



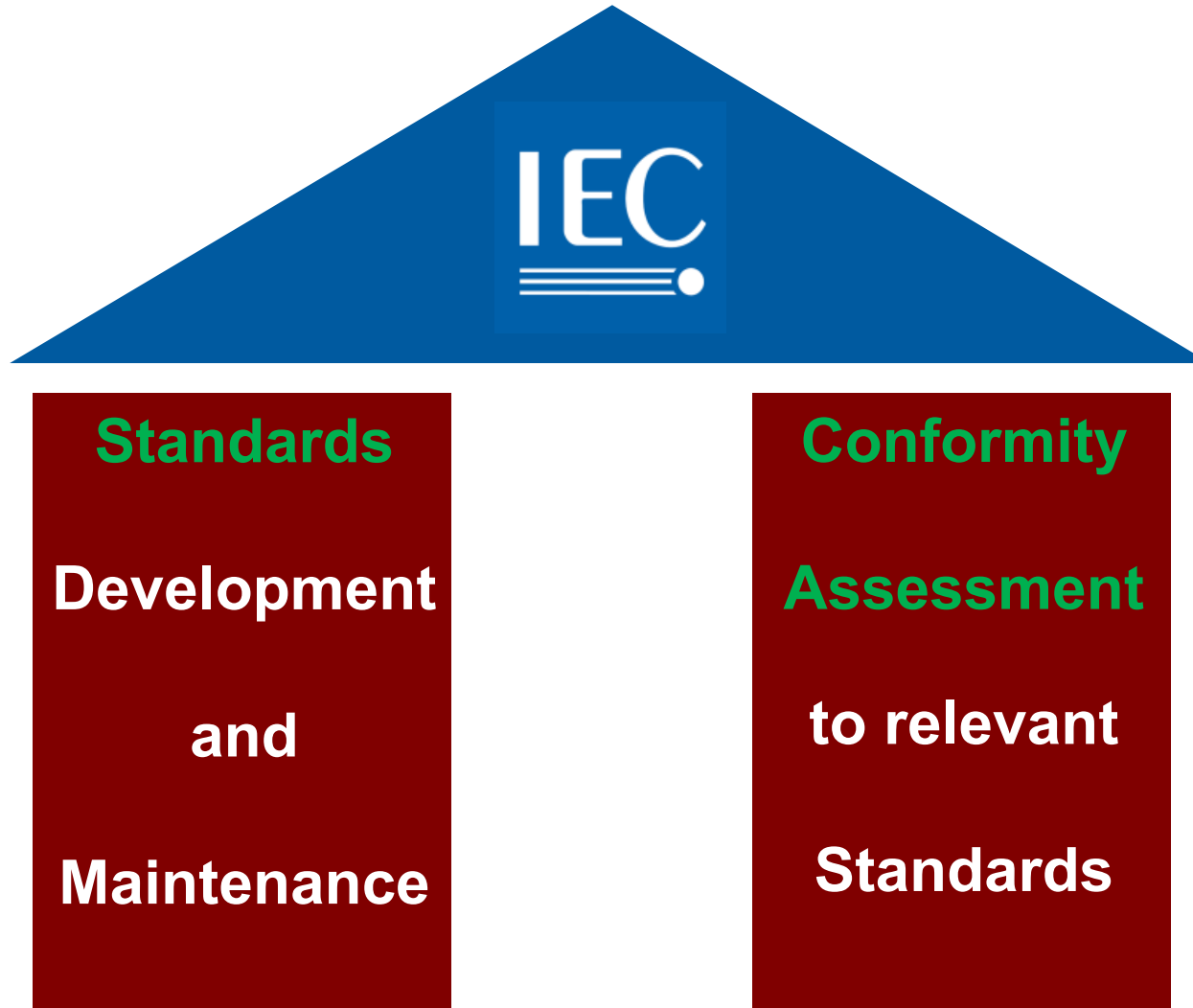
# An Introduction to the IECEX System

**Mark Amos**  
IECEX Secretariat  
Business Manager

**IECEX Conference,  
Croatia, March 2024**



# Pillars of the **IEC** building





# Pillars of the **IEC** building



**Conformity**

**Assessment**

**to relevant**

**Standards**



## Standards put into practice...

**Conformity Assessment systems** provide **independent verification** of claims of **compliance**

with Standards related to:

- safety
- performance
- reliability
- inter-operatability
- competence

on the basis of testing and assessment of production processes, people and management systems



*The*  
**IECEX System**

*is the*

International Electrotechnical Commission System  
for Certification to Standards Relating to Equipment  
for Use in **Ex**plosive Atmospheres





## **KEY OBJECTIVE of the IECEx System =**

Reducing risk of explosion in areas with explosive gases, mists, vapours or combustible dusts, fibres or flyings in the presence of oxygen due to:

- Hot surfaces
- Electromagnetic or optical radiation
- Mechanical impact generated sparks
- Static electricity
- Electrical sparks or arcs

# “Ex” is not an Industry of its own!

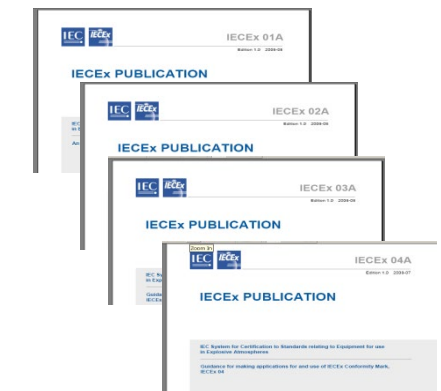
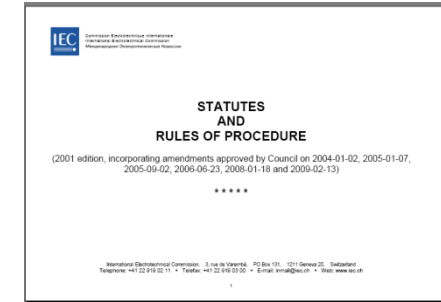
“Ex” is part of almost every Industry known to Man ... examples include:

- Automotive refuelling stations or petrol stations
- Oil + gas extraction
- Oil refineries, rigs and processing plants
- Gas pipelines and distribution centres
- Chemical processing plants
- Printing industries, paper and textiles
- Hospital operating theatres
- Aircraft refuelling and hangars
- Surface coating industries
- Coal mining
- Grain handling & storage
- Sewerage treatment plants
- Woodworking areas
- Sugar refineries, storage , packaging & distribution
- Metal surface grinding, eg aluminium dusts and particles.
- Transportation
- Pharmaceuticals
- Food processing
- Furniture manufacturer
- .... many others



# Foundations of IECEx Certification Operations

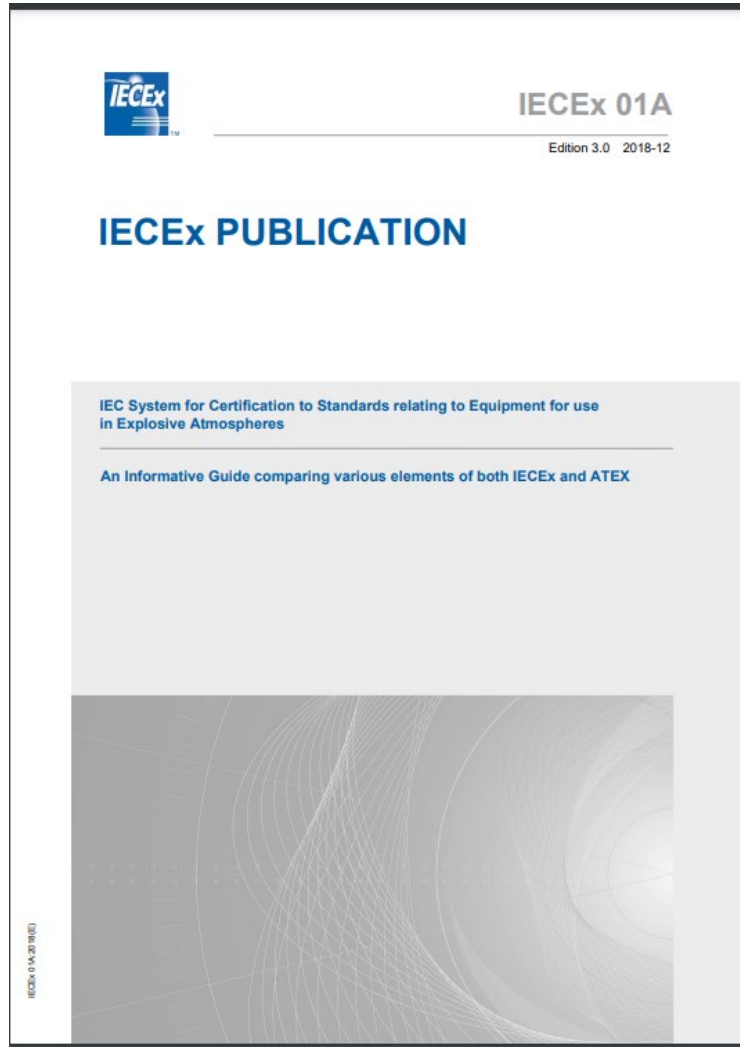
- Single set of Rules and Operational Procedures for ALL Testing Laboratories & Certification Bodies
- ALL TLs and CBs undergo the same qualification process to join and remain as accepted via use of **peer assessment**.
- Common Test Report and Certificate Format used by ALL TLs and CBs but always maintaining CBs' own brand supports **mutual recognition**
- Use of Internet "On-Line" Systems for Certificates
- Self financing and not-for-profit







# IECEX & ATEX ... NOT the same



- IECEx is an ISO/IEC 17067 Type 5 Conformity Assessment System = independent sample testing & ongoing manufacturer capability audits
- IECEx Certification for electrical and non-electrical equipment, components and assemblies
- IECEx certification requires full compliance to all relevant requirements of all relevant IEC and ISO **International** Standards for explosion protection is mandatory and an IECEx Certificate confirms compliance with a specified IEC and ISO Standard(s)
- **No self declaration permitted in IECEx**
- IECEx is voluntary but accepted as 'deemed to comply' in many regulations
- All certificates issued by all IECEx Certification Bodies are PUBLICLY available on a SINGLE website



# IECEX Member Countries

	<b>Australia</b>		<b>Malaysia</b>		<b>Israel</b>
	<b>Brazil</b>		<b>Netherlands</b>		<b>Spain</b>
	<b>Canada</b>		<b>Norway</b>		<b>United Arab Emirates</b>
	<b>China</b>		<b>New Zealand</b>		<b>Greece</b>
	<b>Croatia</b>		<b>Poland</b>		<b>Iran</b>
	<b>Czech Republic</b>		<b>Romania</b>		<b>Saudi Arabia</b>
	<b>Denmark</b>		<b>Russian Federation</b>		
	<b>Finland</b>		<b>Singapore</b>		
	<b>France</b>		<b>Slovenia</b>		
	<b>Germany</b>		<b>South Africa</b>		
	<b>Hungary</b>		<b>Sweden</b>		
	<b>India</b>		<b>Switzerland</b>		
	<b>Italy</b>		<b>Turkiye</b>		
	<b>Japan</b>		<b>United Kingdom</b>		
	<b>Korea, Rep. of</b>		<b>USA</b>		



# How can IECEx be used within Countries?

- **Regulatory**

Government Regulations require compliance with IEC TC 31 Standards AND accept Ex Products, Services (e.g. Repair Workshop), or Competent Persons covered by IECEx certification satisfy safety requirements of the country.

- **Contractual**

Companies purchasing Ex Equipment and Services require IECEx Certification as part of their Risk Mitigation for Compliance with Safety Standards.

- **Voluntary**

Companies offering Ex Equipment and Services use IECEx to promote their goods and services, e.g. market differentiation



# US Coast Guard Adopts IECEx



Isaac

## IECEX Certification to be required in USA (in some instances)

As a result of the Deepwater Horizon disaster, the US Coast Guard has issued some recommendations w/r/t equipment and practices for offshore drilling in US waters. One of the things on their list is to have foreign-flagged vessels comply with Chapter 6 of the 2009 IMO MODU code. This would mean that IECEx certification must be obtained for electrical systems in hazardous locations on these vessels (MODUs). The US standards would still be applicable to US-flagged vessels (although there are relatively few of those) and there is still no regulatory requirement with respect to temperatures of non-electrical components nor engine exhaust nor intake/exhaust flametraps (ie EN 1834 and ASTM F2876 have not been recommended/required as yet).

I'm not sure whether a foreign-flagged vessel would be allowed to use Class/Division certified electrical equipment as per US standards - it seems probable that they would, but the article doesn't address that directly.

"Until the Coast Guard finalizes its regulations ... the Coast Guard recommends that electrical equipment installations in hazardous areas obtain independent laboratory certification under the IECEx system, which includes the appropriate IECEx Certificate of Conformities."

See Federal Register / Vol. 77, No. 232 / Monday, December 3, 2012 for more information.

<http://www.gpo.gov/fdsys/pkg/FR-2012-12-03/html/2012-29138.htm>

3 months ago

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# United Nations Endorsement of IECEx

New United Nations Publication, March 2011 endorsing IEC TC 31 Standards + IECEx as “world’s best practice”.



The screenshot shows the UNECE website's press release section. The header includes the UNECE logo and navigation links. The main content features a press release titled "Helping smaller countries protect their populations from danger in explosive environments" dated 22 March 2011. The text discusses the issuance of a new regulatory framework booklet for equipment used in explosive atmospheres. A photograph of a mining site with a "DANGER" sign is included.

United Nations Economic Commission for Europe

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Press Release

[Index]

Helping smaller countries protect their populations from danger in explosive environments  
New UNECE publication offers regulatory framework

Geneva, 22 March 2011 --

The United Nations Economic Commission for Europe (UNECE) has just issued a publication that helps address the hazards in environments with a high risk of explosion such as mines, refineries, chemical plants and mills.

The booklet "Common Regulatory Framework for Equipment Used in Environments with an Explosive Atmosphere" can be used by countries that lack regulation in this sector as a blueprint for their legislation, and also for aligning existing national regulations with internationally harmonized best practice.

"Ex-equipment" for use in such hazardous environments needs to be specially designed, installed, maintained and repaired to eliminate potential sparks and open flames. This heterogeneous sector plays an important part in many areas of economic activity, and represents an important component of international trade.

This equipment therefore undergoes severe testing and certification, which is very costly. Because differing legislation often does not allow countries to accept the testing and certification done in another country, manufacturers generally must have devices re-tested and re-certified whenever they want to enter a new market. For some companies, this

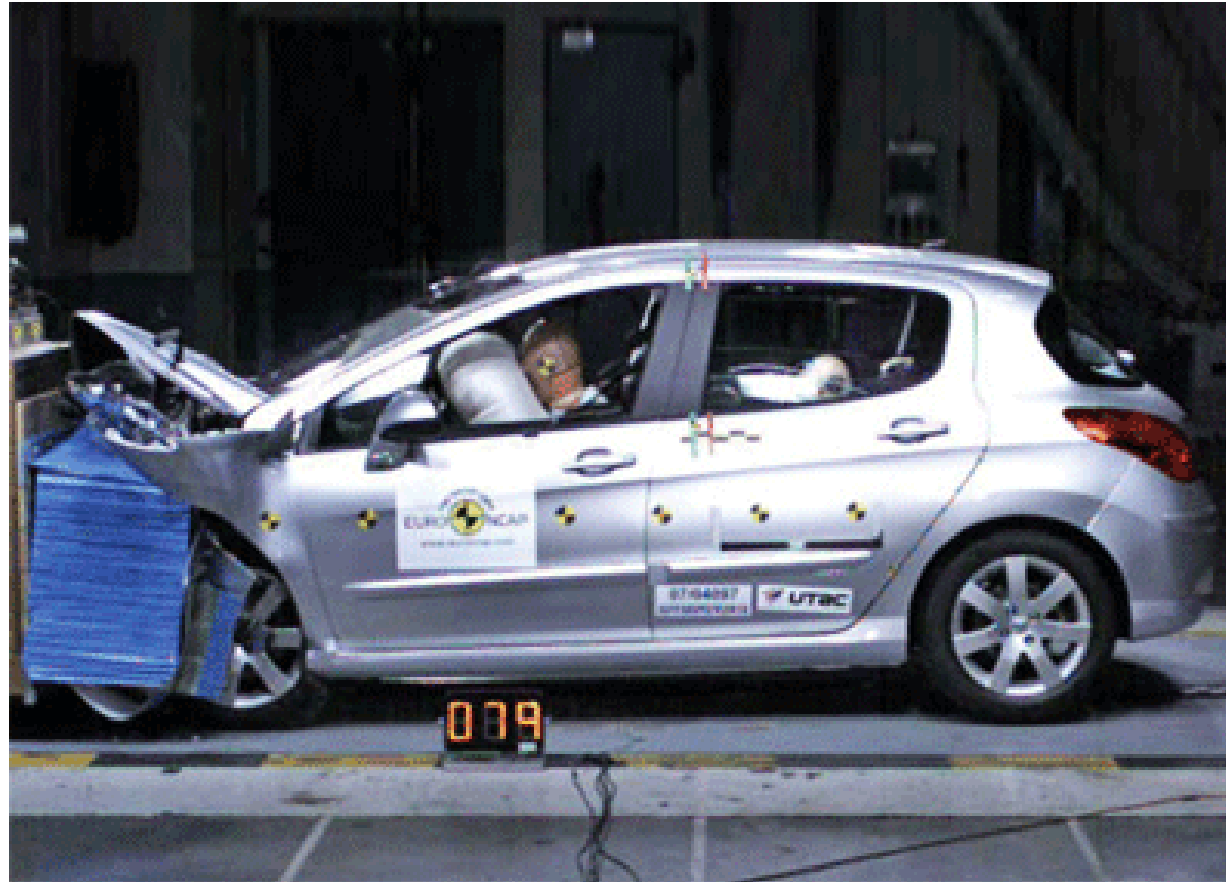
The image shows the cover of the UNECE publication "A Common Regulatory Framework for Equipment Used in Environments with an Explosive Atmosphere". The cover features the UNECE logo at the top, the title in bold, and a photograph of an industrial facility with complex piping and machinery. The United Nations logo is at the bottom.

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

A Common Regulatory Framework  
for Equipment Used in Environments  
with an Explosive Atmosphere

UNITED NATIONS

## What makes a **technical** product safe?



*Design, test, production and operation instructions according to specifications (law, directives, standards etc.)*

# What makes the **use** of a **technical** product safe?



***Correct selection of the appropriate product***

## How to **use** a technical product safely ...



*Appropriate rules and procedures for operation by competent operators*



# How to **keep** a technical product safe ...



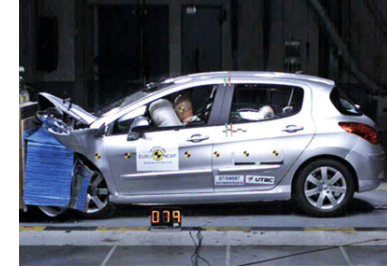
*Correct inspection and maintenance to keep sufficient level of safety*

.... products for **hazardous areas** ....



Maintenance

Design



Inspection

Test

**IECEX covers all safety –  
related aspects of explosion  
protected equipment over  
the complete life cycle**

Operation

Production



Installation

Selection





# Schemes within the IECEx System

## IECEX System

### IECEX Equipment Scheme

Certification of Ex Equipment



### IECEX Conformity Mark License Scheme



### IECEX Services Scheme

Certification of Ex Service Providers



### IECEX Certified Persons Scheme (CoPC)

Competency to work in Ex field





# IECEX Certificates of Conformity



Equipment

Assemblies

Services

Personnel

**IECEX Certificate of Conformity**  
INTERNATIONAL ELECTROTECHNICAL COMMISSION  
IEC Certification Scheme for Explosive Atmospheres

Certificate No.: IECEx PTB 06 00890 Issue No.: 0  
Status: Current  
Date of Issue: 05/04/07 Page 1 of 4  
Applicant: VUKA Components Ltd  
Type of Product: General Requirements, In-hazard Safety  
Marking: Ex ia IIC T4  
Approved for issue on behalf of the IECEx Certification Body: Physikalisch-Technische Bundesanstalt (PTB)

**Ex Equipment, Components + Systems + Mechanical Ex Equipment**

**IECEX Certificate of Conformity**  
INTERNATIONAL ELECTROTECHNICAL COMMISSION  
IEC Certification Scheme for Explosive Atmospheres  
UNIT VERIFICATION

Certificate No.: IECEx VTT 11 0001X Issue No.: 0  
Status: Current  
Date of Issue: 2011-05-09 Page 1 of 4  
Applicant: ABB Oy Machines  
Electrical Apparatus: Converter fed cage induction motor  
Marking: Ex ga IIC T3 Gb  
Approved for issue on behalf of the IECEx Certification Body: VTT Expert Services Ltd

**Ex Equipment Unit Verification and Assemblies**

**IECEX CoC Certified Service Facility**  
INTERNATIONAL ELECTROTECHNICAL COMMISSION  
IEC Certification Scheme for Explosive Atmospheres

Certificate No.: IECEx UL 80001 Issue No.: 1  
Status: Current Date of Issue: 2014-03-28  
Applicant: Cycled Electrical Engineering PTE Ltd  
Type of Service: Repair and Overhaul according to IEC 60079-10  
Scope of Service: Repair and Overhaul of Ex d and Ex e Rotating Machines to IEC 60079-10, 2nd Ed. (2009) and Ex St (2010)  
Locations covered by this Certificate: Cycled Electrical Engineering PTE Ltd, 33 Tuam View Crescent, Singapore  
Approved for issue on behalf of the IECEx Certification Body: Paul T. Kelly  
Signature: Principal Engineer, Global Hazardous Locations  
Date: \_\_\_\_\_  
Certificate issued by: Underwriters Laboratories Inc (UL), 333 Piquette Road, Farmington Hills, MI 48334-2099, United States of America

**Ex Services – for example, Repair to IEC 60079-19**

**IECEX Certificate Personnel Competence**  
INTERNATIONAL ELECTROTECHNICAL COMMISSION  
IEC Certification System for Explosive Atmospheres

Certificate No.: IECEx CP BAB11.0015 Issue No.: 2  
Status: Current Date of Original Issue: 2015-11-22 Date of Expiry: 2015-12-17  
Applicant: Manggau Galwing  
Scope of Competence: Ex RM - Basic principles, Ex RB3 - Classification, Ex RB4 - Installation, Ex RM - Overhaul and repair, Ex RB3 - Close Inspection, Ex RB4 - Close Inspection, Ex RB3 - Close Inspection  
Date of Issue: 2015-11-22  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Certificate issued by: Underwriters Laboratories Inc (UL), 333 Piquette Road, Farmington Hills, MI 48334-2099, United States of America

**Ex Competent Person, with Photo ID Card**



# Scope and Standards for IECEx include ...

- Electrical Equipment Conformance to **IEC 60079 Series** and **IEC 61241 Series** requirements
- Non-electrical Equipment to **ISO/IEC 80079 Series**
- Hazardous Area Classification to **IEC 60079-10**
- Ex Equipment Installation and Inspection  
to **IEC 60079-14** and **IEC 60079-17** requirements
- Ex Equipment Maintenance, Repair, Overhaul and Reclamation  
to **IEC 60079-19**
- Personnel Competence to **ISO/IEC 17024** and IECEx OD 504



# IECEX On-Line Certificate System



IECEX Certificates  
International Electrotechnical Commission System for Certification to  
Standards Relating to Equipment for Use in Explosive Atmospheres

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Information about the content and preparation of IECEX Certificates and Reports for each IECEX Scheme can be found in the [respective versions of IECEX OD 011](#)

Search certificates or reports by reference number / applicant / manufacturer / keyword ...



or click [here](#) to search the full catalogue with filters and sorting tools

Guidance on use of this website can be found [here](#).  
More information about IECEX is available @ [www.iecex.com](http://www.iecex.com) and via email to [info@iecex.com](mailto:info@iecex.com).

Certified equipment mark  
licenses service facilities and  
certified persons

Over **92'000** certificates, reports  
and licences

Used by over **4'500**  
manufacturers in over 50  
countries

Issued by over **100** IECEX  
Certification Bodies

Over **300** types of protection

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# IECEX On-Line Certificate System



**INTERNATIONAL ELECTROTECHNICAL COMMISSION SYSTEM  
FOR CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT  
FOR USE IN EXPLOSIVE ATMOSPHERES (IECEX SYSTEM)**

[Information](#) ▾ [Publications](#) ▾ [Members' Area](#) ▾ [Certificates & Licences](#) ▾ [Meetings & Events](#) ▾ [Contact](#) [Home](#)

### News Releases

**Explosions avoided**  
IECEX, UNECE and IEC Brazilian NC conference on safety in the Ex field

**Preventing dust explosions**  
IECEX certification provides high level of protection

**Mining: A high-risk activity**  
IECEX ensures protection and safety for Ex equipment and workforce

**Competitive advantages**  
IECEX present at Australasian Oil and Gas Exhibition and Conference

**IECEX launches first mobile app**  
to show international certificates for equipment used in explosive atmospheres

**IECEX-AFSEC seminar in Africa**



**IECEX Malaysia 2014**  
Kuala Lumpur 19-20 February 2014

Organized by the IEC and IECEX, together with Department of Standards Malaysia, and in conjunction with UNECE (United Nations Economic Commission for Europe), the 2014 IECEX International Conference will take place on 19 and 20 February 2014.

[More information from the meeting website](#)

### Quick Links

- [IECEX Certificates and Licences](#)
- [Certification Bodies \(ExCBs\) - Equipment](#)
- [Certification Bodies \(ExCBs\) - Service Facilities](#)
- [Certification Bodies \(ExCBs\) - Certified Persons](#)
- [Certification Bodies \(ExCBs\) - Conformity Mark](#)
- [ExTAG Decision Sheets List](#)
- [IEC TC31 & IECEX Meeting Schedule](#)

### Featured



IECEX systems endorsed by UNECE



IECEX mobile apps



More info available @ [www.iecex.com](http://www.iecex.com)

The screenshot shows the IECEx website homepage. At the top, the IECEx logo is on the left, and the full name 'International Electrotechnical Commission System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres (IECEX System)' is in the center. To the right is a globe icon with various symbols. Below the header is a navigation menu with items: Information, Publications, Members' Area, Certificates & Licenses, Meeting & Events, Contact, and Home. The main content area is divided into several sections: 1. 'IEC e-tech News' with three articles: 'Are your tank wagons at risk of electros...', 'Reducing risks in oil and gas transporta...', and 'Protecting people and equipment from exp...'. 2. 'IECEX Informational Video' featuring an animation of a worker and a warning sign, with the text 'Please view this animation video for an introduction to the IECEX 02 Certified Equipment Scheme'. 3. 'From the IEC Blog' with three articles: 'The benefits of IEC Conformity Assessment', 'Discover benefits of IEC Conformity Assessment certification in upcoming webinar', and 'How IEC contributes to the conservation and sustainable use of the world's oceans'. 4. 'Quick Links' with a list of links: Certification Bodies (ExCBs) - Certified Equipment Scheme, Certification Bodies (ExCBs) - Certified Service Facilities, Certification Bodies (ExCBs) - Personnel Competencies, Certification Bodies (ExCBs) - Conformity Mark Licensing, IECEX Recognised Training Providers (RTPs), ExTAG Decision Sheets List, and IEC TC31 & IECEX Meeting Schedule. 5. 'Members Quick Guides' with links to 'Implementation of IECEX single logo trademark design - Introduction reference document ExMC/1691/Inf' and 'IECEX 01B - Guidance for the use of the IECEX Logo Ed.4.0'. 6. 'News and Featured' with a featured article: 'This article originally appeared in Hazardex magazine and is republished with kind permission.' followed by several news items from Hazardex magazine. At the bottom, there are buttons for 'IECEX Website Guides', 'About IECEX', 'IECEX Certificates', and 'IECEX Informational Video - Intro to IECEX 02 Certified Equipment Scheme'.