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INSTYTUT KOLEJNICTWA

Materials and Structure Laboratory
LK
Section of Non-metal Materials

Report no IK.LKA27.A84/18
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TEST REPORT No IK.LKA27.A84/18

Fire properties

Customer:	WIKO Klebetechnik Sp. z o. o. ul. Ekonomiczna 8 42-271 Częstochowa
Order:	signed the offer No K.LK-3606-3/A/18 from 12.01.2018
Tested material:	compact (plate + glue Weldyx Master + plate)
Description of tested material:	symbol – without Compact made with: <ul style="list-style-type: none">- steel plate: thickness – 2 mm,- layer glue of Weldyx Master: thickness – 2 mm,- steel plate: thickness – 2 mm.
	Manufacturer: <ul style="list-style-type: none">- compact: WIKO Klebetechnik Sp. z o. o.- glue: WIKO Klebetechnik Sp. z o. o.
	Application – in IN1A; IN1B; IN1D; IN1E; IN4; IN5; IN6A; IN7; IN8; IN9B; IN11; IN12A; IN12B; IN14; F5
The test methods:	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>
Range of tests:	R1 according to the requirements of PN-EN 45545-2+A1:2015: 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 .
Date and way of samples delivery for testing:	gathered by Customer and delivered by courier 16.05.2018 without sampling protocol from 14.05.2018
Dates of tests realization:	22.05.2018, 23.05.2018, 24.05.2018

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, 29th 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±0,8)°C and humidity (50,0±2,9)% during 121 h

Conditions during the test: temperature (27,4±0,2)°C, humidity (36,5±2,0)%
nominal duct flow rate: 0,024 m³/s
orientation: horizontal
surface area: 0,0088 m²,
no grid used
heat flux: 50 kW/m²,

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 ₂ , %:	20,941	20,931	20,916

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)