

Standardisation work relating to protection in explosive atmospheres

by Th. Arnhold (editor)

IEC TC 31 meeting in Dubrovnik

Committee TC 31, responsible for explosion protection, and some of the subcommittees met between April 3 – 11, 2003 in Dubrovnik. Besides TC 31, these subcommittees included SC 31 A Flameproof enclosure ,d', SC31 G Intrinsic safety ,i' and committee SC 31 H, responsible for dust explosion protection. In addition, several Maintenance Teams and Working Groups also met. Overall, 48 delegates from 18 countries took part in the event.

In addition to decisions dealing with specific standards projects, which will be reported on below in detail, there were a few fundamental decisions from TC 31 which are primarily intended to speed up and simplify standardisation work. The proposals elaborated will soon be circulated as an information document. In order to prevent further fragmentation of the explosion protection standards, standards covering individual apparatus types, such as caplights and resistance traceheaters, are to be avoided in the future. An ad-hoc working group will elaborate a recommendation on how to proceed in respect to IEC 62086, Parts 1 and 2: Electrical resistance traceheating in potentially explosive atmospheres, bearing this aspect in mind.

CENELEC TC 31 meeting in Arnhem

A meeting of the Technical Committee TC 31, which is responsible for explosion protection at European level, was held in September 2002 in Arnhem, the Netherlands. During this meeting, it was determined that the number of IEC Standards on which parallel voting occurs at CENELEC has risen greatly. This is an expression of how well the parallel voting procedure, which brings with it an essential simplification of international standardisation, works. At the same time however, it was also determined that only the active participation of many European delegates in the work of the IEC, primarily at the Maintenance Team level, will ensure the exertion of early and effective influence of how Standards develop.

At the same time, it was possible to determine that, owing to relocation of the standardisation work to IEC level, the meetings of the TC 31 subcommittees, SCs, were no longer being held or were being held only as an exception so that most SCs were put on ,standby'.

In addition to other topics, discussions also touched on cooperation with the organisation of the European testing authorities (Notified Bodies) ExNB. The interpretation sheets elaborated by ExNB on case-by-case inter-

pretation of Directive 94/9/EC are published at <http://europa.eu.int./comm/enterprise/atex/index.htm>.

All interpretations relating to the Standards must be coordinated with TC 31 and approved by it before publication.

General requirements IEC 60079-0

The second meeting of IEC Maintenance Team 16 was held in April 2002 in Eberbach/Germany and the third meeting was held in January 2003 in Orlando, FL. USA. The national comments submitted on the published CDV (Committee Draft for Voting) were thoroughly discussed at both meetings.

It is anticipated that the fourth edition of the Standard will be published in 2003.

Other discussions related to the questions of marking, definition of terms used and possible topics for the fifth edition of the Standards.

With reference to marking, MT 16 considered achieving adequate consistency between the different standards published in TC 31 to be a chief concern. It will be endeavoured to assign MT 16 a monitoring function in this respect. Each proposal impacting on marking from other groups is, in the future, to be

reviewed in the short term by MT 16.

Before new WARNING and CAUTION markings in other Standards of the 60079xx series are created, a more precise review is to be conducted in order to establish whether warning instructions previously defined in IEC 60079-0 do not already cover the required statement. If new warning instructions are required nevertheless, these are to feature a uniform structure.

The definitions are to be included in IEC 60079-0 as far as possible. Duplicate definitions in different standards and contradictions are to be avoided in the future.

Intrinsically safe systems IEC 60079-25/EN 50039

The FDIS (Final Draft International Standard) of IEC 60079-25 is currently being prepared and technical clarification work is basically complete. Only editorial changes can now be made. Combining the requirements for Group I and Group II is no longer planned for this edition, but is to be included in the next revision.

IEC 60079-25 will also be published as EN 60079-25 in the parallel voting procedure.

Type of protection ,n' IEC 60079-15

A further meeting of Maintenance Team MT 19 was held in January 2003 in Orlando, USA. This meeting discussed the national comments on the Committee Draft (CD) published in August 2002 and prepared for publication as CDV (Committee Draft for Voting).

TC 31 decided on the following in Dubrovnik: The techniques in this edition that are not specific to Part 15 should be included in the appropriate parts when revised and are to be removed in future editions of Part 15.

Increased safety ,e' IEC 60079-7/EN 50019

A Maintenance Team MT 21 was founded at IEC level for elaborating the fourth edition of IEC 60079-7. To date, notifications have been submitted for ten members, three of them from Germany. The convenor of this MT will be Mr. Kurt B. Boegli from the USA. An initial meeting of this MT is anticipated in late 2003.

Pressurised apparatus ,p' EN 50016

The fourth edition of the European Standard on Pressurised apparatus was published in July 2002. The requirements of Directive 94/9/EC have thus been taken into account.

Intrinsic safety ,i' IEC 60079-11/EN 50020

The White Paper of the third edition of EN 50020 has been available in English since June 2002. Publication of the German version has been delayed.

The third edition represents the last independent version of European Standard EN 50020. In future, IEC 60079-11 will constitute the basis for the European Standard.

Essential changes by comparison with the second edition are as follows:

- Distinction between the requirements made of optocouplers (intrinsically safe/intrinsically safe and intrinsically safe/non-intrinsically safe)

- It is still not necessary to conduct a conformity procedure pursuant to ATEX Directive 94/9 EC for simple apparatus. However, a corresponding note in the Standard will be omitted in the future.

- Pursuant to ATEX, no manufacturer's declarations may be issued for Zone 1, but the user may operate simple electrical apparatus at his own responsibility in Zone 0, 1 or 2. However, this apparatus must be listed in the system description or in the verification of intrinsic safety and its influence on intrinsic safety must be taken into account.

A meeting of MT4 was held in April 2003 in Dubrovnik for revision of IEC 60079-11. The new edition of EN 50020 is to be taken into consideration. The next edition of IEC 60079-11 is scheduled for 2005.

FISCO concept IEC 60079-27TS

IEC Standard FISCO, 'Technical Specification', has been published as a White Paper. The parallel voting procedure is scheduled for the European Standard. In order to allow for the complexity of the new system, the requirements applicable to apparatus and installations have been summarised in a paper. Later, when the technology is more familiar, the individual parts are to be incorporated in the relevant standard (apparatus requirements and installation requirements). The transitional phase will last at least 3 years.

Even today, devices can already be marked with 'FISCO to IEC TS 60079-27'. However, the aim is to refer subsequently to FISCO pursuant to EN Standard.

In Dubrovnik, SC 31 G decided to develop an independent Standard IEC 60079-27 on this basis.

Flameproof enclosure ,d' IEC 60079-1

A meeting of the IEC Maintenance Team was held in August 2002 in Bochum/Germany. After the comments submitted were dealt with, the fifth edition of the Standard was

distributed as FDIS (Final Draft International Standard). The voting, which was already scheduled for early 2003, is delayed so that the fifth edition will probably not appear until early 2004. The work already commenced on the sixth edition will also be delayed by this.

Dust explosion protection

Mr. Greiner's article in this edition (Page 15) reports on the new developments in relation to standardisation of dust explosion protection. A number of projects currently underway were speeded up at the SC 31 H meeting in Dubrovnik. The following work was released for final voting (FDIS Final Draft International Standard):

IEC 61241 Electrical apparatus for use in the presence of combustible dust
Part 0: General requirements
Part 1: Protection by enclosure ,tD'
Part 10: Classification of areas where combustible dusts are or may be present
Part 14: Selection and installation
Part 18: Protection by encapsulation ,mD'

Voting with the responsible Maintenance Team MT 16 'Encapsulation' will still be necessary for Part 18, so that the requirements of the Standards for dust do not contradict the requirements for explosion protection in areas endangered by gases.

Part IEC 62241-17: Inspection and maintenance, is to be circulated as a CDV to the NC's in July 2003.

The currently existing document of Standard IEC 61241-11: Protection by intrinsic safety ,iD' is scheduled for distribution as CDV. In order to ensure in the future that the requirements harmonise with those of gas explosion protection, a Joint Maintenance Team, comprising experts of SC 31 H and SC31 G are to continue the work. →

→ **Installation of electrical systems in hazardous areas IEC 60079-14**

Owing to the objections from France and Italy, it was not possible to complete the CDV procedure. The reason relates to the rejection of the new, relatively restrictive procedure for the selection option of direct entries or glands in flameproof enclosures. A wish has been expressed to retain the old generous selection procedure which, in turn, is rejected by many countries owing to the inadequately defined safety level and the lack of responsibilities.

Encapsulation ,m' IEC 60079-18

Voting on the CDV (Committee Draft for Voting) was positive. The proposed revision of IEC 60079-18 will now proceed to FDIS.

Apparatus used in Zone 0 IEC 60079-26

After many years, it has now been possible to complete the work on Standard IEC 60079-26: Special requirements for construction, test and marking of electrical apparatus for Zone 0. The present Draft will be voted on as a Final Draft International Standard (FDIS).

Risk of ignition by optical radiation IEC 60079-28

Scope of Standard IEC 60079-28: Risk of ignition by radiation of explosive atmosphere of gas, vapour or mist from optical radiation equipment and transmission systems, is to be extended to cover hazards owing to combustible dusts.

TC31 Working Group ,Risk Assessment'

The ad-hoc working group met for the first time in April 2002 in Eberbach/Germany. All those present agreed that a classification of devices for hazardous areas, valid worldwide, should be introduced by which the hazard resulting from the function of the device is

matched and compared depending on the application and the required equipment protection level.

An approach using the European system of zone classification and the resultant equipment categories as a basis was agreed upon.

The paper was distributed to the national committees for them to submit their comments. 11 of 12 countries consented to this – the only objection was submitted by the USA. During the TC 31 meeting in Dubrovnik in April 2003, an attempt was made to solve this problem with the American delegation.

The decision: A TC 31 working group with Mr. Munro, Chairman of TC 31, as convenor, will continue this important work.

Quality management under the ATEX Directive EN 13980

The requirements applicable to quality management systems pursuant to Annexes IV and VII of the ATEX Directive 94/9/EC have been specified more precisely in European Standard EN 13980. This Standard was published in August 2002 and must be read in conjunction with the Basic Standards ISO 9001:2000 and ISO 9004:2000.

IEC Ex Scheme

The fourth meeting of IEC Ex was held in October 2002 in Seoul, South Korea.

Dr. Uwe Klausmeyer (PTB) was selected as the new Chairman.

The new Chairman of the IECEx Assessor Panel is Jim Munro of TestSafe, Australia.

The work of the IECEx Scheme is proceeding with a surprising level of success.