

# IECEX-Certification: Major Progress

An update after the annual meetings in Seoul 2002 and Budapest 2003

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The development of the IECEx certification scheme as a worldwide platform for the mutual recognition and acceptance of testing and certification for electrical equipment for hazardous locations has been highlighted in our Ex-Magazine already in 1996 [1] and in 2002 (2). Initial development of the scheme and the major progress made during the meetings in Korea (2002) and Hungary (2003) give reason to summarize the big progress made and the new features.



Figure 1: IECEx participating countries (status: January 2004)

## Global participation: now 22 countries

The scheme now covers a global area of nearly all major industrial countries: Northern America with Canada and the U.S., Asia Pacific with Australia, China, Korea, Europe with nearly all EU/EFTA members and several EU candidate countries, South Africa and – last but not least – the Russian Federation, which has just started to adapt its legal provisions for safety of products to western structures.

A major big step forward lately was the participation of the US National Committee and their well known bodies for testing and certification.

## Major steps

During 1991 the idea for an International Certification Scheme, covering Explosion Protected equipment was first considered by IEC, after the initial move made in 1989 in London. In September 1999, only 8 years since the idea was raised,

the IECEx Scheme was officially declared "Open For Business".

In less than 8 years a total of 22 countries had managed, not only to come together, but even reach agreement on a set of Rules for a single International Scheme dedicated to facilitation of International Trade of Explosion Protected equipment.

These rules have been published as IEC documents known as:

### IECEX 01

IEC Scheme for the Certification to Standards for Electrical Equipment for Explosive Atmospheres (IECEX Scheme) – Basic Rules

### IECEX 02

IEC Scheme for the Certification to Standards for Electrical Equipment for Explosive Atmospheres (IECEX Scheme) – Rules of Procedure

Both IECEx 01 and 02, along with other IECEx Operational Manuals are freely available from the IEC web store, which may be accessed directly from the IECEx Official Website, [www.iecex.com](http://www.iecex.com)

## The aim of the IECEx Scheme

All efforts in the scheme are made to facilitate international trade of Explosion Protected equipment by eliminating the need for duplication of testing and certification.

The foundation of the Scheme is to provide an internationally accepted means of proving product compliance with IEC Standards for electrical equipment for potentially explosive atmospheres.

Thanks to the many years of excellent work by the IEC Technical Committee, TC 31, the International Ex community have a sound and credible collection of International Standards covering all sorts of Explosion Protected products. Application of these Standards, by Testing Laboratories (ExTL) and Certification Bodies (ExCB) must be assured, so that when a product is assessed as meeting the Standard in one country, the same conclusion can be reached when conducting the same assessment in another country.

While facilitation of trade is the sole aim of IECEx, the mechanism that facilitates this is the establishment and maintenance of:

- A common benchmark for all testing and certification bodies; and
- A common and consistent approach to testing and certification

These core elements provide the foundation upon which IECEx is built.

## About the IECEx Scheme

The Scheme is known as a “Quality Based Certification System” or ISO Type 5 system, which requires the satisfactory completion of independent product testing and manufacturer’s quality assessment before an IECEx Certificate of Conformity can be granted.

## The IECEx Scheme now provides both:

1. A single global Certificate of Conformity, that requires manufacturers to successfully complete:
  - Testing and assessment of product samples for compliance with IEC Standards;
  - Assessment and auditing of manufacturers` premises;
  - On-going surveillance audits of manufacturers` premises, by the IECEx Certification Body

or
2. A “fast track” process for countries where regulations still require the issuing of national Explosion protection certification or approval by way of global acceptance of International IECEx product test and assessment reports.

The Scheme is applicable to Electrical Equipment covered by the IEC Explosion Protection Technique Standards prepared by IEC/TC 31 including IEC 60079 series (electrical equipment for explosive gas atmospheres), 61241 (electrical equipment for explosive dust atmospheres) and 61779 series (performance of gas detection instruments).

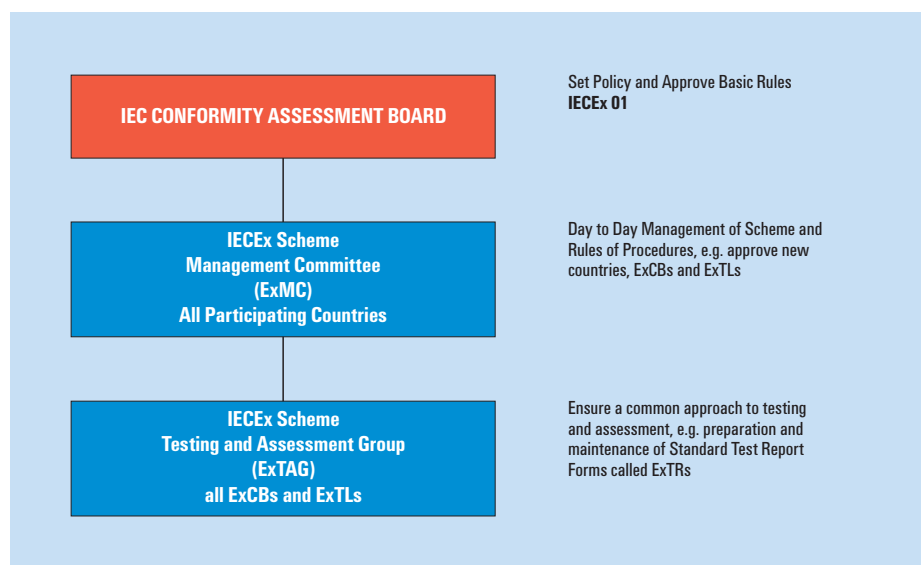


Figure 3: IECEx Organisation and Management

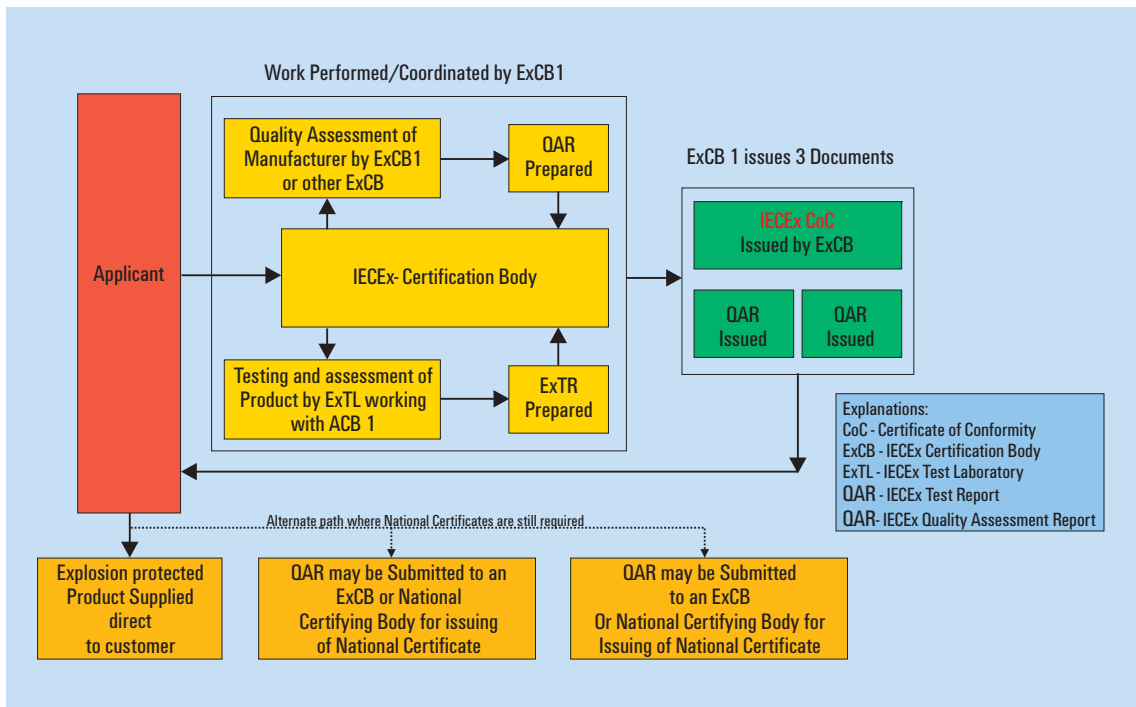


Figure 2: Overview of IECEX Operations, Option open to manufacturers

→ A decision from the 2002 Seoul meeting of the IECEX Management Committee will see the IECEX move into the assessment and certification of Services such as Repair and Overhaul of Explosion Protected products to IEC 60079-19

Figure 2 represents the options open to manufacturers.

### Duties of the IECEX Management Committee (ExMC)

Management of the day to day operations of the IECEX Scheme including the assessment and operation of IECEX Certification Bodies and Test Laboratories and maintenance of the Official IECEX Internet Website.

Daily administration of the Scheme’s activities are handled by the IECEX Secretariat which takes on the “Chief Executive Officer” functions of the Scheme’s operations.

### IECEX Bodies

Within participating countries, an IECEX Member Body is established with the role of representing the collective views of manufacturers, controlling bodies, users and other stakeholders within their country. The IECEX Member Body has a seat on the IECEX Management Committee ExMC.

Whereas every Ex-Certification Body (EXCB) and Explosion Protection-Test Laboratory (EXTL) is automatically a member of the Technical Group, ExTAG and each has their own vote.

An important point to note is that there can be more than 1 ExCB or ExTL per country.

ExTAG is comparable to the regional group of the Notified Bodies (ExNB) in the European Union. Information about problems and solutions connected with testing and certification are exchanged and officers of both groups may attend meetings of the other.

Common view and procedures in application of the IEC standards is the major task of ExTAG.

Every Ex-Certification Body and Explosion Protection Test Laboratory wishing to join the IECEX Scheme must undergo a formal assessment. This assessment is based on a “Peer Assessment”, examining many aspects of the ExCB and ExTL such as: appropriate facilities, adequate test equipment, internationally accepted testing and certification practices, competent staff and acceptance/accreditation at national level.

The IECEX Assessment Procedures also include for the on-going evaluation of ExCBs and ExTLs as a measure of maintaining international confidence in their work.

### IECEX Outputs

The new structures and concepts, developed for and during the 2002 meeting in Seoul have been finalized and accepted during the 2003 meeting in Budapest, which was combined with an “IECEX Industry Workshop” with some 90 participants.



Figure 4: IECEX Certification Bodies and Test Laboratories approved

The participation by delegations in Budapest was the highest recorded. Also observers from national authorities and not yet participating countries as Japan were present.

The IECEX framework provides for the issuing of the following 3 important sets of documents:

**1. International Product Assessment and Test Report (ExTR)**

Product Type Testing

**2. International Quality Assessment Report (QAR)**

Assessment of Manufacturers, i.e. Factory Inspections

**3. International Certificate of Conformity (CoC)**

Once 1 and 2 have been achieved

### New IECEX On-Line Certificates

During the developments of the IECEX Scheme there have been many milestones with the most significant occurring in August 2003 with the introduction of IECEX new feature "On-Line" Certificates, resulting from a further IECEX Management Committee decision to move immediately to the issuing of "Electronic Certificates" via a secure Internet Website maintained by the IEC Central Office in Geneva.

This feature enables full access to search, view and print issued IECEX Certificates of Conformity with the internet copy being maintained as the master controlled copy and any printed copies regarded as "un-controlled Copies". This means that an IECEX Certification Body (ExCB) compiles and issues the IECEX Certificate "Live" on the website, via a password protected area and when approved for issue, the Certificate moves immediately to the public area of the site. No waiting for postage.

This innovative feature provides Explosion Protected equipment users, regulators and other stakeholders with instant access to a central reference point of from any computer in the world with access to the internet.

Access to the "On-Line" Certificate area is via the usual IECEX Website [www.iecex.com](http://www.iecex.com).

### Use of the IECEX Scheme for National Certification Purpose

Alternatively, documents 1 and/or 2 above may be used to grant National Certification or Approval. The more common situation is for the ExTR to be used along with a local Factory Inspection Report to grant National Certification, e.g.:



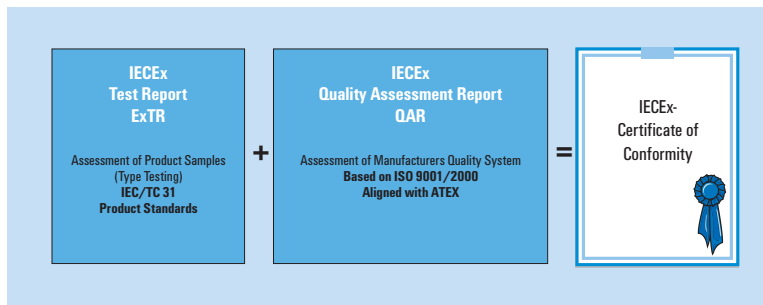


Figure 5: IECEX Certification procedure

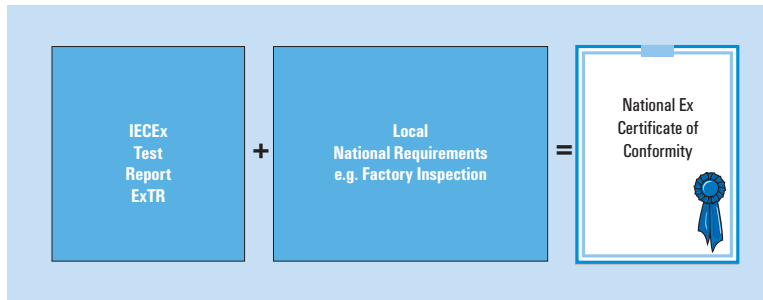


Figure 6: National certification procedure on the basis of an IECEX -Certificate

## → Conclusion

The progress made in the last two years is enormous, but it must not be neglected that there are still a lot of barriers to remove.

Australia already has made the unprecedented big step to open their market to IECEX Certificates of Conformity. But most other countries still are in the situation that national legislation requires a national or regional (e.g. EU ) certification. The operational document OP 8, proposed by IECEX, "Reciprocal arrangements covering exchange and information and meeting participation between ExNB and IECEX" enables the representatives of the respective organisation to participate in each other`s meetings.

A high ranking official of the EU commission envisaged agreement to further explore the interface between IECEX and ATEX, with the possibility of using this as a stepping stone towards increased regulatory dialogue between the EU and its main trading partners. As a first step in this process, the co-operation between ExNB group and IECEX should be strengthened.

Progress in that area at last has to be promoted also on governmental level involving national authorities for health and safety approvals - a demanding task for the members.

And the European side has to bear in mind, that the EU Commission in their communication to the Council [3] has made a note about some concern related to cross-border activities of Notified Bodies.

For the time being the mutual acceptance of test and assessment reports and related certificates for national certification will form a major part of practical work.

Already in that framework manufacturers will experience that the IECEX Scheme is the best tool to sell their Explosion Protected products on the global market.

## References

- [1] Dill, Wolf  
The world market in explosion protection (Ex-Magazine 26, p.4 1996)
- [2] Dill, Wolf  
The IECEX Certification Scheme (Ex-Magazine 26, p. 18 2000)
- [3] Communication from the Commission to the Council and European Parliament: "Enhancing the Implementation of the New Approach Directives", COM (2003) 240 final