

## Standardisation work relating to protection in explosive atmospheres

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### IEC TC 31: Electrical Apparatus for Explosive Gas Atmospheres

#### IEC 60079-0: General Requirements

Two fundamental decisions were reached at the IEC TC-31 meeting in Dubrovnik:

- It was decided to appoint joint working groups with the medium-term aim of merging the Gas Explosion Protection and Dust Explosion Protection Standards.
- In the future, it is planned to merge the requirements applicable to all applications and all types of protection, such as definitions, marking of the equipment and warning information, in IEC 60079-0.

#### IEC 60079-2: Pressurised Enclosure

At the meeting of CENELEC SC31- 9 in Oslo, it was decided to replace EN 50016 by IEC 60079-2. In future, this means that types of protection py and pz will also apply besides type of protection px. px is the classic pressurised enclosure for Zone 1. The interior of the pressurised enclosure must be the "non-hazardous area" during operation. py is a technology, by which the interior of the pressurised enclosure is considered as Zone 2 during service and, thus, in which apparatus of Category 3 must be fitted to be able to use the complete system in Zone 1.

Type of protection pz is destined for use in Zone 2. We are curious to know how these technologies will be accepted in Europe.

#### IEC 60079-7: Increased Safety

After the third edition of this Standard was published as early as June 2001, work commenced on the fourth edition of the Standard in February with the first meeting of the Maintenance Team MT 21 in London. It is planned to publish this new Standard in Autumn 2006.

#### IEC 60079-15: Type of Protection "n"

The edition of IEC 60079-15, dated August 2001, was published as EN 60079-15 in April 2003 as the replacement to the previous EN 50021. Both Standards will apply for three years in parallel due to the transitional periods. Products approved in accordance with the old EN 50021 Standard in Europe will, of course, continue to remain approved.

The new edition of IEC 60079-15 has been available as a Committee Draft for Voting (CDV) since mid-2003. The essential change is that, in this Draft, the Standard is not a stand-alone document, but refers to IEC 60079-0 "General requirements" for all requirements, applicable independently of the type of protection in question. This improves the structure and intelligibility of the Standards considerably.

#### IEC 60079-18: Encapsulation

The Final Draft International Standard (FDIS) of the second edition was distributed to the national committees in early 2004 and is currently undergoing parallel voting (simultaneous voting at IEC and CENELEC).

#### IEC 60079-26: Apparatus for Zone 0

The CDV version of the new Standard was published in September 2002. The paper was adopted by majority decision in September 2003. The change requests were incorporated in October, so that the Standard was able to be published as an FDIS in early 2004. The draft essentially corresponds to EN 50284. Various details were transferred to other Standards. For instance, the requirements for encapsulation ma and mb are now defined in IEC 60079-18, analog to Intrinsic safety ia and ib.

### SC 31 A: Flameproof Enclosed Apparatus

#### IEC 60079-1: Flameproof Enclosure

The fifth edition of the Standard has been available as a Final Draft International Standard (FDIS) since mid-2003. The change requests were dealt with in October at a meeting of the Maintenance Team.

One essential change with respect to the fourth edition is the requirement for additional explosion tests or alternative measures, if the actual temperature exceeds or drops below the range of -20°C and +40°C.

In addition, preparation work on elaborating the sixth edition was commenced at the meeting in October.

It was also decided to adopt a reference to

the restricted applicability of Tables 1-4, IEC 60079-1, which defines minimum dimensions of joints, for testing in the case of maintenance or after repair work, in IEC 60079-19, "Repair and overhaul".

### **SC31 G: Intrinsically Safe Apparatus**

#### **IEC 60079-11: Intrinsic Safety**

The Committee Draft (CD) of the fifth edition was completed in late 2003 and has now been submitted to the national committees for them to submit their comments. The aim is to publish the finished Standard by late 2005.

#### **IEC 60079-25: Intrinsically Safe Systems**

A Maintenance Team was set up for the second edition with the aim of publishing this edition by 2008. There were discussions during the meeting of IEC SC 31 G in Dubrovnik in relation to the need for extension of the requirements to cover intrinsically safe systems for Group I as well. A decision was taken to continue to consider only Group II.

#### **IEC 60079-27: FISCO Standard (Intrinsically Safe Field Buses)**

This Standard was published in November 2002 as a Technical Specification. This means that its validity is limited to three years.

A Maintenance Team was set up with the aim of also adopting the requirements of Zone 2 in a second edition and elaborating the status of a fully accepted Standard.

### **SC 31 H: Electrical apparatus for use in the presence of combustible dust**

At the last meeting of SC 31H in April 2003 in Dubrovnik, a decision was taken to adapt the structure of the series of Standards for dust explosion protection to the series of Standards for electrical explosion protection in a next step in an attempt to merge both series of Standards in the long term.

#### **IEC 61261-14: Selection and Installation and IEC 61261-17: Inspection and Maintenance**

The installation regulations IEC 61261-14 as well as the inspection and maintenance regulations IEC 61261-17 are both currently at the Committee-Draft-for-Voting (CDV) stage and their requirements will very largely be identical to those of the corresponding Standards for gas explosion protection IEC 60079-14 resp.-17.

#### **IEC 61261-19: Repair and Overhaul**

Regulations IEC 61261-19 which deal with repairs and overhaul are currently being elaborated, very closely based on IEC 60079-19. The regulations will be dealt with further by the IEC Maintenance Team 9 during the first six months of 2004.

### **SC 31 J: Zone Classification of Hazardous Areas and Installation Requirements**

The German counterpart of IEC SC 31J, DKE Committee K 235, has a new Chairman. Dr. H. Oberhem of Bayer Industry Services was appointed Chairman of Committee K235 in Spring 2003 as the successor to Dr. de Haas. The Deputy Chairman and German Speaker in SC31J is V. Pandel of Infracorv.



## → IEC 60079-19: Electrical Apparatus for Explosive Gas Atmospheres, Repair and Overhaul

A new draft for this Standard whose first edition was published in 1993 is currently being elaborated.

## CEN TC 305: Explosion Protection of Non-Electrical Equipment

EN 13463, Part 1: Basic method and requirements has been passed as a Standard.

Part 2 of this series Standards with type of protection "Protection by flow-restricting enclosure" is just about to be passed.

Part 2 "Protection by flameproof enclosure" is also in the last stage of voting and will be published in 2004. The wording of the Standard is adapted nearly to that of IEC 60079-1.

Part 4: "Protection by inherent safety" actually contains only limit values. There can be no self-contained concept as with intrinsically safe electrical circuits. That is why it is currently being considered whether to publish this Standard only as a Recommendation.

Publication of Draft prEN 13363-5: "Protection by control of constructional safety" was delayed by approximately one year owing to various formal errors. This is all the more regrettable, since this protection concept is the most important for machine design.

The concept for Part 6: "Protection by control of ignition sources" is currently being reconsidered for further editions of the Standard. This is based on the idea of considering the electrical and non-electrical ignition sources jointly and to merge the categories stipulated in EN 954 Part 1 for safety of machines with the so-called Ignition Protection Levels.

A decision was also taken to adopt the stipulations of the corresponding Standard for explosion protection of electrical apparatus IEC 60079-2 for Part 7 of the series of Standards: "Protection by pressurization".

## IECEx Scheme

The founding meeting of Working Group AK 241.0.16, which is to formulate German interests on the subject of the IECEx Scheme, was held in Braunschweig, Germany, in the run-up to the IECEx Scheme meeting in Budapest in October 2003. The chairman of the Working Group is H. Huhle from ZVEI.

The Budapest meeting achieved the following important results, amongst others:

The close link between product certification and manufacturer certification (auditing) described in IECEx 02 was dropped in favour of a more practicable solution.

Similarly to certification pursuant to the ATEX Directive, there will be a regular assessment of the manufacturer's QM system by a notified body independent of the product certification.

The requirements applicable to the state of the QM system are based on the requirements of EN 13980.

The basis for testing and issuing a Certificate of Conformity (COC) is the valid IEC Standard or its last predecessor version

- All product versions, temperature classes, cable connections and process connections may be covered in such a certificate.
- Simplified certificate recognition is possible in the case of OEM products.
- The application documents can be sent electronically
- Amendments further to valid certificates are required only after changes impacting on explosion protection.

One important aspect is the stipulation to the effect that only valid Standards may be used for the IECEx Scheme, unlike certification according to European Directive 94/9 EC in which drafts of Standards may also be used as the basis.