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**Evaluation testing of
National Cables Industry
'NCI-FR' 3x35mm² cable
to selected clauses of
BS 7846:2009**

Prepared for:
National Cables Industry
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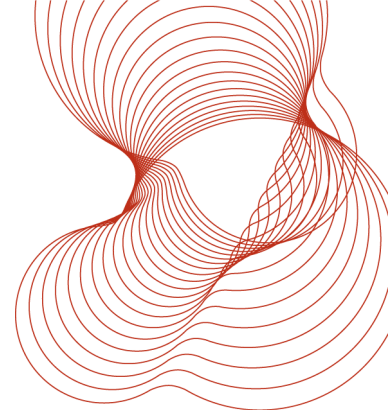
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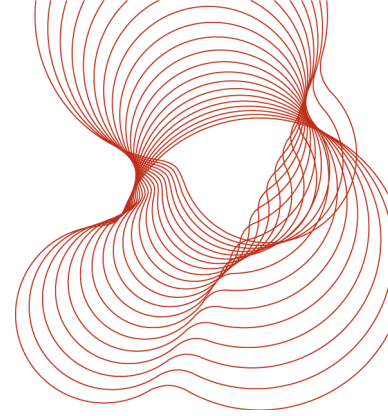
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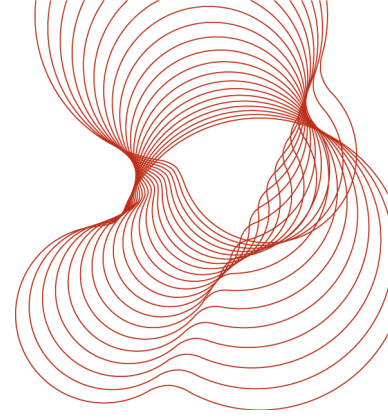
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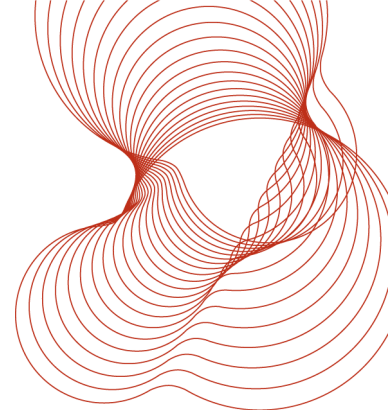
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1 Introduction

The requirement of the work was to determine the performance of a cable when tested to selected clauses of BS 7846:2009 [1].

The client for this work was National Cables Industry, Sharjah, United Arab Emirates. The requirement of the work is given in Quotation Q5342.



2 Details of sample received and tests carried out

The cable tested was a 29.7mm diameter, 3 core cable comprising:

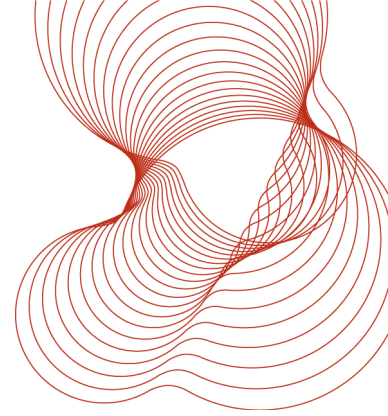
- 3 off 35mm² insulated, stranded copper conductors with mica glass tape.
- Filler rods
- Laying up tape
- Glass tape
- Bedding
- Steel wire armour
- Armour tape
- Over sheath

The over sheath had two lines of the following embossed marking:

'ELECTRIC CABLE 600/1000V 3x35mm² CU/XLPE/SWA/LSZH BS 7846-F2 NATIONAL CABLES INDUSTRY UAE 2012 NCI-FR'.

The test specimen was supplied by the client and received on 19 August 2013. BRE Global was not involved in the sample selection process and therefore cannot comment upon the relationship between samples supplied for test and the product supplied to market.

The client requested that the cable was tested to selected clauses of BS 7846:2009 and this report should be read in conjunction with it.



3 Test results

3.1 BS 7846:2009 Clause 6.4 - Corrosive and acid gas emissions of tape(s) and fillers

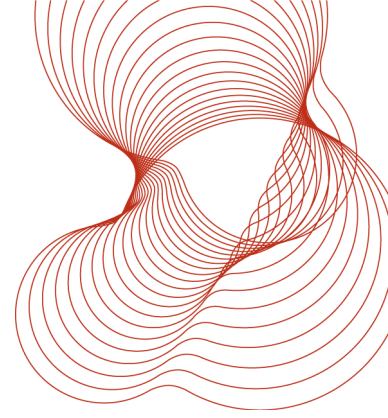
Cable type	Component	% HCl per gram of sample	Result
3x35mm ²	Filler	<0.1	Pass
3x35mm ²	Laying-up tape	<0.1	Pass

3.2 BS 7846:2009 Clause 17.2 - Flame propagation on a single cable

Cable type	Cable diameter (mm)	Duration burner applied to cable (s)	Unaffected length of cable (mm)	Extent of charring (mm)	Result
3x35mm ²	29.7	120	400	495	Pass

3.3 BS 7846:2009 Clause 17.3 - Smoke emission

Cable Type	Cable Diameter (mm)	No. of cable lengths	Minimum light transmittance (%)	Result
3x35mm ²	29.7	2	75.8	Pass



3.4 BS 7846:2009 Clause 17.4.2 - Resistance to fire - Category F2

BS 7846:2009 Clause 17.4.2 - Category F2 states that the cables shall be tested in accordance with BS 6387:1994, D.2 and shall withstand 950°C for 3 hours. Additionally, the cable shall be tested in accordance with BS 6387:1994, D.3 and D.4 and shall confirm to the requirements for Category W and Category Z.

3.4.1 BS 6387:1994 Clause 11.1 (Annex D.1 & D.2) - Resistance to fire alone

Cable type	Test category	Test voltage (Uo/U)	Comment	Result
3x35mm ²	C	600/1000V	No fuses ruptured or lamps extinguished	Pass

3.4.2 BS 6387:1994 Clause 11.2 (Annex D.1 & D.3) - Resistance to fire with water

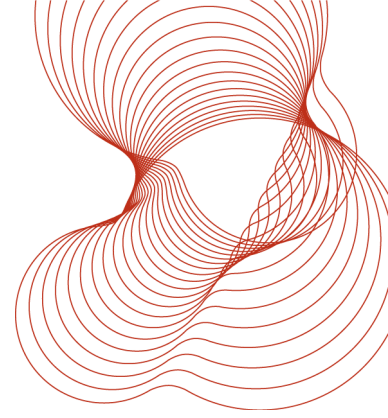
Cable type	Test category	Test voltage (Uo/U)	Comment	Result
3x35mm ²	W	600/1000V	No fuses ruptured or lamps extinguished	Pass

3.4.3 BS 6387:1994 Clause 11.3 (Annex D.1 & D.4) - Resistance to fire with mechanical shock

Cable type	Test category	Test voltage (Uo/U)	Comment	Result
3x35mm ²	Z	600/1000V	No fuses ruptured or lamps extinguished	Pass

3.5 BS 7846:2009 Clause 18.5 - Flame propagation on multiple cables

Cable Type	Non-metallic volume per unit length (l/m)	Number of cable lengths in test array	Extent of char above burner (m)	Result
3x35mm ²	0.4797	3	0.35	Pass



4 Conclusion

The National Cables Industry 'NCI-FR' 3x35mm² cable met the requirements of the selected clauses of BS 7846:2009.

5 Reference

1. BS 7846:2009. Electric cables – Thermosetting insulated, armoured fire-resistant cables of rated voltage 600/1000 V having low emission of smoke and corrosive gases when affected by fire - Specification. British Standards Institution, London 2009.

=====REPORT ENDS=====