



TEST REPORT FOR REACTION TO FIRE

Test Report No.: 911203-01/03

Issued: 6. 6. 2019

Notified Body No. 1014

Name of product: Optical cable
Type of product: J/A-DQ(BN)(SR)H - Z145
Ratings: B2_{ca}-s1,d0
Serial number: --
Manufacturer: KABELOVNA Děčín Podmokly, s.r.o.
Ústecká 840/33, 405 33 Děčín, Czech Republic
Production site: same as manufacturer
Ordering firm: KABELOVNA Děčín Podmokly, s.r.o.
Ústecká 840/33, 405 33 Děčín, Czech Republic
Number of tested samples: 1
Samples submitted on: 23. 5. 2019
Location of testing: Elektrotechnický zkušební ústav, s. p.
Tests performed from 5. 6. 2019 through 6. 6. 2019
Other data: -
Tested according to: EN 50399:11+A1:16, EN 60332-1-1:04+A1:16,
EN 60332-1-2:04+A1:16+A11:17

Compiled by: Jan Tůma



Approved by: Martin Kříž
Testing laboratory manager

No. of pages: 7

No. of annexes: 0

No. of annexes pages: 0

Test results stated in the test report apply only to the tested subject and unless specified otherwise in the test report, the tests were performed using the method and under the conditions determined in the test regulations, technical norm, instructions for use and information provided by the manufacturer on the tested subject and using accessories required by the manufacturer.

Without written consent of Elektrotechnický zkušební ústav, s. p. this report must not be reproduced in any other way than as a whole.

When referring to services of Elektrotechnický zkušební ústav, s. p. as an accredited laboratory, the customer specified in this report must use the following formulation: "Tested by test laboratory no. 1056, accredited by CAI".

Test type: **Classification of electric cables according to reaction to fire**

Standart: EN 13501-6

EN 50399:2011

Measurement of the heat release and smoke production

EN 60332-1-2

Test of vertical flame spread on a single cable

Cable type: **J/A-DQ(BN)(SR)H - Z145**

Cable producer: KDP s.r.o.

date of test: 5.6.2019

Number of pieces calculation:

Cable diametr: 8,2 mm

$$N = \text{int} \left[\frac{300 + d_c}{2 \times d_c} \right]$$

Test pieces: 19 ks

Mounting type: separately

Space: 8,2 mm

required by: EN 13501-6 for class B2_{ca}

Test results:	FS =	0,84 m	FS ≤	1,5 m	
	HRR_{avg max} =	25,0 kW	Peak HRR ≤	30 kW	
	SPR_{avg max} =	0,046 m ² /s	(s1) SPR ≤	0,25 m ² /s	(additional classific.)
	THR =	10,0 MJ	THR_{1200 s} ≤	15 MJ	
	TSP =	21,3 m ²	(s1) TSP_{1200 s} ≤	50 m ²	(additional classific.)
	FIGRA =	95,3 W.s ⁻¹	FIGRA ≤	150 W.s ⁻¹	
	Burning particles :	No	d0		(additional classific.)
	Flame spread H =	82 mm	H ≤	425 mm	

Classification according to ČSN EN 13501-6:

B2_{ca}-s1,d0

Test type: **Classification of electric cables according to reaction to fire**

Standart: EN 13501-6

EN 50399:2011

Measurement of the heat release and smoke production

EN 60332-1-2

Test of vertical flame spread on a single cable

Cable type: **Z145**

Cable producer: KDP s.r.o.

date of test: 5.6.2019

Number of pieces calculation:

Cable diametr: 8,2 mm

$$N = \text{int} \left[\frac{300 + d_c}{2 \times d_c} \right]$$

Test pieces: 19 ks

Mounting type: separately

Space: 8,2 mm

required by: EN 13501-6 for class B2_{ca}

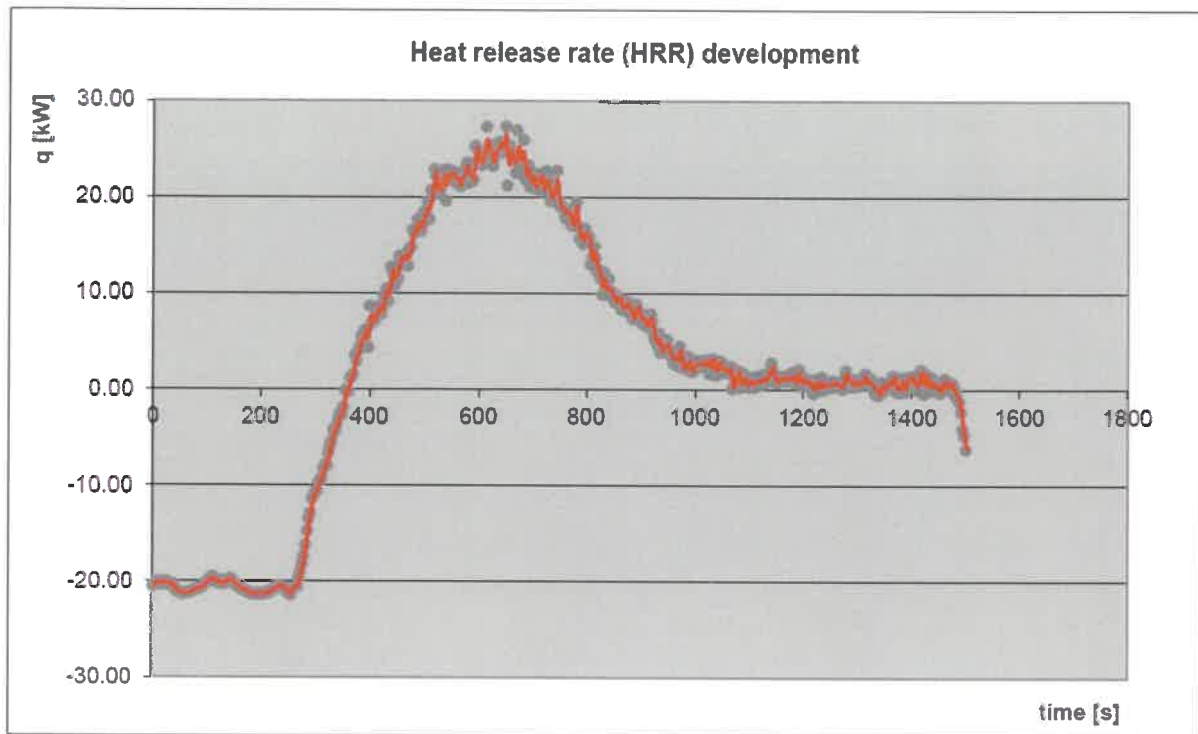
Test results:	FS =	0,84 m	FS ≤	1,5 m	
	HRR_{avg max} =	25,0 kW	Peak HRR ≤	30 kW	
	SPR_{avg max} =	0,046 m ² /s	(s1) SPR ≤	0,25 m ² /s	(additional classific.)
	THR =	10,0 MJ	THR_{1200 s} ≤	15 MJ	
	TSP =	21,3 m ²	(s1) TSP_{1200 s} ≤	50 m ²	(additional classific.)
	FIGRA =	95,3 W.s ⁻¹	FIGRA ≤	150 W.s ⁻¹	
	Burning particles :	No	d0		(additional classific.)
	Flame spread H =	82 mm	H ≤	425 mm	

Classification according to ČSN EN 13501-6:

B2_{ca}-s1,d0

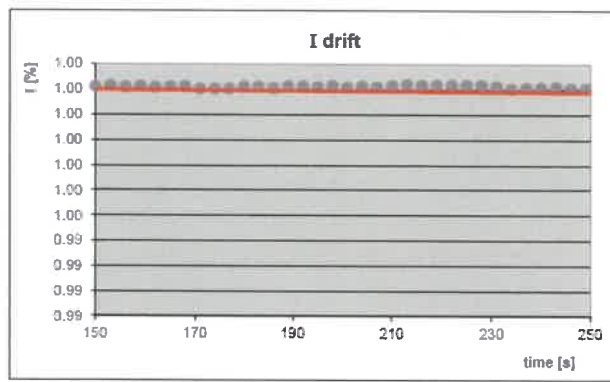
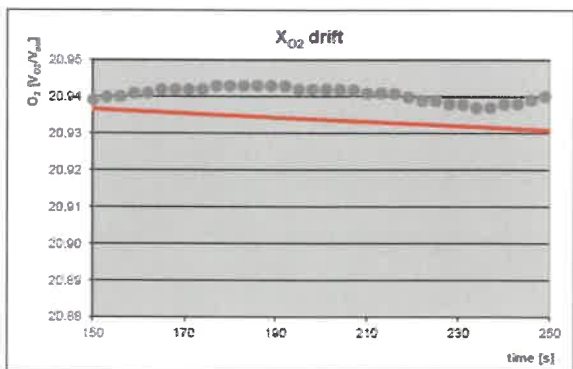
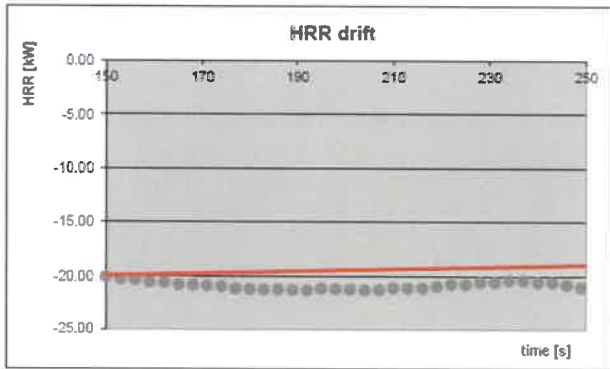
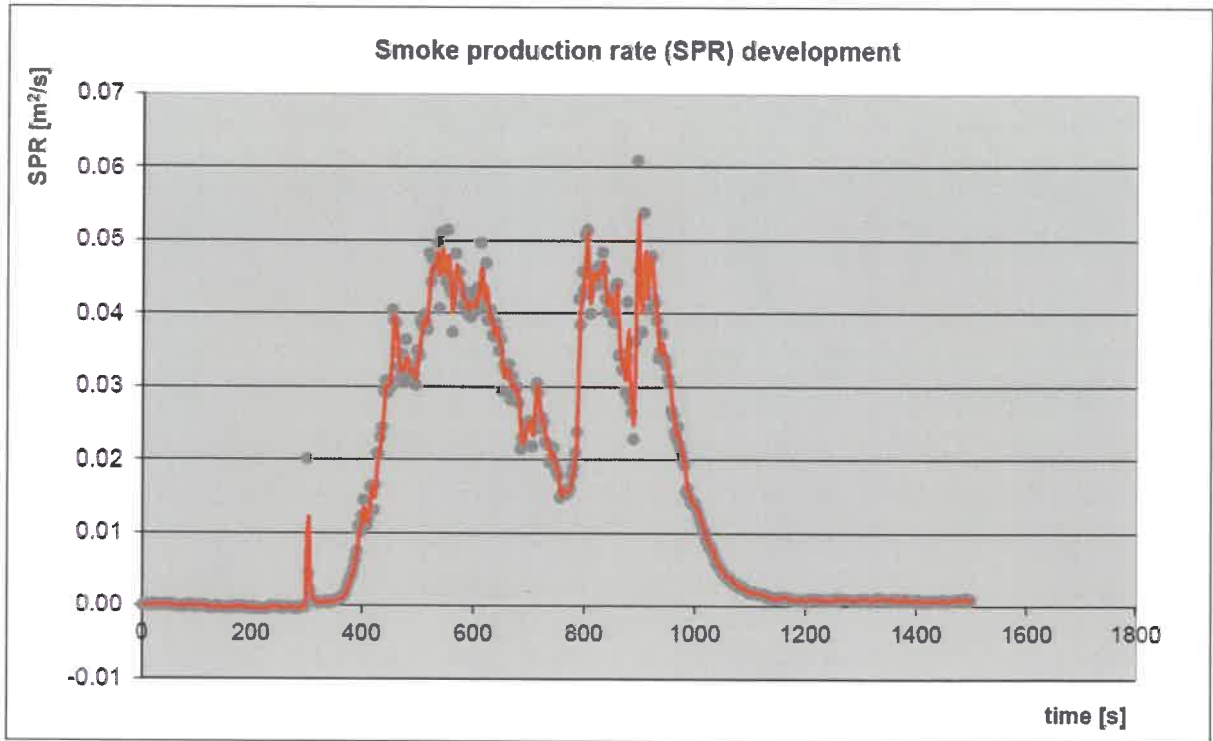
EN 50399:2011

performance level: 20.5 kW



$HRR_{avg\ max} = 24.987\ kW$
 $THR_{1200} = 9.953\ MJ$
 $SPR_{avg\ max} = 0.046\ m^2/s$
 $TSP_{1200} = 21.296\ m^2$
 $FIGRA = 95.263\ W \cdot s^{-1}$

$RH = 41.7\ \%$
 $p^0_{atm} = 98240\ Pa$
 $\vartheta_{atm} = 25.9\ ^\circ C$
 $E_{C_3H_8} = 17200\ J/m^3$
 $46.4\ KJ/g$



EN 50399



Before test



1. min



3. min



5. min



7. min



10. min



After test

Test	Prescribed			Observed
Test on complete cable according to EN 60332-1-2				
Test for vertical flame propagation EN 60332-1-2, article 5 EN 60332-1-2, article 6				
- outer diameter		[mm]	60	8,2
- flame application time		[s]	60	60
- not damage area from lower edge of the top support	min.	[mm]	50	380
- damage area from lower edge of the top support	max.	[mm]	540	462
- flame spread H	≤	[mm]	425	82

EN 60332-1-2



Before test



Course of the tests



After test

Measuring and testing equipment

Used	Type	Key number
--	Digital gravity Sartorius	88-4921/1
--	Teraohmmeter	00-6250
--	Resistomat 2304	00-6251 + 00-6249
--	Profilprojector KSM	00-6323
--	Thermometer	93-5494
--	Thermostat Heraeus UT 6120	110058
--	Thermostat Heraeus UT 6120	110060
--	Cooling chamber ProfiTest	110135
X	Mettler 100 cm	N 400013
X	Slide caliper	259
X	Table stopwatch	551705
X	Test under fire conditions	20 780
--	Smoke index measurement chamber	ZPD 007
--	Slide caliper	190
--	Water bath	51027
--	Digital gravity BP 610	550156
--	Combustion chamber	110239
--	pH meter	551983
--	Konduktometer	551983
--	Cooling equipment	95-5855
X	diferencial barometer Testo 521	20 780
X	multimeter Fluke 189	110018
X	multimeter Fluke 189	SOD 024
X	digital termometer Testo T645	EOD 015
X	termometer Testo 177-T4	EOD 016
X	gas analyzer SICK-MAIHAK S710	TKD 012
X	digital anemometer T425	TKD 020
--	Stopwatch	SOD 025
X	diferencial barometer Testo 521	SOD 022
X	Mass Flowmeter aer - Brooks	SOD 020
X	Mass Flowmeter propan - Brooks	SOD 021

If an uncertainty of measurement is given, the expanded a measurement uncertainty is the product of the standard measurement uncertainty and coverage factor $k = 2$, which corresponds to a coverage probability of approximately 95% in a normal distribution.

Laboratory conditions during the test were in accordance with specifications of the standards listed on the first page of this test report.

Compiled by: Jan Tůma