

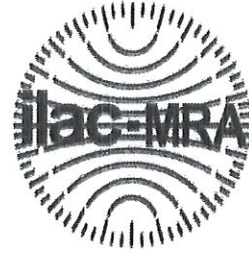


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INSTYTUT KOLEJNICTWA

Materials and Structure Laboratory  
LK  
Section of Non-metal Materials

Report no IK.LKA27.A85/18  
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## TEST REPORT No IK.LKA27.A85/18

### Fire properties

<b>Customer:</b>	WIKO Klebetchnik Sp. z o. o. ul. Ekonomiczna 8 42-271 Częstochowa
<b>Order:</b>	signed the offer No K.LK-3606-3/A/18 from 12.01.2018
<b>Tested material:</b>	compact (plate + glue WIKO MS 2K Booster + plate)
<b>Description of tested material:</b>	symbol – without Compact made with: <ul style="list-style-type: none"><li>- steel plate: thickness – 2 mm,</li><li>- layer glue of WIKO MS 2K Booster: thickness – 3 mm,</li><li>- steel plate: thickness – 2 mm.</li></ul>
	<b>Manufacturer:</b> <ul style="list-style-type: none"><li>- compact: WIKO Klebetchnik Sp. z o. o.</li><li>- glue: WIKO Klebetchnik Sp. z o. o.</li></ul>
	<b>Application</b> – in IN1A; IN1B; IN1D; IN1E; IN4; IN5; IN6A; IN7; IN8; IN9B; IN11; IN12A; IN12B; IN14; F5
<b>The test methods:</b>	ISO 5660-1:2015 Plastics – <i>Reaction-to-fire tests-Heat release, smoke production and mass loss rate – Part 1: Heat release rate (cone calorimeter method) and smoke production rate (dynamic measurement)</i> ; ISO 5658-2:2006 <i>Reaction to fire tests – Spread of flame – Part 2: Lateral spread on building and transport products in vertical configuration</i> ; PN-EN ISO 5659-2:2012 <i>Plastics - Smoke generation – Part 2: Determination of optical density by a single-chamber test</i> ; PN-EN 45545-2+A1:2015 <i>Railway applications – Fire protection on railway vehicles – Part 2: Requirements for fire behaviour of materials and components - Appendix C</i>
<b>Range of tests:</b>	<b>R1 according to the requirements of PN-EN 45545-2+A1:2015:</b> maximum average rate of heat emission MARHE, critical flux at extinguishment CFE, optical density at the first 4 min. ( $D_{S4}$ ), specific optical densities at the first 4 min. ( $VOF_4$ ), conventional index of toxicity $CIT_G$ .
<b>Date and way of samples delivery for testing:</b>	gathered by Customer and delivered by courier 16.05.2018 without sampling protocol from 14.05.2018
<b>Dates of tests realization:</b>	23.05.2018, 24.05.2018, 25.05.2018

Tests results refer to tested material only.

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

This report can be reproduced as a whole and with of Head laboratory's acceptance only.

Report includes 11 pages numbered.

Warsaw, 29<sup>th</sup> of May 2018



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## COMPREHENSIVE EVALUATION OF SMOKE-FIRE PROPERTIES CONE CALORIMETER METHOD

**The test method:** ISO 5660-1:2015

**Test samples preparing conditions:** the samples prepared by the customer, temperature  $(23,0 \pm 0,8)^{\circ}\text{C}$  and humidity  $(50,0 \pm 2,9)\%$  during 167 h

**Conditions during the test:** temperature  $(28,8 \pm 0,2)^{\circ}\text{C}$ , humidity  $(35,5 \pm 2,0)\%$

nominal duct flow rate:  $0,024 \text{ m}^3/\text{s}$

orientation: horizontal

surface area:  $0,0088 \text{ m}^2$ ,

no grid used

heat flux:  $50 \text{ kW}/\text{m}^2$ ,

**Apparatus:** cone calorimeter CONE2a Atlas Company

**Calibration data:**

C-factor: 0,04333167

Conversion coefficient: 13,100 MJ/kg

	sample 1	sample 2	sample 3
Baseline oxygen O <sub>2</sub> , %:	20,927	20,928	20,926

The following print data are attached to the test report:

App. 1 Heat release rate graph (HRR)

App. 2 Effective heat of combustion graph (HOC)

App. 3 Mass loss rate graph (MLR)