




Report No. TC.18.02.000753-R₄

Date of Issue 05/21/2018

Applicant: Caledonian Cables Limited

Applicant address: 1/F.,CMA Building,64-66 Connaught Road Central ,Hong Kong

Description of the test subject:

Sample	Description	Photo
001	Name: Fire Resistant Electric Cables Style No: FFX400 1mRZ1-R Size:2x1,5mm ²	

Receipt Date of Sample: 02/23/2018

Date of Testing: From 02/23/2018 to 04/15/2018

Sample submitted: The sample(s) was (were) submitted by applicant and identified.

Conclusion:

Test Items			Result
No.	Items	Standard	
1	Test method for resistance to fire of cables required to maintain circuit integrity under fire conditions	BS 6387: 2013	Pass
2	Test on gases evolved during combustion of materials from cables Part 1:Determination of the halogen acid gas content	IEC 60754-1:2011	Pass
3	Test on gases evolved during combustion of materials from cables Part 2:Determination of acidity(by PH measurement) and conductivity	IEC 60754-2:2011	Pass
4	Measurement of smoke density of cables burning under defined conditions. Part 2:Test procedure and requirements	IEC 61034-2:2005+A1:2013	Pass

Note: (1) General Terms & Conditions as mentioned overleaf,(2)The results relate only to the items tested,(3)The test report shall not be reproduced except in full without the written approval of the company. (4) Samples are tested as received.





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Test Results

1. BS 6387: 2013 Test method for resistance to fire of cables required to maintain circuit integrity under fire conditions

1.1 Sample details

Specimen size	1200mm
Number of conductors	2
Voltage rating	1000V
Testing environment	T :10°C-40°C

1.2 Test results

No.	Test items	Requirements	Test result	Conclusion
1	Protocol C for resistance to fire alone 950°C ±40°C	No blown fuse or circuit breaker disconnect (le no short circuit) No light bulb goes out (le no conductor blown)	No blown fuse or circuit breaker disconnect (le no short circuit) No light bulb goes out (le no conductor blown)	Pass
2	Protocol W for resistance to fire with water 650°C ±40°C	No blown fuse or circuit breaker disconnect (le no short circuit) No light bulb goes out (le no conductor blown)	No blown fuse or circuit breaker disconnect (le no short circuit) No light bulb goes out (le no conductor blown)	Pass
3	Protocol Z for resistance to fire with mechanical shock 950°C ±40°C	No blown fuse or circuit breaker disconnect (le no short circuit) No light bulb goes out (le no conductor blown)	No blown fuse or circuit breaker disconnect (le no short circuit) No light bulb goes out (le no conductor blown)	Pass

2. IEC 60754-1:2011 Test on gases evolved during combustion of materials from cables Part1: Determination of the halogen acid gas conten

2.1 Sample details

Weight (g)	Sample 1:1.0009g	Sample 2:1.0021g	Sample 3:1.0013g
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Conditioning	Temperature (°C)	Humidity (%)	Duration (h)
	23±2	50±5	At least 48h

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2.2 Test results

Sheath

Gas (mg)	1	2	3	Average	Content (%)	Acceptance Criteria (%)	Evaluation
Hydrogen Fluoride (HF)	0.75	0.80	0.77	0.78	0.08	≤0.1	Pass
Hydrogen Chloride (HCl)	0	0	0	0	0	≤0.5	Pass

Insulation

Gas (mg)	1	2	3	Average	Content (%)	Acceptance Criteria (%)	Evaluation
Hydrogen Fluoride (HF)	0.45	0.58	0.62	0.55	0.06	≤0.1	Pass
Hydrogen Chloride (HCl)	0	0	0	0	0	≤0.5	Pass

3. IEC 60754-2:2011 Test on gases evolved during combustion of materials from cables Part 2: Determination of acidity (by PH measurement) and conductivity

3.1 Sample details

Weight (g)	Sample 1:1.0039 g		
Conditioning	Temperature (°C)	Humidity (%)	Duration (h)
	23±2	50±5	At least 48h

3.2 Test results

Sheath

sample	1	2	3	Average	Acceptance Criteria	Evaluation
PH	4.77	5.02	4.97	4.92	>4.3	Pass
Electrical conductivity(μS/cm)	2.91	2.30	2.54	2.58	<10	Pass

Insulation

Items	1	2	3	Average	Acceptance Criteria	Evaluation
PH	4.48	4.57	4.59	4.55	>4.3	Pass

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Electrical conductivity(μ S/mm)	1.82	1.88	1.83	1.84	<10	Pass
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4. IEC 61034-2:2005+A1:2013 Measurement of smoke density of cables burning under defined conditions. Part 2: Test procedure

4.1 Sample details

Diameter	14.1mm		
Pre-conditioning	Indoor		Min. 72 h
	Temp: 23 \pm 2 $^{\circ}$ C	Humidity: 50 \pm 5%	16 h
Ignition Source	Fire source 1: Alcohol		

4.2 Test Result

The minimum light transmittance within the first 20 minutes; (%)	72.56
Conclusion	Pass

Requirement: Within the first 40 minutes, the light transmittance shall not drop to below 60%.

Statement: The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to the sole criterion for assessing the potential smoke and toxicity hazard of the product in use.

Changzhou Jinbiao Railway Transportation Technical Service Co., Ltd.

Drafted by:

Lynn liu

Approved by:

Shen hui

-End of Report-

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