



# Ex-News

## Standardisation work on the topic of explosion protection of electrical apparatus

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### IEC-TC 31: Electrical Apparatus for Potentially Explosive Atmospheres

#### IEC 60079-0: General Requirements

A meeting of the newly created Working Group (WG) 22 was held in Sydney, Australia in early December 2004. One of its tasks was to elaborate proposals for the future structure of Series of Standards IEC 60079. Work on merging the General Requirements for gas and dust explosion protection was commenced at the first meeting. Merging into one Standard in this way was also considered for types of protection for which this makes sense and for which it is technically possible. This relates to the Standards covering intrinsic safety, intrinsically safe systems, intrinsically safe fieldbus systems and encapsulation.

It is also planned to 'marry' the gas and dust Standards covering installation, inspection and maintenance of electrical installations in hazardous areas and covering repair and overhaul of electrical apparatus for hazardous areas.

This first meeting indicated how important such a merger is in recent years doing the work twice has resulted in a large number of inconsistencies and contradictions, even in the definitions, making it more difficult to understand the Standards.

In addition, it was also decided, at the TC 31 meeting in September 2004 in Braunschweig, Germany, to introduce the so-called Equipment Protection Levels (EPLs) for equipment classification in the future. These EPLs are to facilitate assignment of the apparatus to the Zones analogously to the equipment Categories 0, 1 and 2 introduced under ATEX Directive 94/9/EC. The lower-case letters a, b and c are to be used for marking, which is a continuation of the practice familiar from the sector of intrinsic safety:

Ga will thus, in the future, identify apparatus for use in Zone 0. (Gb for Zone 1 and Gc for Zone 2).

Db will identify apparatus for use in Zone 21, Da will be used for Zone 20 and Dc will be used for Zone 22.

#### IEC 60079-2: Pressurized Enclosures

The fifth edition of the Standard was under discussion in the later half of 2004. No essential change requests were submitted in this case so that the CDV (Committee Draft for Voting) will be able to follow shortly.

#### IEC 60079-13 and IEC 60079-16: Pressurized Rooms and Analyser(s) houses with and without Internal Relief Sources

The reports available on these topics are to be revised and, if applicable, set to the status of a Standard. A decision was taken to produce one Standard which includes the requirements for rooms and houses with internal relief sources from both reports, analogously to the corresponding Apparatus Standard IEC 60079-2. In addition, it was decided to also consider the European Standard on transportable compartments, EN 50381, in this revision process.

#### IEC 60079-7: Increased Safety

During the IEC TC 31 meeting in Braunschweig, there was a meeting of the Maintenance Team for this Standard which is working on further development of the 4th edition. This resulted in the requirements applicable to the external connection systems being modified slightly. Connectors are now also to be permitted for internal connections. Corresponding requirements were defined.

In order to prevent excessive heating of the ends of the lamp at the end of the service life of fluorescent lamps, the electronic

ballasts are to switch off the lamps well before this happens. Two test procedures from IEC 61347-2-3 were adopted in the list of required type tests in order to ensure this property.

In the routine tests, a simplification for testing the insulating properties was included for cases in which the clearance distances and creepages are subject to close monitoring in the production process. This is the case, for instance, when manufacturing terminal blocks. In this case, it will also be possible to use random sampling with an AQL of 0.04 in accordance with ISO 2859-1 in the future.

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### IEC - SC 31A Flameproof Enclosures

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It was decided in Braunschweig to disband Subcommittee SC 31 A: Flameproof Encapsulation. This will mark the end of TC 31's oldest subcommittee. Work on IEC 60069-1 will be continued by TC 31 in the future.

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### IEC - SC 31G: Intrinsically Safe Apparatus

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#### IEC 60079 - 11: Intrinsic Safety

It was originally planned to publish the fifth edition in 2005. Owing to various delays, publication is now not expected until 2006. Category ic of type of protection Intrinsic Safety »i« for application in Zone 2 was adopted as a supplement in the second CD (Committee Draft). IEC 60079-11 will thus stipulate the requirements applicable to apparatus of type of protection Intrinsic Safety for all three Zones in the future! However, time reasons dictated that it would be necessary to dispense with integration of dust explosion protection in the new edition. The

corresponding regulations will be published in a separate Standard IEC 61241-11, as originally planned. This will mean that integration in IEC 60079-11 will occur, at the earliest, in the 6th edition of the Standard.

#### IEC 60079-27: FISCO/FNICO: Intrinsically Safe Fieldbus Systems

The CDV has been accepted by experts in the sector with no major objections so that it has now been possible to circulate the Draft Standard as an FDIS (Final Draft International Standard).

The regulations for Zone-2 applications have been supplemented (FNICO). The completed Standard will probably be published in late 2005/early 2006. For reasons relating to simplification however, the contents of the Standard are to be split into the apparatus requirements of 60079-11, the system requirements of 60079-25, and the installation requirements of 60079-14.

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### IEC SC 31J: Zone Classification and Installation Requirements

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All four Maintenance Teams (MTs) dealing with further development of Installation Standards IEC 60079, Part 10: Zone Classification, Part 14: Installation, Part 17: Inspection and Maintenance, and Part 19: Repair and Overhaul, convened in October 2004 in Braunschweig and in December 2004 in Sydney (Australia).

This gave rise, once again, to an in-depth controversy relating to the reliability of using the tables with the gap dimensions from Annex C of IEC 60079, Part 19, covering repair of flameproof joints. These tables correspond to Tables 1 and 2 from Standard IEC 60079-1: Flameproof Enclosures.

German members in particular declared

such a simplification to be inadmissible since approval practice also frequently indicates that pure compliance with the table values does not automatically lead to a flame transmission safe design.

This relates in particular to electrical machines of Explosion Group II C. The only correct approach is to use the manufacturer's design dimensions confirmed in the type examination. This argumentation was opposed in particular by Great Britain, based on many years of practice in manufacturer-independent repair plants. A compromise in relation to the draft of the second edition (CD) of the Standard was reached in as much as the absolute demand for use of the manufacturer's dimension specifications was made only for the particularly critical case of IIC apparatus.

This approach was recommended as the preferred practice for apparatus of Explosion Group IIB and IIA, but it will be possible to use the table values if the data is not available, as may be the case with less recent flameproof motors. The third edition of IEC 60079, Part 17: Inspection and Maintenance, has achieved FDIS status and is thus to be published shortly.

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### Explosion Protection of Non-Electrical Apparatus

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In Europe, standardisation in relation to explosion protection of non-electrical apparatus is a task of CEN and standardisation in relation to explosion protection of electrical apparatus is a task of CENELEC. A proposal aimed at extending the scope of TC 31 from »Explosion Protection of Electrical Apparatus« to »Explosion Protection« was submitted at the IEC TC 31 meeting in September 2004 in Braunschweig in order to achieve



worldwide-uniform standardisation, as has already long existed in relation to explosion protection of electrical apparatus. CEN then submitted the alternative proposal to mandate ISO TC 199 ›Safety of Machinery‹ to regulate explosion protection of mechanical apparatus worldwide. Corresponding standardisation applications were filed with ISO in 2005. Unfortunately, this development led to an unsettled situation and will certainly result in further authority disputes and work being done twice in the future.

such an extension and financing of the required administrative effort, it will, of course, also be necessary to clarify questions relating to national recognition and practical procedures. The German position which was formulated at the annual meeting of DKE K241 is that it will be essential to ensure that:

- › national regulations have priority,
- › the voluntary nature of the procedure must be ensured, and
- › no excessive red tape occurs.

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### **IECEX Certification Agreement (IECEX Scheme)**

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A meeting of the Management Committee and other IECEX Committees was held in October 2004 in Brdo (Slovenia). The Czech Republic was welcomed as a new member state. Singapore applied to join in 2004 and Brazil will apply in 2005. Japan also plans to apply.

A first step towards recognition of type tests in manufacturers' laboratories was taken at the meeting of Certification Bodies and Testing Laboratories Representatives (Ex TAG): manufacturers' laboratories are now recognised if a representative of the test authority is now present at the start of the tests.

It was decided to introduce a one-off, additional certificate fee as of January 2005 to finance the IECEX Scheme. The fee is 250 Swiss Francs for new certificates and 125 Swiss Francs for supplementary certificates. Extension of the IECEX Scheme to cover certification of servicing and repair workshops for explosion protection-related activities was discussed at a further meeting in June 2004 in Singapore. Besides the fundamental questions of the justification of