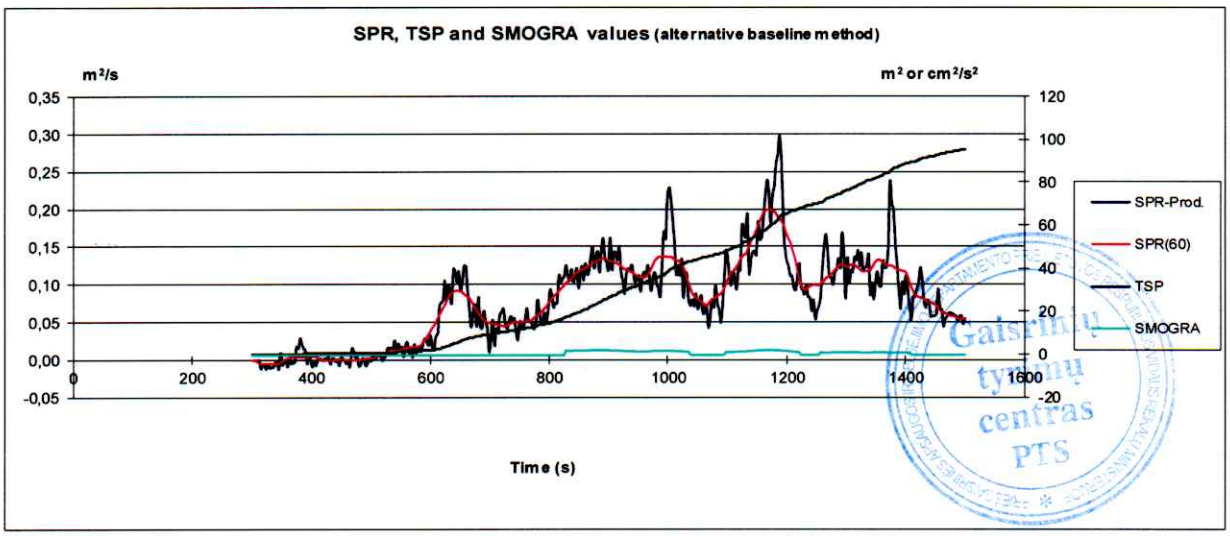
Chief Specialist — Andrejus Jefimovas

Annex A

Test 1

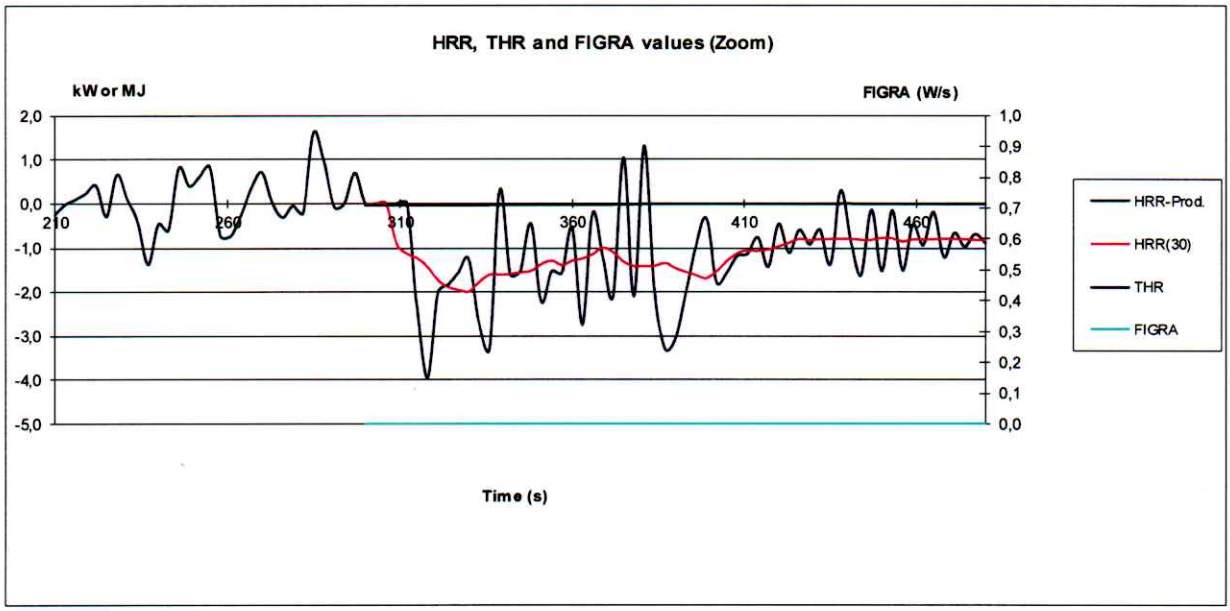


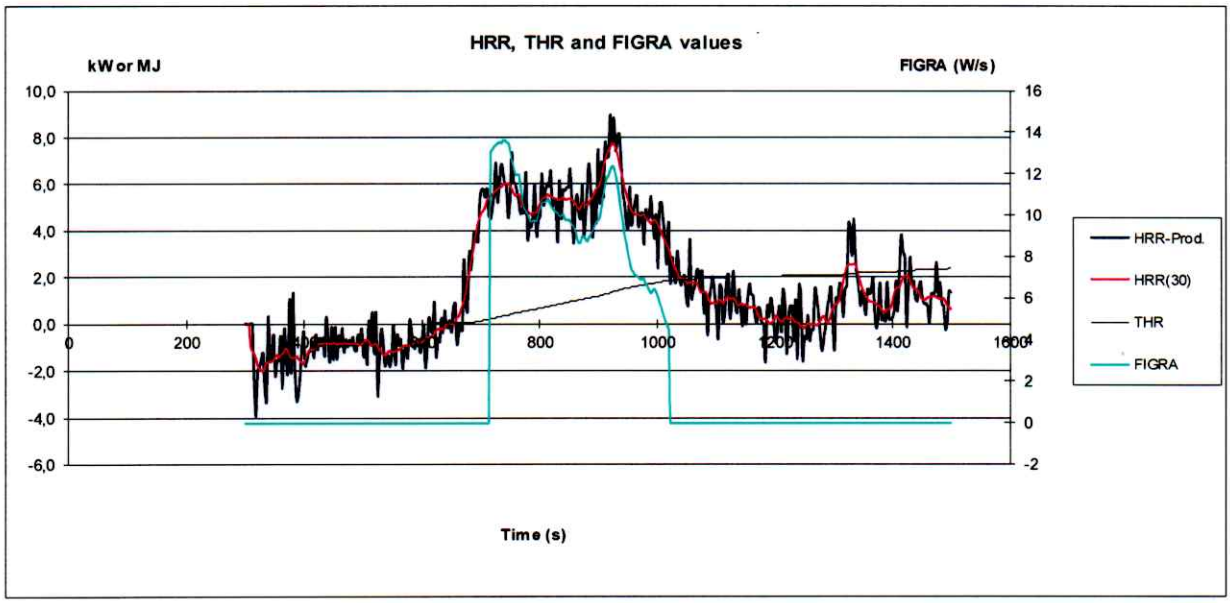


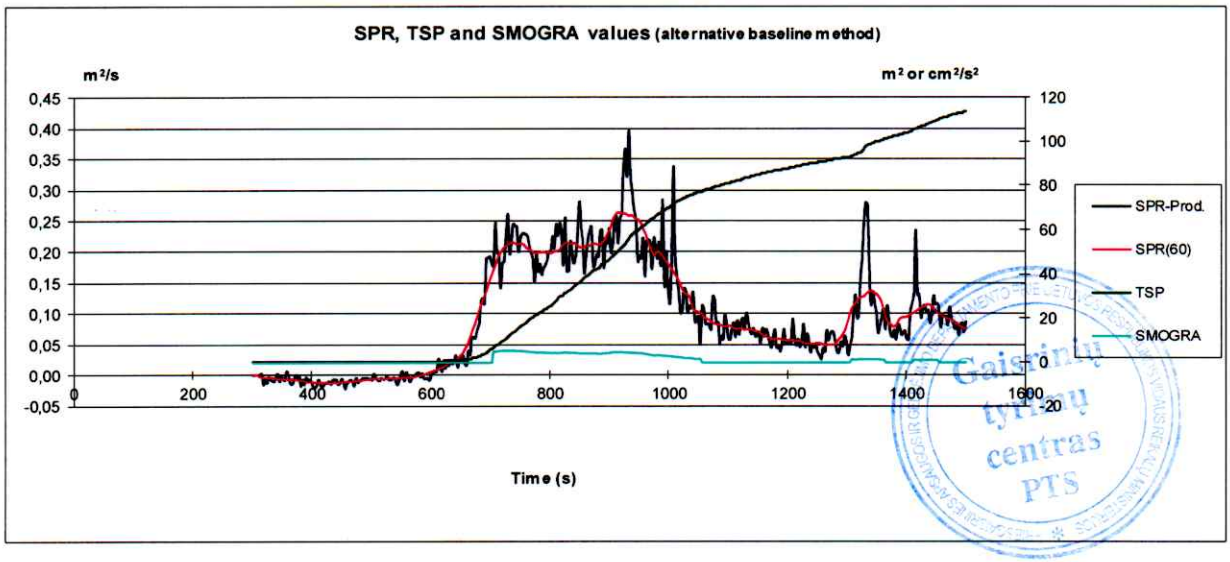


Annex A

Test 2

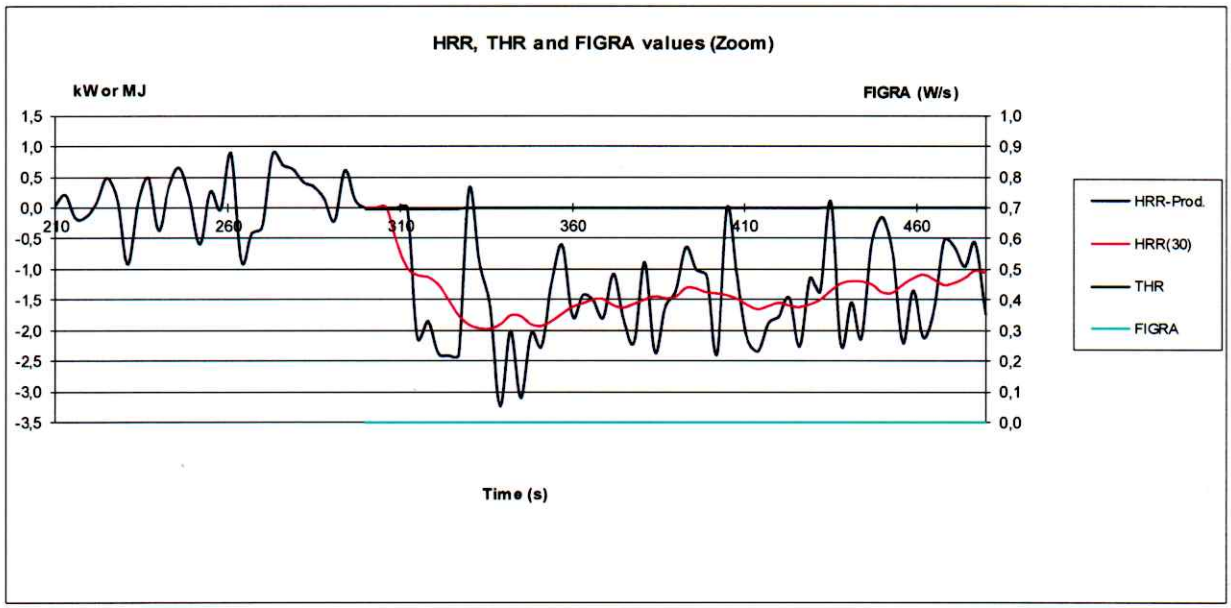


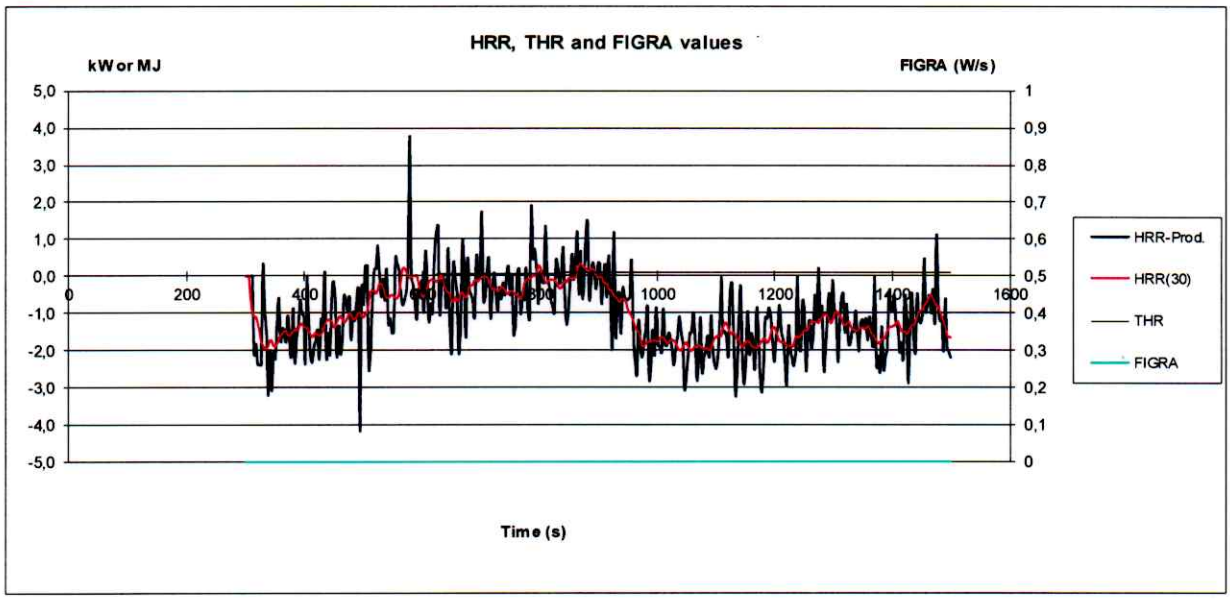


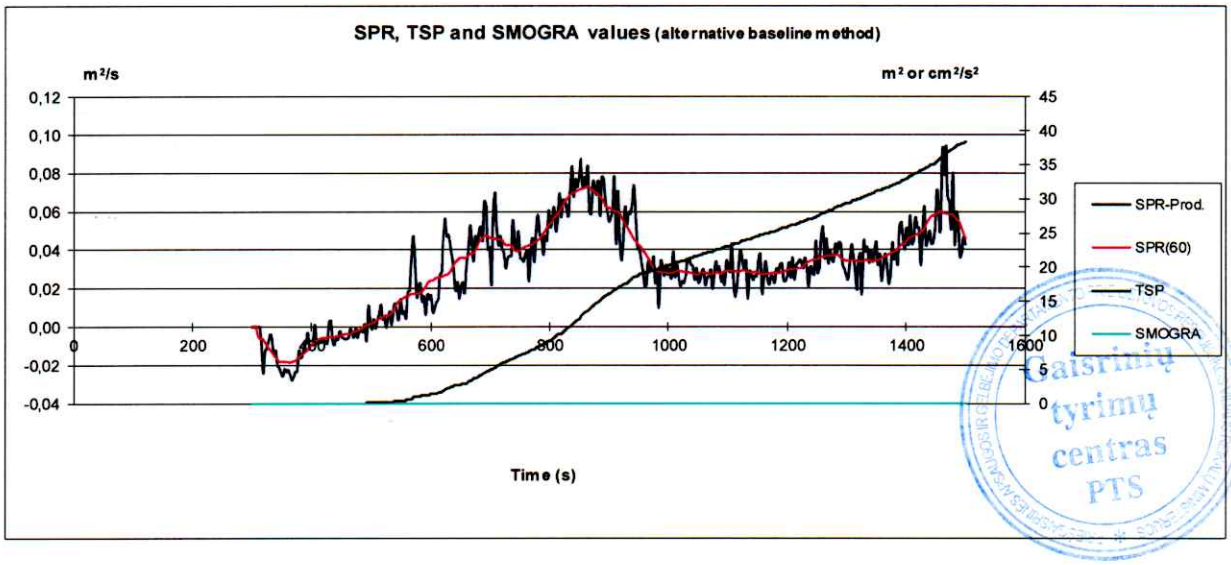


Annex A

Test 3

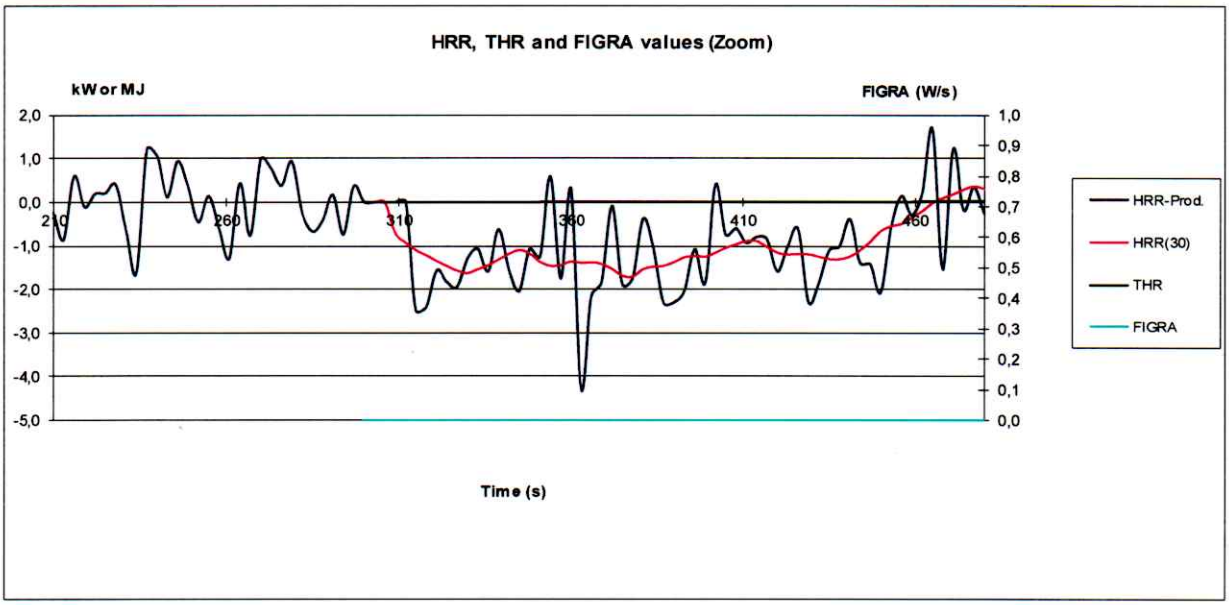


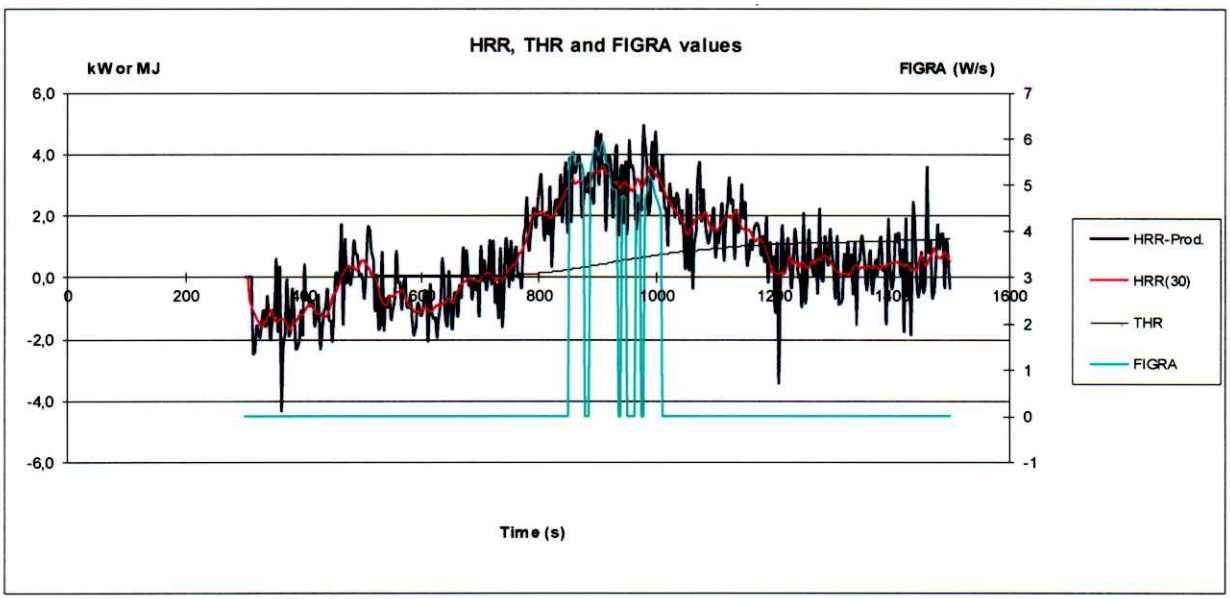


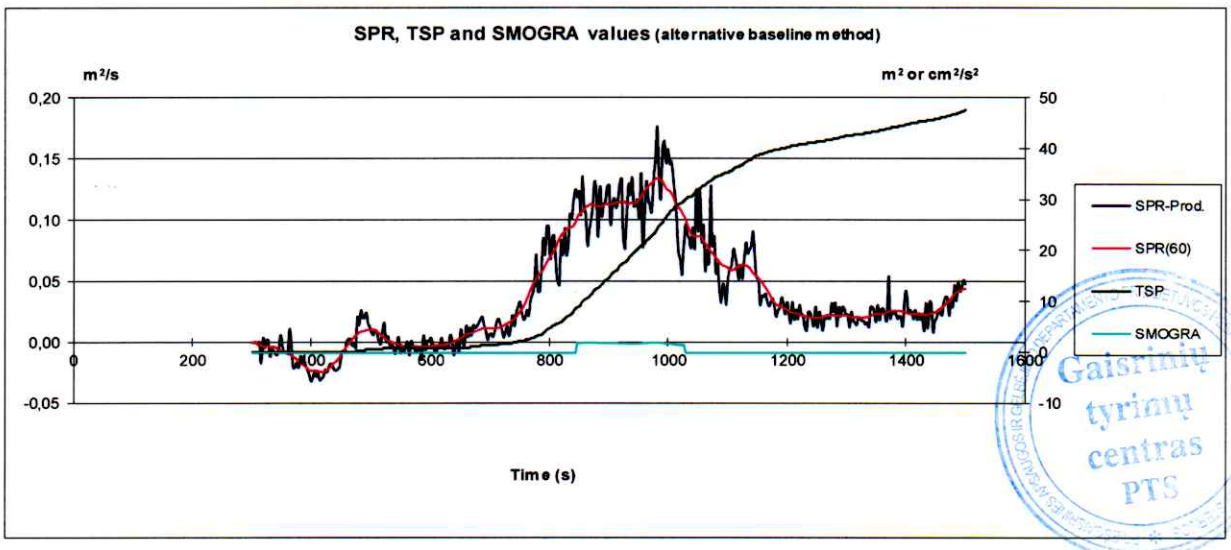


Annex A

Test 4

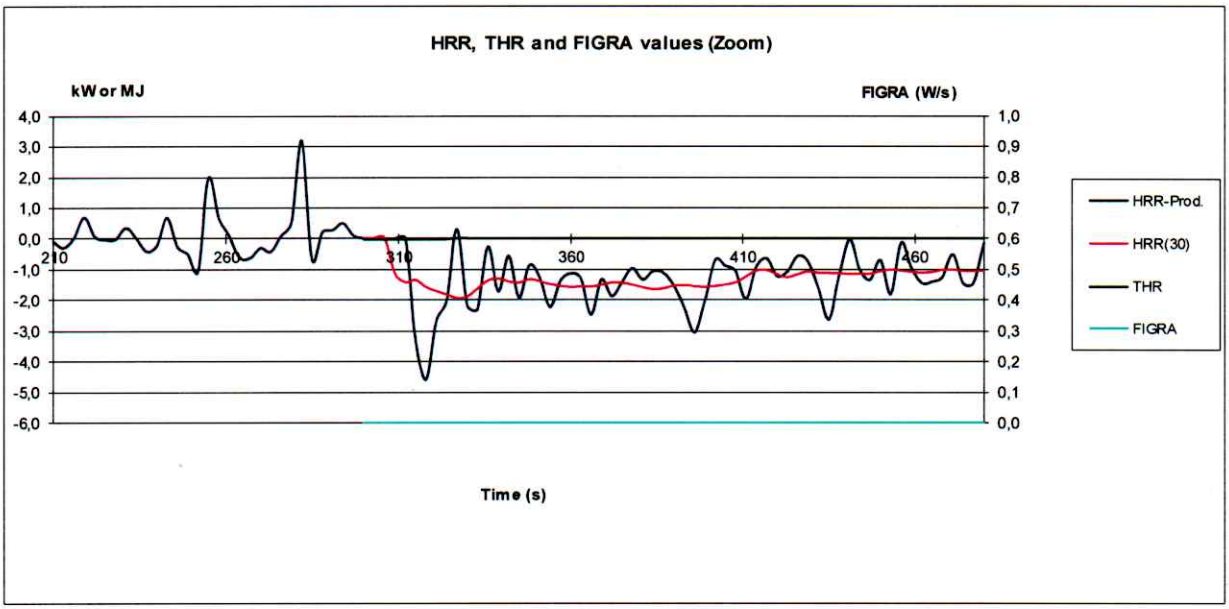


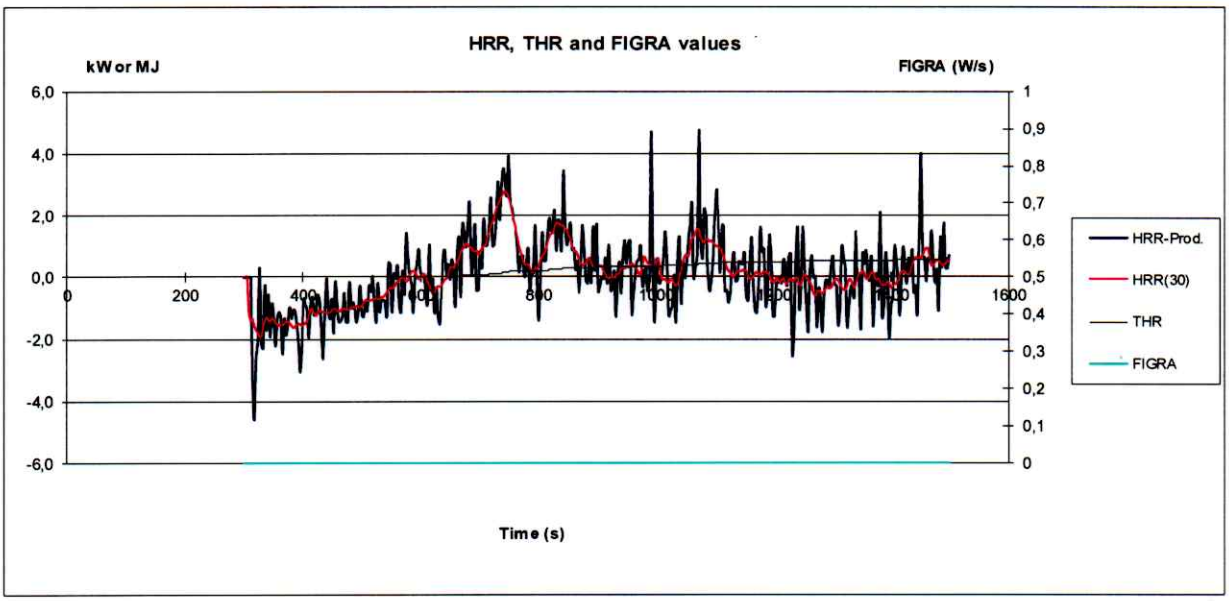


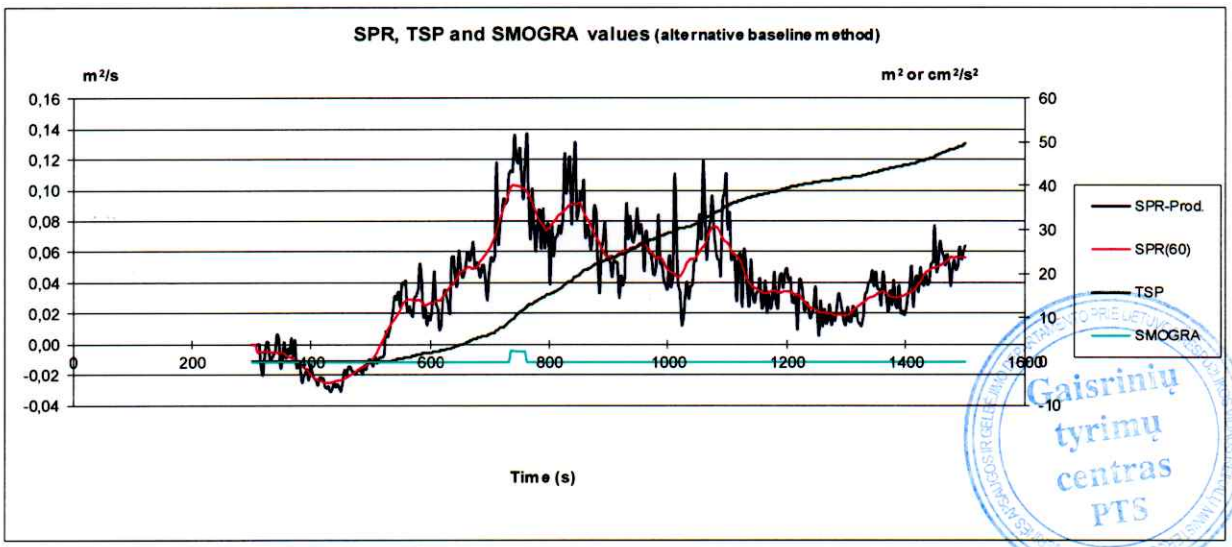


Annex A

Test 5







Annex B

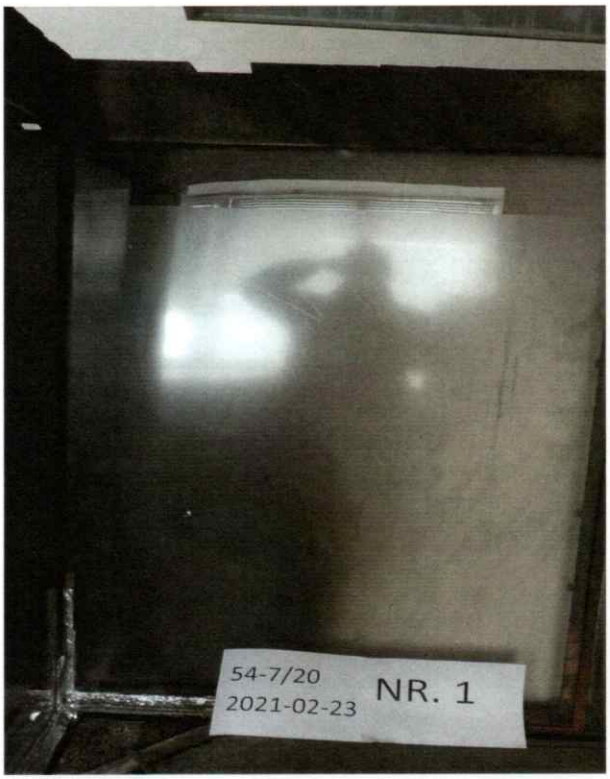


Fig. 1. Specimen No. 1 sight of long wing

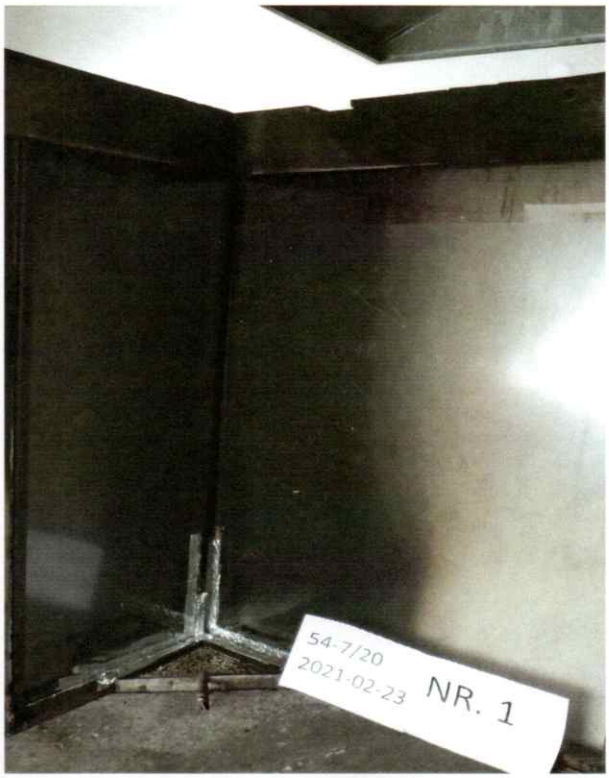


Fig. 2. Specimen No. 1 sight of both wings

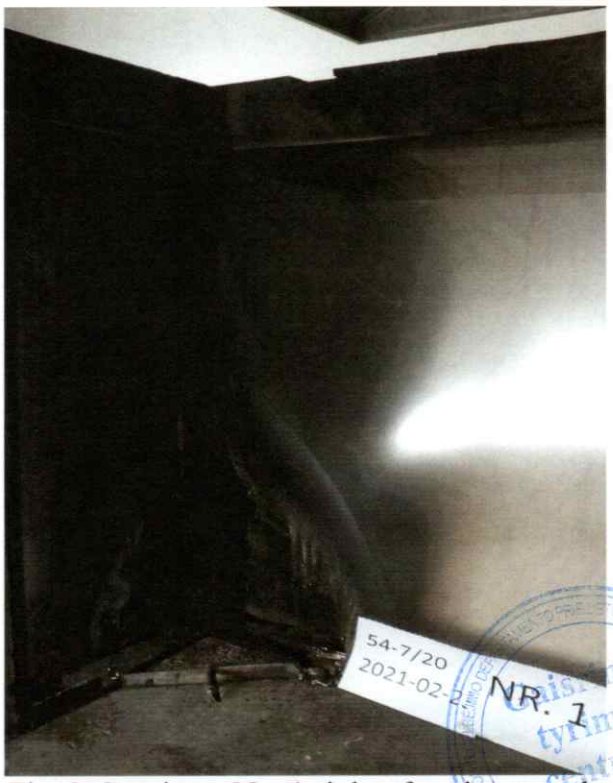


Fig. 3. Specimen No. 1 sight of testing sample after the test

Annex B

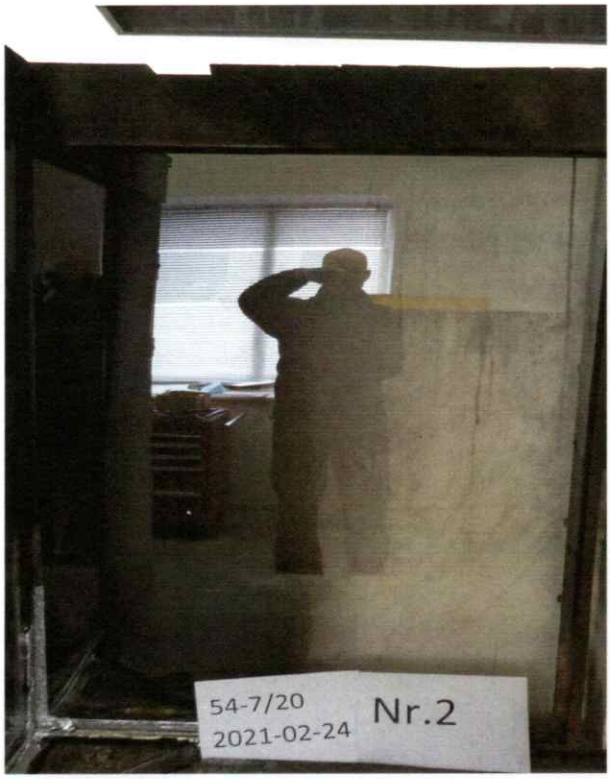


Fig. 4. Specimen No. 2 sight of long wing

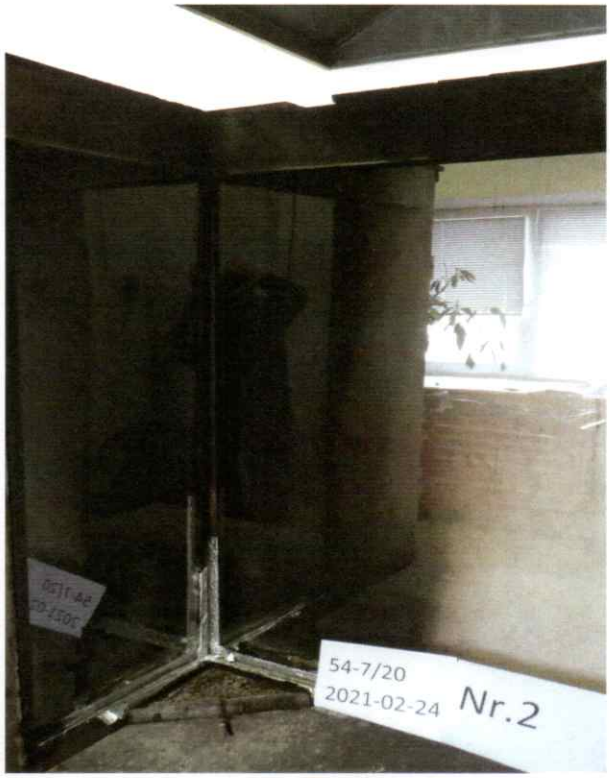


Fig. 5. Specimen No. 2 sight of both wings

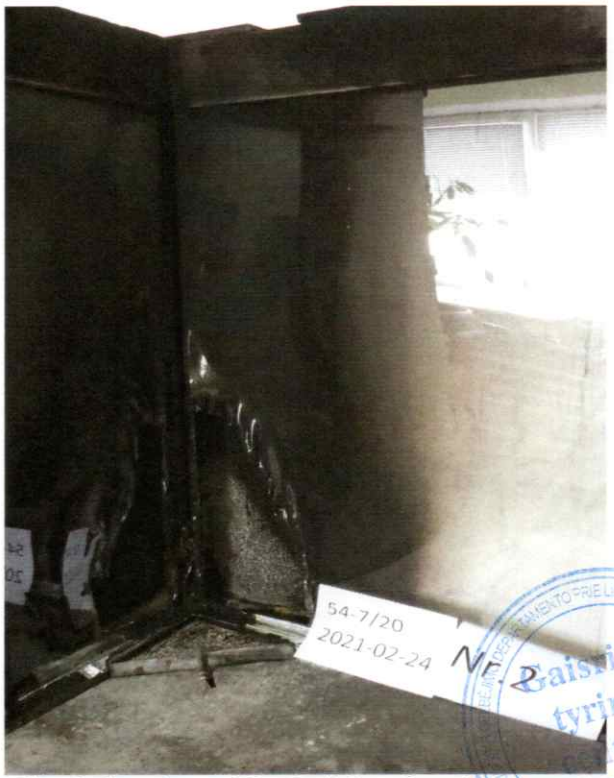


Fig. 6. Specimen No. 2 sight of testing sample after the test

Annex B

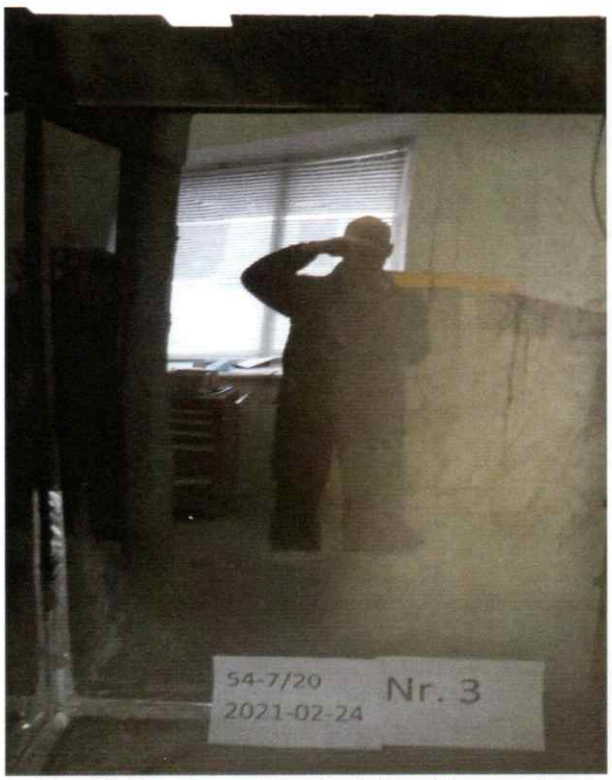


Fig. 7. Specimen No. 3 sight of long wing

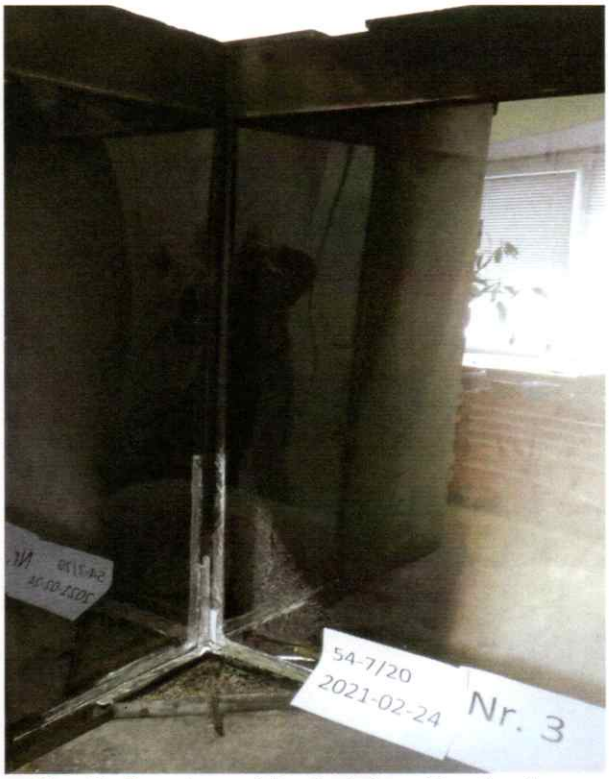


Fig. 8. Specimen No. 3 sight of both wings

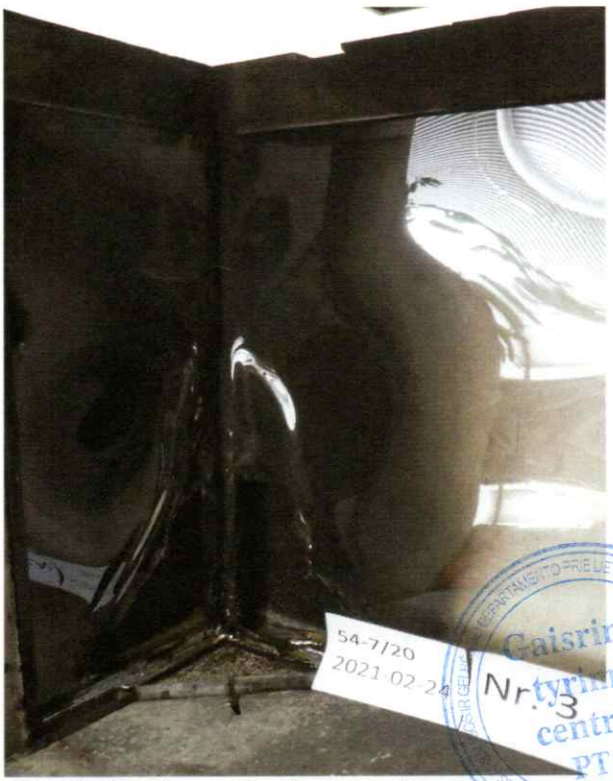


Fig. 9. Specimen No. 3 sight of testing sample after the test

Annex B

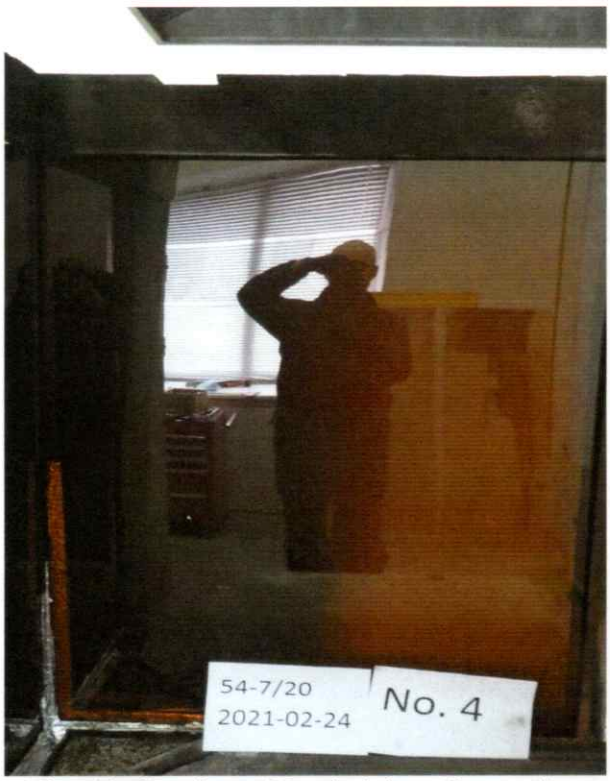


Fig. 10. Specimen No. 4 sight of long wing

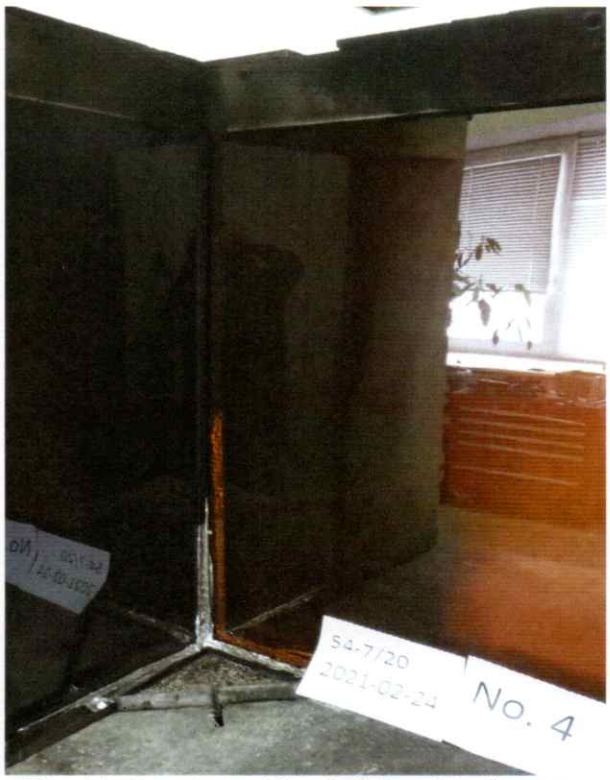


Fig. 11. Specimen No. 4 sight of both wings

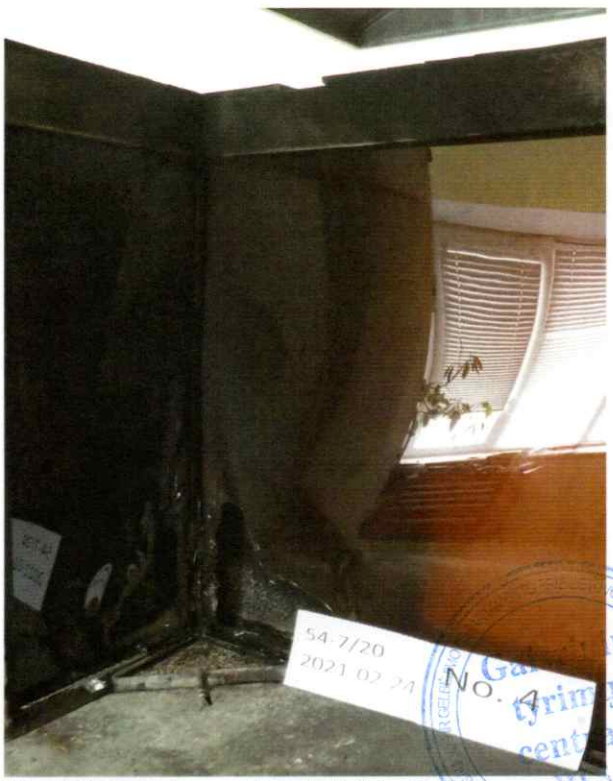


Fig. 12. Specimen No. 4 sight of testing sample after the test

Annex B

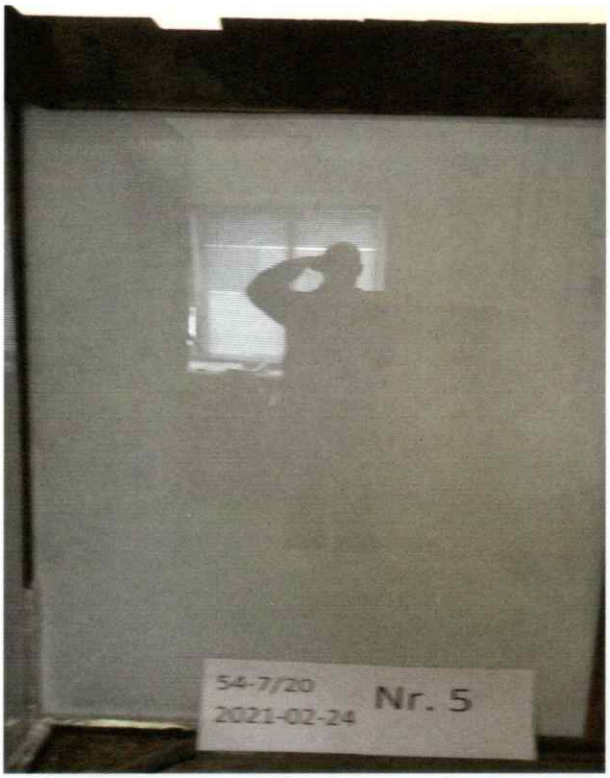


Fig. 13. Specimen No. 5 sight of long wing

Fig. 14. Specimen No. 5 sight of both wings

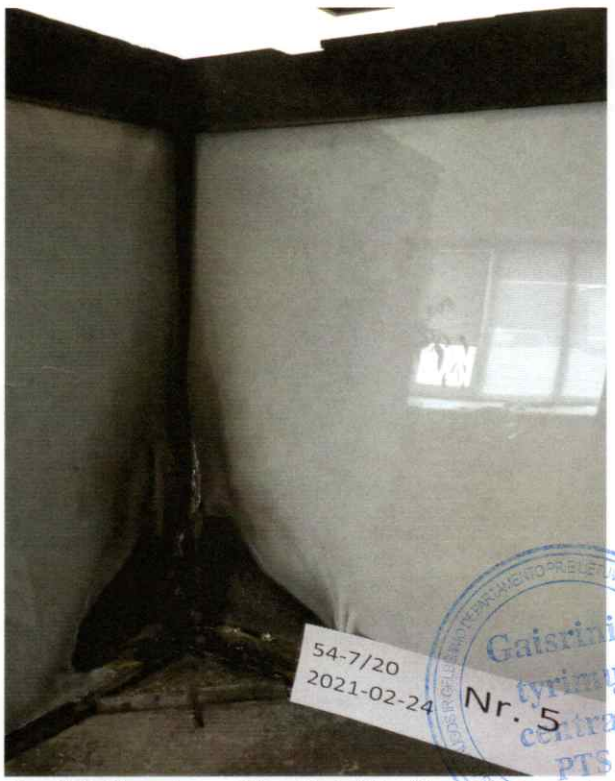


Fig. 15. Specimen No. 5 sight of testing sample after the test