West Pomeranian University of Technology, Szczecin
FACULTY OF MARITIME TECHNOLOGY AND TRANSPORT
MATERIALS FIRE PROPERTIES TESTING LABORATORY

TEST REPORT OF REACTION TO FIRE TESTS OF FLOOR COVERINGS

IBR/Z-078-2019 *Signature No:* TZ/PN9239a/184/2019 Szczecin, 21-10-2019

Test methods:

1. Reaction to fire tests for floor coverings – Part 1. Determination of the burning behaviour using radiant heat source. Polish Standard: PN-EN ISO 9239-1:2010,
2. Reaction to fire tests for building products – Part 2. Ignitability when subjected to direct impingement of flame. Polish Standard: PN-EN ISO 11925-2:2010.

Customer: **UNIRUBBER Sp. z o. o.**
Zielonka 17
59-940 Węgliniec

Material: **EPDM technical granules**

Description/ Composition: The material is intended for use in external and internal sports surfaces, e.g. treadmills, courts, pitches and playgrounds

Manufacturer: UNIRUBBER Sp. z o. o.
Zielonka 17
59-940 Węgliniec

Final findings

Critical flux at extinguishment	CHF	**4.8 ± 0.1**	kW/m^2
Maximum light attenuation	S	**22 ± 1**	%
Integrated smoke obscuration	Sc	**103 ± 9**	% · min
Maximum Flame spread distance according to PN-EN ISO 11925-2	Fs	-	mm

The clauses of test report validity: Report applies only to the sample tested and is not necessarily indicative of the qualities of apparently identical or similar products.

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Without the written consent of the Laboratorium Badań Cech Pożarowych Materiałów Zachodniopomorski Uniwersytet Technologiczny in Szczecin the report can be copied only in one piece.

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ilac-MRA
PCA Polskie Centrum Akredytacji BADANIA AB 304
TESTING LABORATORY ACCREDITED BY POLISH CENTRE FOR ACCREDITATION No. AB 304
INTERNATIONAL MARITIME ORGANIZATION LIST OF RECOGNIZED TEST LABORATORIES Doc. SSE 1/Circ.3/Rev.1 2018
POLISH REGISTER OF SHIPPING, APPROVAL CERTIFICATE No.TT/2/710405/18
PRS 1936

1. REACTION TO FIRE TESTS FOR FLOOR COVERINGS ACCORDING TO PN-EN ISO 9239-1

1.1. Basic test results

Name of measured quantity	Unit	Direction of investigation	
		along	across
Critical flux at extinguishment CHF	kW/m^2	-	-

Name of measured quantity	Unit	Specimen			Average	Standard deviation	Coefficient of variability %
		1	2	3			
Ignition time	s	120	121	124	122	2	1
Extinquishment time	s	1800	1800	1746	1782	25	1
Flame spread distance after 10 min.	mm	328	324	311	321	7	2
Flame spread distance after 20 min.	mm	423	388	394	402	15	4
Maximum flame spread distance	mm	430	420	425	425	4	1
Critical flux at extinguishment CHF	kW/m^2	4.7	4.9	4.8	4.8	0.1	1.5

1.2. Additional test results

1.2.1. Heat for sustained burning

Distance from exposed of the specimen	Calibration flux levels at the specimen	Time of arrival of the flame front		
		s		
mm	kW/m^2	Specimen		
		1	2	3
110	10.9	165	178	181
160	10.1	218	233	240
210	9.3	283	285	301
260	8.1	352	355	386
310	7.0	479	483	590
360	6.0	809	912	951
410	5.0	1118	1432	1317
460	4.2	-	-	-
510	3.6	-	-	-
560	2.9	-	-	-
610	2.6	-	-	-

1.2.2. Smoke generation of specimen

Name of measured quantity	Unit	Specimen			Average	Standard deviation	Coefficient of variability %
		1	2	3			
Maximum light attenuation	%	22	24	21	22	1	5
Integrated smoke obscuration	% · min	106	91	113	103	9	9

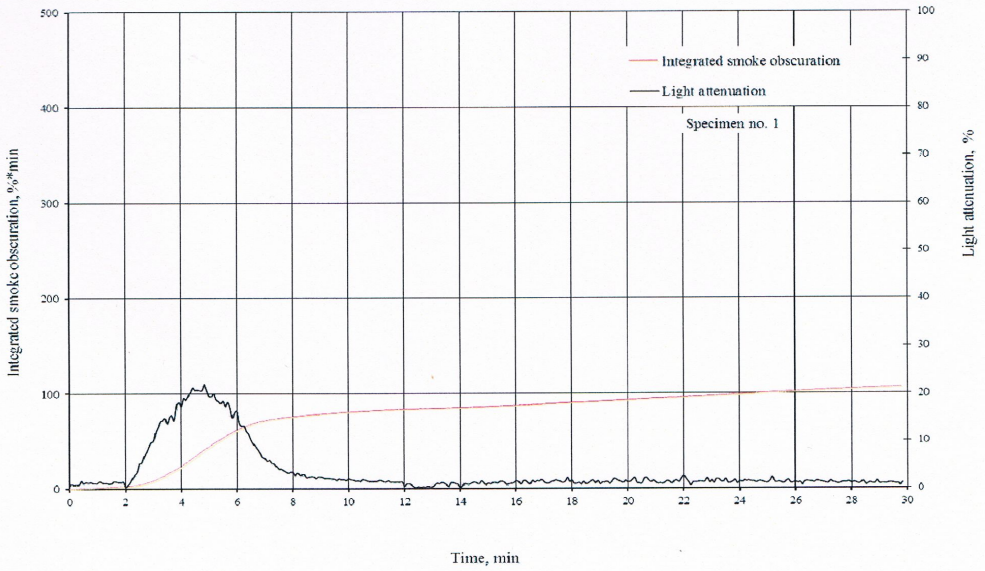

Figure 1. The relation smoke over time

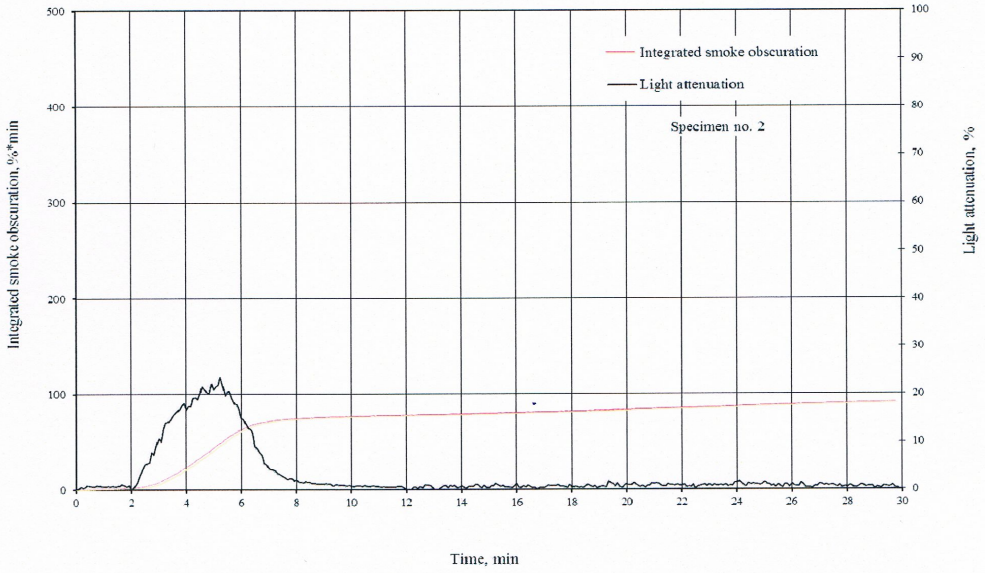

Figure 2. The relation smoke over time

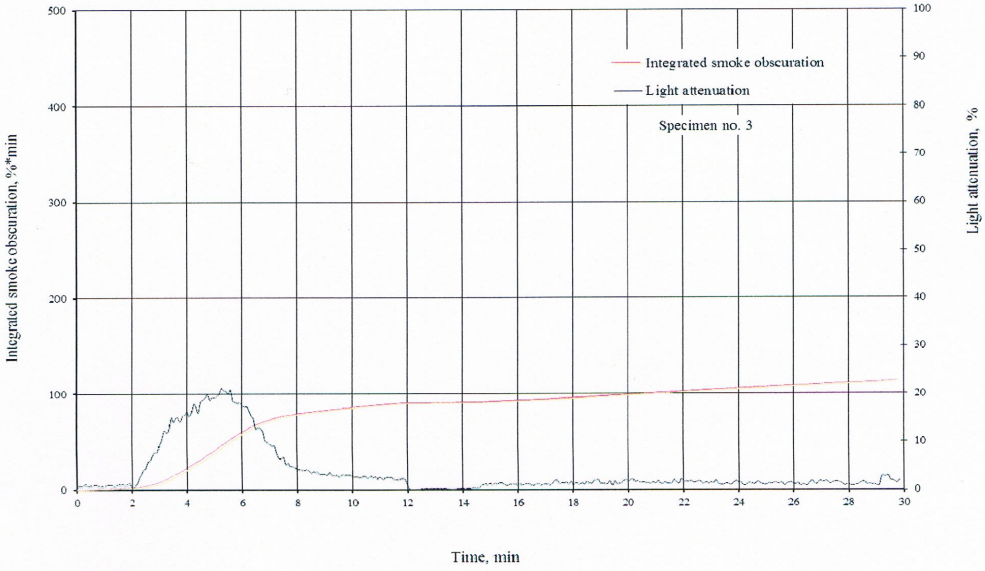

Figure 3. The relation smoke over time

1.3. Other relevant observations: nothing of importance

2. IGNITABILITY WHEN SUBJECTED TO DIRECT IMPINGEMENT OF FLAME ACCORDING TO PN-EN ISO 11925-2.

Due to the nature of the material – granules, the testing is not possible according to this method.

3. Norm required remaining information:

3.1. Sampling for testing: test samples obtained and delivered by the Employer.
3.2. Date of delivering the material: 02-10-2019
3.3. The thickness of system: 10 mm
3.4. Density of material: ca. 12.5 kg/m^2
3.5. Description of the product tested: black EPDM technical granules.
3.6. Conditioning: conditioning the specimens according to PN-EN 13238:2011, point 4.2

4. Compliance with the requirements*

Final findings

Critical flux at extinguishment CHF according to PN-EN ISO 9239-1	**5.4 ± 0.1**	kW/m^2
Integrated smoke obscuration according to PN-EN ISO 9239-1	**38 ± 6**	% · min
Maximum flame spread distance according to PN-EN ISO 11925-2	-	

Method of determining the measurement uncertainty $Y = \overline{Y}_{skr} \pm U(Y)$ - *standard uncertainty*

4.1. Compliance with the requirements acc. PN-EN 13501-1:2019: the material meets the requirements for flooring materials class **Cfl - s1**
4.2. Material is considered to meet requirement for hardly ignitable in compliance with polish regulations (Dz.U. [Journal of Laws] from 2002. No. 75. item 690. as amended).

** Conformity assessment refers to the arithmetic mean of the results obtained during tests. The uncertainty of measurement is not taken into account when determining compliance. Decision-making bodies may apply a decision-making principle other than the one adopted above, which may affect the result of the statement of compliance.*

Declaring: The results of investigation treat to behaviour of samples to investigations of product in special conditions of investigation; they can not intended as a means of assessing the full potential the fire hazard of the materials or products in use.

Performer of tests:

Renata Dobrzyńska

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An authorizer report:

KIEROWNIK LABORATORIUM
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Date and place of test - 18-10-2019, Szczecin