PD CLC/TS 50576:2014

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Electric cables — Extended application of test results

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The UK participation in its preparation was entrusted by Technical Committee GEL/20, Electric cables, to Subcommittee GEL/20/18, Electric Cables - Fire testing.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Published by BSI Standards Limited 2014

ISBN 978 0 580 82772 3
ICS 13.220.40; 29.060.20

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This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 September 2014.

Amendments/corrigenda issued since publication

Date	Text affected

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Full document details: PD CLC/TS 50576:2014

TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CLC/TS 50576

September 2014

ICS 13.220.40; 29.060.20

English Version

Electric cables - Extended application of test results

Câbles électriques - Application étendue des résultats d'essai

Kabel und Leitungen - Erweiterte Anwendung von Prüfergebnissen

This Technical Specification was approved by CENELEC on 2014-06-09.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Ref. No. CLC/TS 50576:2014 E

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Foreword

This document (CLC/TS 50576:2014) has been prepared by CLC/TC 20 "Electric cables".

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This document shall be used in conjunction with EN 50575 in order to evaluate the reaction to fire performance of power cables

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

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Introduction

The project “CEMAC – CE marking of cables” was carried out over a three year period. It brought together cable manufacturers, research and testing laboratories, and research establishments in creating the technical background and developing rules and procedures for extended application of test results (EXAP). More than 200 tests to EN 50399 on more than 100 cables were carried out as part of the project. The final report [1] was published in 2010 and the EXAP rules and procedures developed by the CEMAC project have been used as the basis for this technical specification.

A specific EXAP procedure and rules based on the use of safety margins and a cable parameter derived from the extensive CEMAC tests was developed for the most common generic types of power cables used in the European market.

A general EXAP procedure and rules based upon a statistical treatment of the actual test results obtained from a cable family was also developed for any power cables. However, the use of this general procedure and rules will generally require more tests to be carried out than the use of the specific procedure and rules.

General guidance on direct and extended application may be found in CEN/TS 15117 [2].

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1 Scope

This Technical Specification gives the procedure and rules for extended application of results of tests carried out according to the test methods described in EN 50399 and/or EN 60332-1-2.

The EXAP rules described apply to EN 50399 test results used for classification in classes $B2_{ca}$,C_{ca} and D_{ca}, additional smoke production classes s1, s2 and s3 and flaming droplets/particles.

Cables of diameter 5,0 mm and less should be tested as bundles according to EN 50399 and are excluded from these rules. Bundled cables are not included in the EXAP rules.

No rules have been developed for non circular cables which are not at present included in EN 50399.

A specific EXAP rule has been developed for the most common generic power cable families. A general EXAP rule has been developed for any power cable families. The general EXAP rule is not applicable to communication or optical fibre cables.

NOTE 1 Multicore power cables with more than 5 cores are sometimes referred to as control cables with a rated voltage but for the purposes of this standard are considered as power cables.

NOTE 2 The general EXAP rule may be applied in the case of hybrid cables provided that the conditions of 6.1 are fulfilled.

No EXAP rules have been developed for communication or optical fibre cables at the time of publication of this TS.

The use of the specific EXAP rule gives benefit in the lower number of cables to be tested for a range of cable constructions (product family).

An EXAP is only possible when cables belong to a defined family as defined in this Technical Specification.

NOTE 3 No EXAP procedure and rules have been developed in respect of the results of tests carried out according to the test method described in EN 50267-2-3. As the parameters (pH and conductivity) for each cable in a family are determined based upon calculation using material test results, this is considered as a matter of direct application. Material test results taken from any one sample of finished cable from a family are sufficient to calculate the parameters for each cable in the family.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50399, *Common test methods for cables under fire conditions — Heat release and smoke production measurement on cables during flame spread test — Test apparatus, procedures, results*

EN 50575, *Power, control and communication cables — Cables for general applications in construction works subject to reaction to fire requirements*

EN 60332-1-2, *Tests on electric and optical fibre cables under fire conditions — Part 1-2: Test for vertical flame propagation for a single insulated wire or cable — Procedure for 1 kW pre-mixed flame (IEC 60332-1-2)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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