



INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

The IECEx System: A Comprehensive Tool to Eliminate Ex Hazards in Industry






01st of October, 2015
presented by:

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Physikalisch-Technische
Bundeanstalt, Braunschweig,
Almanya

Process safety – several EU Directives to comply with

- **Seveso II Directive** which addresses mainly:
 - comprehensive risk assessment for an entire plant
 - to be documented in the safety report
 - automation measures based on SIL (IEC 61508)
- **Machinery Directive**
 - to ensure safe use of machines by workers
- **Pressure Equipment Directive**
- **Transportation and Storage of Hazardous Materials, ADR**
.....
- **ATEX Directives**

Confusion: ATEX – IECEx – CE Declaration – Workplace Safety

- **ATEX regime: a state regulation** which addresses 
by 94/9/EC resp. 2014/34/EU:
 - type tests EN 60079-0 foll. (EC Type Examination Certificate, marking d, e, i, ...)
 - on site production surveillance (QA Notification
 - leads to CE Declaration of Conformity  and**by 1999/92/EC** workplace safety:
 - Zone classification EN 60079-10-1, -2
 - explosion protection document
- **IECEx: a voluntary system for certification in the Ex field** to be addressed by a regulation (see UNECE Model Regulation), Turkey is member 

Turkey – where to go???

- ATEX?

No question, national Turkish legislation has implemented EU Directives 94/9/EC and 1999/92/EC (the new version 2014/34/EU as well). A regulation is necessary. Before a national regulation is invented, the best is copy and paste an introduced regulation.

- IECEx?

Answer: **Turkey needs both!!!!** As an industrial country which wants to sell products on the market, only the global market is attractive!!!

- ATEX incorporates IEC standards!! Because EN is equivalent to IEC

Old to new CENELEC/IEC standards

Table 7: **Electrical Apparatus for Explosive Gas Atmospheres**

	EN (old)	EN (new)	IEC
General requirements	EN 50 014	EN 60079-0	IEC 60079-0
Flameproof enclosures "d"	EN 50 018	EN 60079-1	IEC 60079-1
Pressurized enclosures "p"	EN 50 016	EN 60079-2	IEC 60079-2
Powder filling "q"	EN 50 017	EN 60079-5	IEC 60079-5
Oil immersion "o"	EN 50 015	EN 60079-6	IEC 60079-6
Increased safety "e"	EN 50 019	EN 60079-7	IEC 60079-7
Intrinsic safety "i"	EN 50 020	EN 60079-11	IEC 60079-11
Type of protection "n"	EN 50 021	EN 60079-15	IEC 60079-15
Encapsulation "m"	EN 50 028	EN 60079-18	IEC 60079-18
Intrinsically safe systems		EN 60079-25	IEC 60079-25
Electrical equipment for Zone 0	EN 50 284	EN 60079-26	IEC 60079-26
Intrinsically safe field bus systems		EN 60079-27	IEC 60079-27
Optical radiation "op"		EN 60079-28	IEC 60079-28

Workplace safety

Zone classification:
EN/IEC 60079-10-1/-2

Installation:
EN/IEC 60079-14

Inspection:
EN/IEC 60079-17

Repair:
EN/IEC 60079-19



Intention of the Common Regulatory Objectives (CRO)

Manufacturer

Placing on the
market

Market Surveillance

EN/IEC 60079-0 ff
EN/IEC 80079-34ff

EN/IEC 60079-10
EN/IEC 60079-14

Repair

EN/IEC 60079-19

Ex-Equipment
(Installed basis)

Inspection and
Maintenance

EN/IEC 60079-17

Installation

Zone classification
("Risk Assessment")

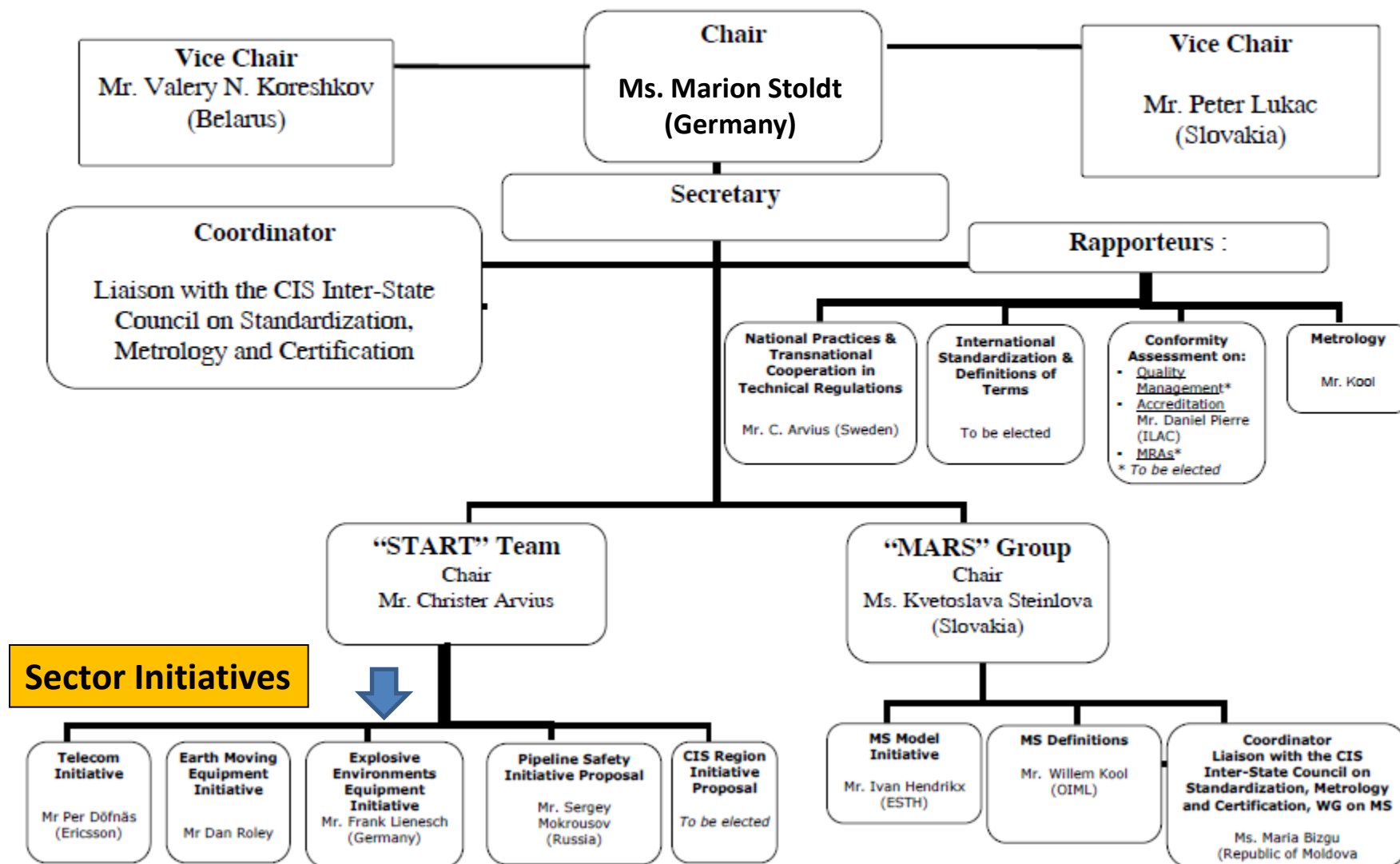
Operator

Regulators Jurisdiction

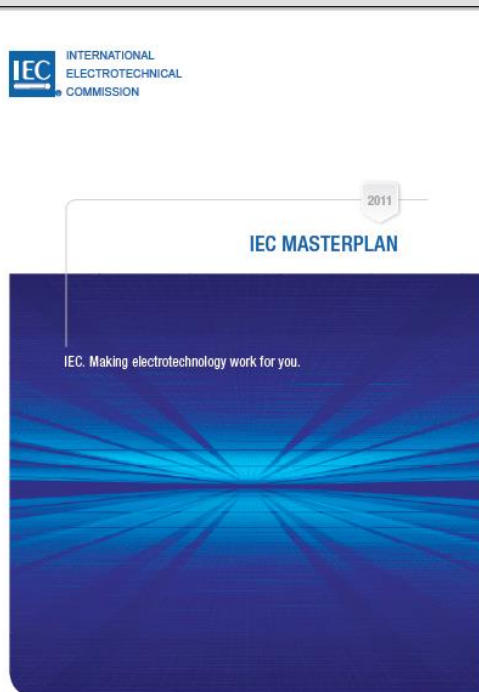
Life cycle approach



ORGANIZATIONAL CHART OF THE WORKING PARTY



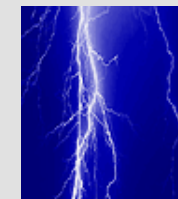
- **International Electrotechnical Commission**
- **Founded in 1906 - Promote international co-operation on all questions of standardization and related matters in the fields of electrotechnology, including Conformity Assessment.**



**According to the IEC
Masterplan:**

**Standardisation
+
Conformity Assessment**

The 2 Pillars of IEC



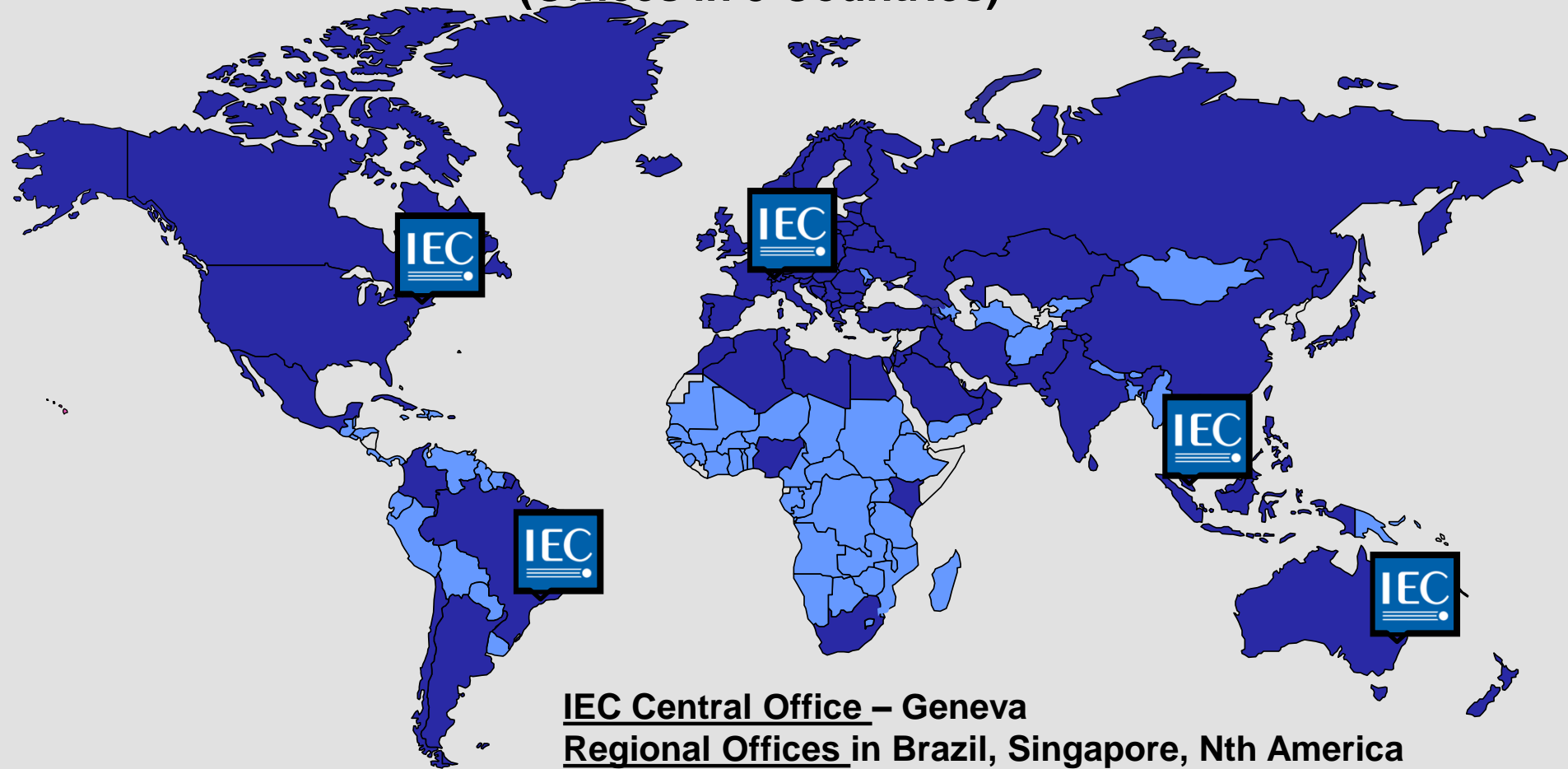


IEC Family: 166 countries – Global Reach

83 Members

83 Affiliates

(Offices in 5 Countries)



IEC Central Office – Geneva

**Regional Offices in Brazil, Singapore, Nth America
and Australia**

Where we are

Our Offices

IEC National Committees

IEC Affiliate Countries

IEC locations around the World



IEC Central Office



IEC Central Office

3, rue de Varembe
P.O. Box 131
1211 Geneva 20
Switzerland
Tel : + 41 22 919 02 11
✉ IEC Central Office

[More information about this Office](#)

IEC Asia-Pacific



IEC-APRC

2 Bukit Merah Central #15-04/05
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Singapore 159835
Singapore
Tel : + 65 6377 5173
✉ Dennis Chew

IEC Latin America



IEC-LARC

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Bela Vista
São Paulo - SP - CEP 01311-200
Brazil
Tel : + 55 11 3197 4536
✉ Amaury Santos

IEC North America



IEC-ReCNA

446 Main Street
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U.S.A.
Tel : + 1 508 755 5663
✉ Tim Rotti

IECEX / IECQ



IECEX / IECQ

The Executive Centre
Australia Square, Level 33
264 George Street, Sydney NSW 2000
Australia
Tel : +61 2 4628 4690
Chris Agius ✉ IECEx ✉ IECQ

■ Standards Work - New Technical committees:

- TC 114 “Marine Energy – Wave/Tidal/water current converters”
- TC 115 “High Voltage Direct Current Transmission - >100KV”
- TC 116 “Safety of motor operated electric tools”
- TC 117 “Solar Thermal electric plants”
- TC 118 “Smart grid user interface”
- TC 119 “Printed Electronics”
- TC 120 “Electrical Energy Storage”
- SC 31M “Non-Electrical Committee for Ex”



■ Conformity Assessment – New/Emerging Activities:

- IECEx Personnel Certification Scheme
- IECEE Energy Efficiency Scheme
- New IECQ Programme for “Counterfeit Avoidance - Electronic Components and Assemblies”
- Development of an IEC Scheme for Marine Energy Converters and Installations
- CA activity for Renewable Energies



Key Demand Drivers for IEC CA (eg IECEx)

- Removal of costly duplication of testing/Cert at local level + delays to accessing markets
- **Confidence** among Industry, Regulators + Stakeholders – equipment + Systems, high capital cost
- **Confidence** among Bodies (Labs + Certifiers), level playing field for CBs and TLs to compete
- Portability of assessment results + certs
- Ex Services + Personnel Cert not covered elsewhere
- Instant access to information, including “On-Line” Certificates – instant checking.

“CONFORMITY ASSESSMENT”

INTERNATIONAL
STANDARD

ISO/IEC
17000

NORME
INTERNATIONALE

First edition
Première édition
Первое издание
2004-11-01

МЕЖДУНАРОДНЫЙ
СТАНДАРТ

Conformity assessment — Vocabulary
and general principles

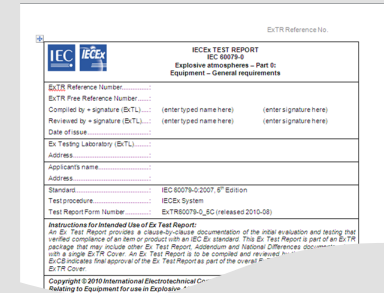
Évaluation de la conformité —
Vocabulaire et principes généraux

Оценка соответствия. Словарь и
общие принципы

nt

Test Report:-

- What Information is being conveyed by a Test Report?
- Who is the legal owner of the Test Report?
- Should an End User have free access to a Test Report, how?
- How long is a test report Valid, after its issue?



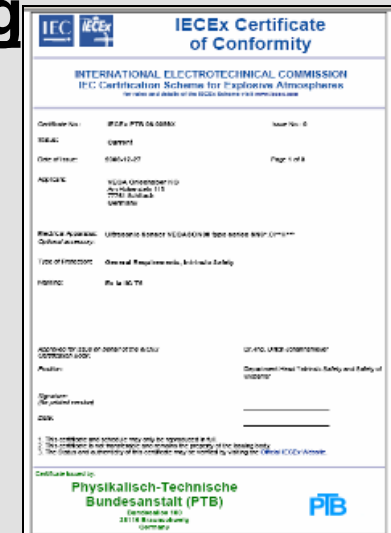
IECEx TEST REPORT
IEC 60079-0
Explosive atmospheres - Part 0:
Equipment - General requirements

ExTR Reference Number:
ExTR Free Reference Number:
Compiled by = signature (ExTR) (enter typed name here) (enter signature here)
Reviewed by = signature (ExTR) (enter typed name here) (enter signature here)
Date of issue:
Ex Testing Laboratory (ExTR)
Address:
Applicant's name:
Address:
Standard: IEC 60079-0:2007 0th Edition
Test procedure: IECEx System
Test Report Form Number: ExTR60079-0-SC (revised 2010-08)

Instructions for intended use of Ex Test Report:
An Ex Test Report provides a clause-by-clause documentation of the initial evaluation and testing that verified compliance of an item or product with an IECEx standard. This Ex Test Report is part of an ExTR with a single ExTR Cover. An Ex Test Report is to be compiled and reviewed in accordance with the IECEx standard that applies to the Ex Test Report as part of the cover.
Copyright © 2010 International Electrotechnical Commission
Reading for Equipment for use in Explosive Atmospheres

Certificate of Conformity (third Party according to ISO/IEC Guide 67)

- What Information is being conveyed by a Certificate?
- Who is the legal owner of the Certificate?
- Should an End User have free access to a Certificate, how?
- How long is a Certificate Valid, after its issue?



IECEx Certificate of Conformity
INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
For use in and outside of the IECEx Scheme and its sub-scheme

Certificate No.: IECEx PTFB 04 000000 Issue No.: 0
Serial: 000000
Date of issue: 08/01/2017 Page: 1 of 3
Addressee: PHYSIKALISCH-TECHNISCHE BUNDESANSTALT (PTB)
Address: 351118 Braunschweig
Germany

Product description: EXPLOSION-PROTECTED ELECTRICAL EQUIPMENT (Ex) for use in explosive atmospheres
Type of equipment: General Requirements, Technical Safety
Marking: Ex ia IIC T4

Approved for sale or use in the IECEx Scheme: YES, UNDER CONDITIONS
Condition: Declaration of Conformity, Safety and Reliability of equipment

Signature:
Date:
Valid:
This certificate is not valid if it is not signed by the PTB. This certificate is not valid if it is not signed by the PTB. This certificate is not valid if it is not signed by the PTB.

Certificate issued by: Physikalisch-Technische Bundesanstalt (PTB)
(Established in 1802)
351118 Braunschweig
Germany

PTB

28 Manufacturer's responsibility

28.1 Conformity with the documentation

The manufacturer shall carry out the verifications or tests necessary to ensure that the electrical equipment produced complies with the documentation.

NOTE It is not the intent of this subclause to require 100 % inspection of parts. Statistical methods may be employed to verify compliance.

28.2 Certificate.....

28.3 Responsibility for marking

By marking the electrical equipment in accordance with Clause 29, the manufacturer attests on his own responsibility that

- the electrical equipment has been constructed in accordance with the applicable requirements of the relevant standards in safety matters,
- the routine verifications and routine tests in 28.1 have been successfully completed and that the product complies with the documentation.

ISO/IEC 17000 Definitions

2.4

third-party conformity assessment activity

conformity assessment activity that is performed by a person or body that is independent of the person or organization that provides the object, and of user interests in that object

NOTE 1 Criteria for the independence of conformity assessment bodies and accreditation bodies are provided in the International Standards and Guides applicable to their activities (see Bibliography).

IEC 60079-0 Definitions

3.8 certificate

document that assures the conformity of a product, process, system, person, or organization with specified requirements

NOTE The certificate may be either the supplier's declaration of conformity or the purchaser's recognition of conformity or certification (as a result of action by a third party) as defined in ISO/IEC 17000

Long Standing Testing / Assessment Requirements for Ex Equipment

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE
NORME DE LA CEI

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC STANDARD

Publication 79-0

Deuxième édition — Second edition
1983

Matériel électrique pour atmosphères explosives gazeuses

Partie zéro: Règles générales

Electrical apparatus for explosive gas atmospheres

Part 0: General requirements



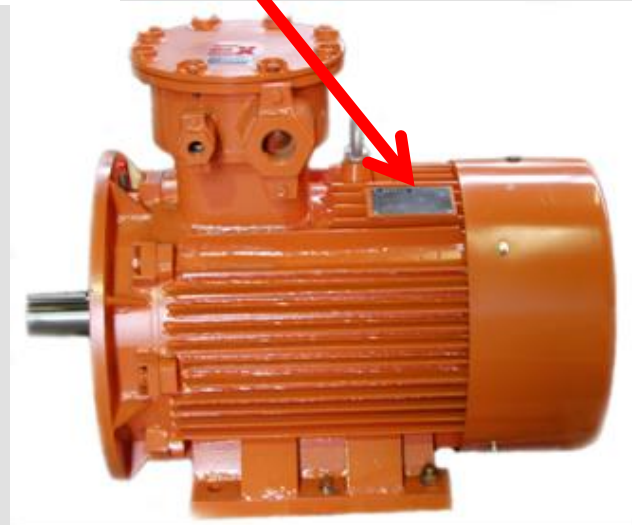
- **Verification of documents**
- **Compliance of Prototype with documents**
- **Marking Requirements**
- **Type Tests – include:**
 - **Mechanical Tests**
 - **Resistance to Impact**
 - **Thermal Tests**
 - **Insulation Resistance of plastic parts**
 - **Test in explosive mixtures**
 - **Test of clamping of cables**



IEC 60079-0 Requires Certificate Number on the Product

○ ROTOTECH EX 3-AC Induction Motor ○ IEC 60034-1 AS 1359										
Ex mark ExdI/IIB T4/T5					Ex Cer. No.: IEC Ex ITA 10.0025X					
TYPE					N°				kg	±%
kW	Hz	V	AMP	RPM	EFF.	COSφ	T.AMB	T.RISE	CONN.	
Ins.CL.	S	IP	BRG DE				NDE			
○ MEPS COMPLIANT					www.rototech.com.au ○					

Under the IECEx Certified Equipment Scheme, the IECEx Certificate number displayed on the product matches the Master version on the website – provides instant verification of claims of IECEx Certification





What is IECEx?

“IECEx is the International Standard way of doing Ex Certification”

The IEC's System with Schemes covering Certification to Standards that relate to Equipment, Services and Persons in areas relating to Explosive Atmospheres, to provide an Internationally accepted means of ***demonstrating claimed compliance with International Standards***

IECEx is a “**Conformity Assessment Tool**” providing confidence that Products, **Services and Personnel** covered by an IECEx Certificate meet specified requirements, (International Standards)

“Ex” is not an Industry of its own!

Ex is part of almost every Industry known to Man, Examples:

- 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 eg operating theatres
- Aircraft refuelling and hangars
- Surface coating industries
- Coal mining
- Sewerage treatment plants
- Grain handling and storage
- Woodworking areas
- Sugar refineries, storage , packaging + distribution
- Metal surface grinding, eg aluminium dusts and particles.
- Transportation
- Pharmaceuticals
- Food processing
- Furniture manufacturer
- Textiles - + Many others

FACT 1 – Ex is part of almost every industry known to mankind.

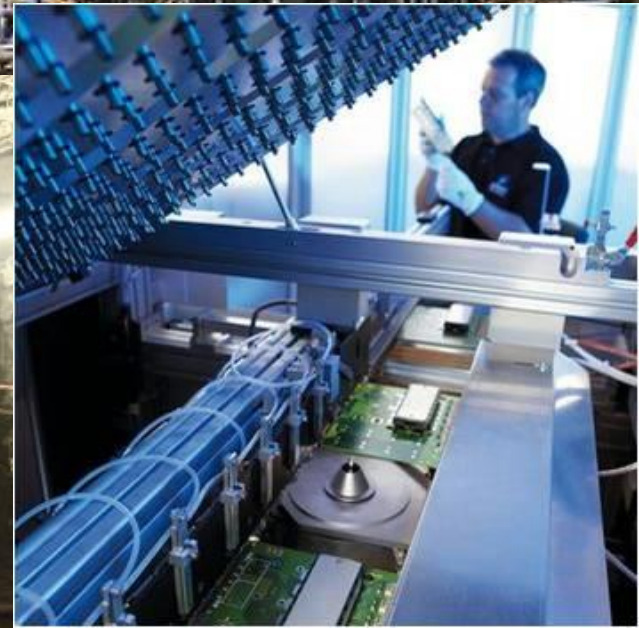
Ex Areas are Complex + Costly

Ex Equipment and Installation's are complex.

The Ex industry requires verification of compliance in every aspect from

- Installation Design**
- Equipment and Systems**
- Inspection**
- Maintenance**
- Repair**
- Personnel**

FACT 2 – Ex Equipment and Installations are Complex.



Buncefield, UK

- Sunday 11th Dec 2005
- Over 40 people injured
- Burned for several days, destroying most of the site.
- Countless Millions (£) lost in damages, legal fees, loss of infrastructure, and loss of production.

FACT 3 - The goal of Standards and Conformity Assessment is to prevent this.





Schemes within the IECEx System

IECEX System
www.iecex.com

IECEX Equipment Scheme
Certification of Ex Equipment + Systems

Choice between:

IECEX “Certificate of Conformity”

IECEX “Component Certificate”

IECEX “Unit Verification” Cert.

IECEX Conformity Mark License Scheme



IECEX Services Scheme
Certification of Ex Service Providers, eg Repair and overhaul workshops



IECEX Certified Persons Scheme (CoPC)
Competency to work in Ex field (New)



IECEX Equipment Scheme

Certification of Ex Equipment + Systems

Choice between:

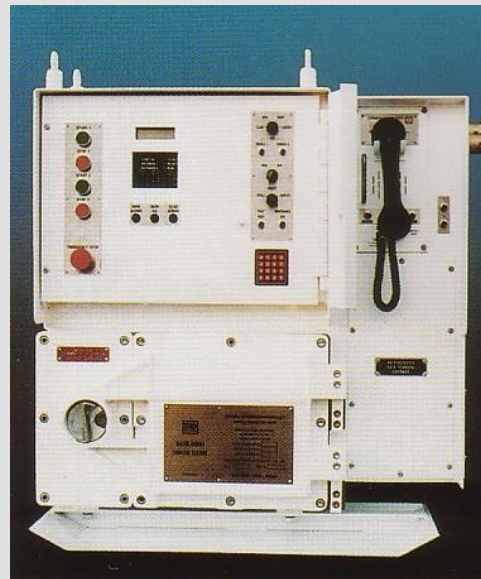
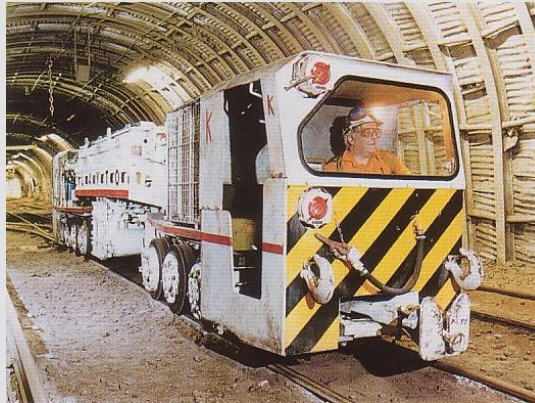
**IECEX “Certificate of
Conformity”**

**IECEX “Component
Certificate”**

**IECEX “Unit
Verification” Cert.**

Examples of Equipment + Systems Covered by IECEx

- Transducers, Sensors etc
- Switchgear
- Control Stations
- Motors
- Luminaries and Lighting
- Underground vehicles
- Radios + Communication
- Junction boxes
- Control Modules
- Control Systems
- Instrumentation
- Analyser houses
- Ventilation Rooms
- Components
 - Terminals
 - Adaptors / Reducers
 - Cable terminations
 - Glands
- Many others





Flowserve Ex System

**Ex Digital Positioner
IECEX CoC**

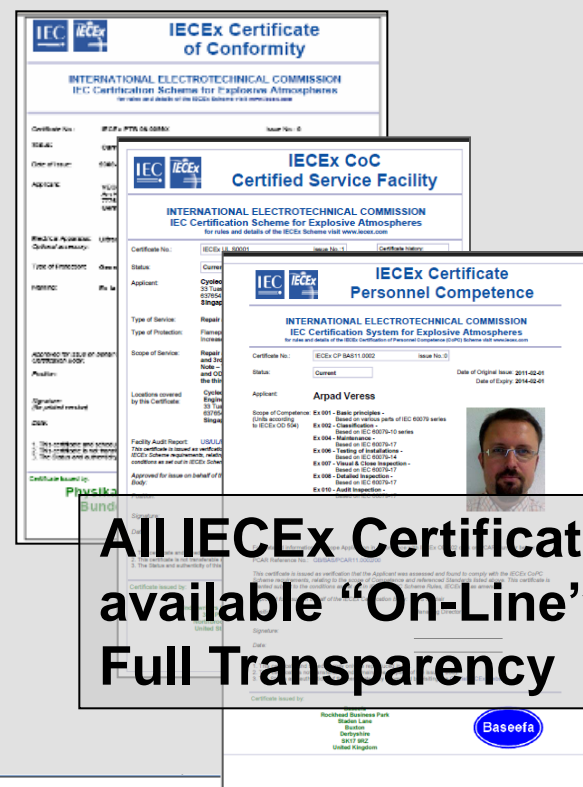
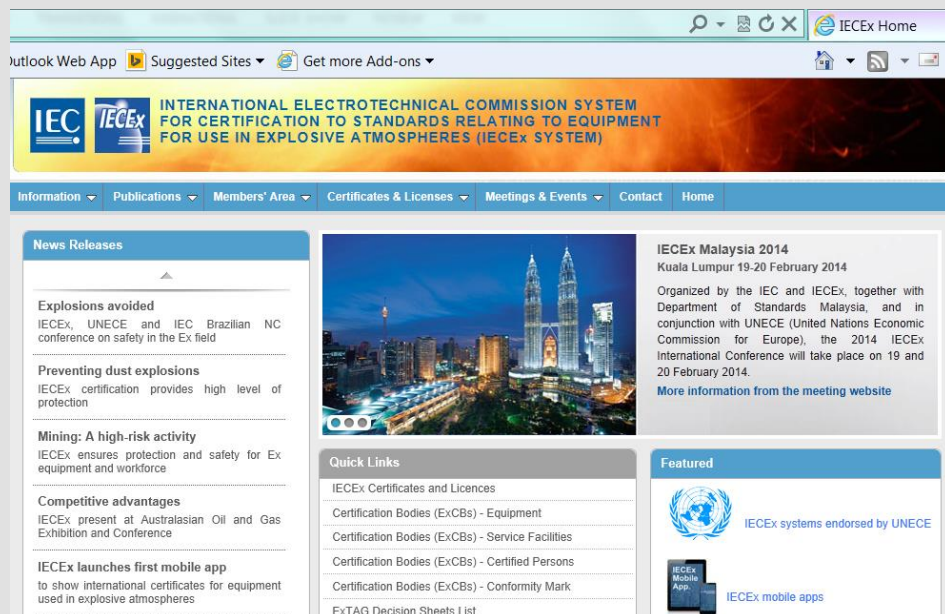
**Ex Transducer
IECEX CoC**

**Interconnected
Cable**

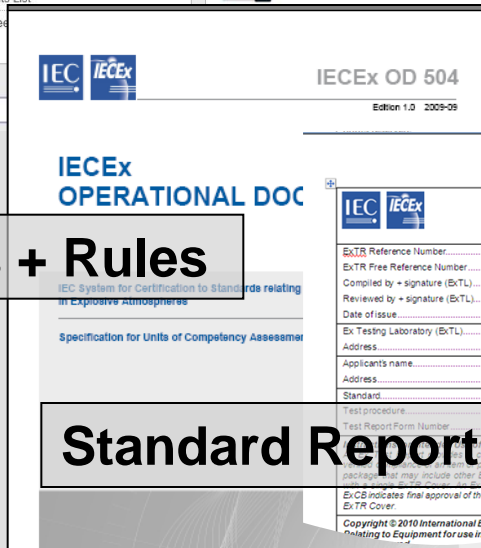
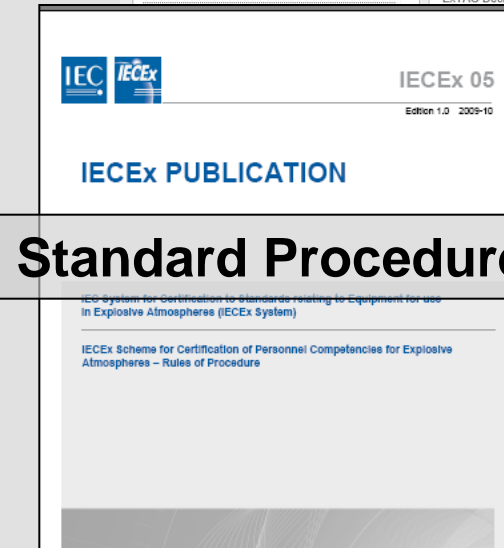
Optional Accessories include:
IECEX Certified Junction Box
IECEX Certified Limit Switches
IECEX Certified Solenoids



IECEX Overview



All IECEx Certificates available “On-Line” – Full Transparency



Logo + Mark

Standard Reporting formats

IEC CONFORMITY ASSESSMENT BOARD, CAB

Oversees IEC Conformity Assessment policy and Systems, eg IECEx

IECEX Management Committee, ExMC

National Members (Countries)
Overall management of the IECEx System

Officers + Executive, TC 31 Chair, IEC Gen. Sec

ExMC Expert Working Groups (WGs)

IECEX Expert Assessors

IECEX Secretariat

Technical Support
Administration

Ex Officio Members

IEC General Secretary
IEC TC 31 Chairman

IECEX Technical Assessment Group

Members: ExCBs + ExTLs

ExTAG Expert WGs

TC 31 + SC Liaison

IECEX Marks Committee

Operation of IECEx Mark

Appointed Members

IECEX Executive



IECEX CoPC Committee

Operation of Personnel Cert

Appointed Members

IECEX Executive

- **IECEx 02 Equipment Scheme:-**
 - **ExCBs 48**
 - **ExTL = 56**
- **IECEx 03 Service Facility Scheme (ExCBs 13)**
- **IECEx 04 Mark License System (ExCBs 14)**
- **IECEx 05 Personal Competence (ExCBs 8)**

- Web site version is the MASTER
- Certificates issued by ALL ExCBs in the one place – ***if not on IECEx website – then not issued !***
- Data Backed up by IEC Central Office, Geneva
- Certificate / Report Number automatically generated by system, *all Cert. Nos begin with “IECEx....”*
- Certificates + reports deleted only by Secretariat
- Editing only allowed during first 14 days after issue of the Certificate
- ExCBs only issue CoCs within their scope
- Supported by technical Secretariat.

Stabilize & S



Restricting the blaze

IECEX is the IEC System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres. It uses quality assessment specifications that are based on International Standards prepared by the International Electrotechnical Commission (IEC).

IEC TC31 & IECEx Meeting Schedule

IECEx mobile apps

Explainable Atmospheres (IECEX System)

ONLINE

Certified Equipment

Certified Service Facilities

Conformity Mark Licenses

Certified Persons
(coming soon)

for search and di

For any questions, please contact [Mr. Chris Agius](#), IECEx Secretary

Operational Manual

quit | print

[Export to MS Excel](#)

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Type of Deviation: Increased Cofactors "a" and "b" and "SD"



IECEX On-Line Certificate System

Certificate of Conformity: IECEx ITS 07.0008X - Microsoft Internet Explorer

File Edit View Favorites Tools Help



Address <http://iecex.iec.ch/iecexweb.nsf/ae7eead0d12561594c1256d0200448859/607c74650e91a0e2c1257928002f3a9c?OpenDocument>

[IECEX CoC Home](#) > [Certified Equipment Scheme](#) > [Certificate of Conformity](#)

important information !

COC
ONLINE



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX ITS 07.0008X** issue No.: **2**

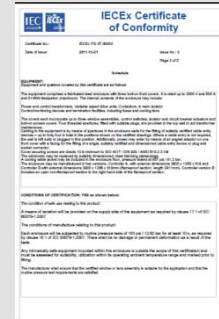
Status: **Current**

Date of Issue: **2011-12-21** Page 1 of 5

Applicant: **Joy Mining Machinery**
Thorn Hill Industrial Park
177 Thorn Hill Road
Warrendale
PA 15086
United States of America

Electrical Apparatus: **Controller Enclosure 7LS1A / Type 5000033161**
Optional accessory:

Certificate history:
Issue No. 2 (2011-12-21)
Issue No. 1 (2010-6-9)
Issue No. 0 (2007-3-26)





IECEx On-Line Certificate System

★ Favorites

IEC IECEx Certificate of Conformity - Ex Equipme...

Page Safety Tools

IECEx Guest User | ExCB Login



IECEx Certified Ex Equipment

IEC System for Certification to Standards relating to Equipment for use in Explosive Atmospheres (IECEx System)

[IECEx CoC Home](#) > [Certified Equipment Scheme](#) > Listing

View by Certificate ref. number : (Anonymous)

[Previous Page](#) | [Next Page](#) | [First Page](#) | [Last Page](#) | [Expand](#) | [Collapse](#)

(Selection: All | 2012 | 2011 | 2010 | 2009 | 2008 | 2007 | 2006 | 2005 | 2004 | 2003)

Certificate No	Status	Manufacturer country / location	Manufacturer name	Protection type	Tested standard
IECEx ZLM 12.0005X issue 0	Current	Germany	Pepperl+Fuchs GmbH	Intrinsic Safety	IEC 60079-0 (Ed.6.0)...
IECEx ZLM 12.0004X issue 0	Current	United States of America	GE Infrastructure Se...	flameproof enclosure	IEC 60079-0 (Ed.6.0)...
IECEx ZLM 12.0003X issue 0	Current	Germany	PEPPERL + FUCHS GmbH...	Intrinsic Safety	IEC 60079-0 (Ed.6.0)...
IECEx ZLM 12.0002X issue 0	Current	Switzerland	Camille Bauer AG	Intrinsic Safety, du...	IEC 60079-0 (Ed.6.0)...
IECEx ZLM 12.0001X issue 0	Current	Italy	ABB SpA	Intrinsic Safety	IEC 60079-0 (Ed.6.0)...
IECEx ZLM 11.0010X issue 0	Current	Japan	Endress+Hauser Yaman...	flameproof enclosure...	IEC 60079-0 (Ed.6.0)...
IECEx ZLM 11.0007X issue 0	Current	United States of America	GRACO Inc.	Intrinsic Safety	IEC 60079-0 (Ed.6.0)...
IECEx ZLM 11.0006X issue 0	Current	Italy	ABB S.p.A.	Flameproof Enclosure...	IEC 60079-0 (Ed.6.0)...
IECEx ZLM 11.0005 issue 1	Current	Germany	ifm prover gmbh	Intrinsic Safety	IEC 60079-0 (Ed.6.0)...
IECEx ZLM 11.0004 issue 1	Current	Germany	ifm prover gmbh	Intrinsic Safety	IEC 60079-0 (Ed.6.0)...
IECEx ZLM 11.0003X issue 1	Current	Germany	Siemens AG	Intrinsic Safety, No...	IEC 60079-0 (Ed.5); ...
IECEx ZLM 10.0002 issue 3	Current	Germany	ABB Automation Produ...	Intrinsic Safety, No...	IEC 60079-0 (Ed.6.0)...
IECEx ZLM 10.0002 issue 2	Current	Germany	ABB Automation Produ...	Intrinsic Safety, No...	IEC 60079-0 (Ed.5); ...
IECEx ZLM 09.0013X issue 1	Current	Germany	perma-tec GmbH & Co...	Intrinsic Safe	IEC 60079-0 (Ed.6.0)...
IECEx VTT 12.0009 issue 0	Current	Finland	Centaura Oy	Ex e mb/ Ex tb or Ex...	IEC 60079-0 (Ed.6.0)...
IECEx VTT 12.0008X issue 1	Current	Finland	Manufacturing Site	Ex ib	IEC 60079-0 (Ed.6.0)...
IECEx VTT 12.0008X issue 0	Current	Finland	Manufacturing Site	Ex ib	IEC 60079-0 (Ed.6.0)...
IECEx VTT 12.0007X issue 2	Current	Finland	Manufacturing Site	Ex ib	IEC 60079-0 (Ed.6.0)...
IECEx VTT 12.0007X issue 1	Current	Finland	Manufacturing Site	Ex ib	IEC 60079-0 (Ed.6.0)...

Internet

100%

Search Desktop



IECEx On-Line Certificate System

IECEx Certified Ex Equipment

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[Ex CoC Home](#) > [Certified Equipment Scheme](#) > [Certificate of Conformity](#)

[important](#)

Certificate



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:

IECEx UL 13.0049

issue No.:0

Certificate history: _____

Status:

Current

Date of Issue:

2013-07-03

Page 1 of 3

Applicant:

Martin Decker NOV, Div of National Oilwell Varco LLP
1200 Cypress Creek Road
Cedar Park, TX 78613
United States of America

Electrical Apparatus:

The IIBOP is a self-contained battery powered sensing device which monitors the position of and conditions on a well-drilling apparatus providing the status via a RF signal.

Optional accessory:



Standard IECEx Certificate Number

IECEX UL 13.0049

IECEX Certification

Certificate Issuing Body

Year of Issue

Certificate Issued in that year

IECEX UL 13.0049

Normal Certificate Number

IECEX UL 13.0049X

Conditions of Product Use
Apply

IECEX UL 13.0049U


Component Certificate

Certificate Number appears on Product Marking

Also Provides for adding an Attachment / Annex to the online certificate for Additional Product Information

 IECEx Certificate of Conformity	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres <small>for rules and details of the IECEx Scheme visit www.iecex.com</small>	
Certificate No.:	IECEx BAS 08.0111X Issue No.:1
Status:	Current
Date of Issue:	2010-02-10 Page 1 of 4
Applicant:	Hawke International A Division of Hubbell Limited A Member of the Hubbell Group of Companies Oxford Street West Ashton-under-Lyne Lancashire OL7 0NA United Kingdom
Electrical Apparatus:	PR411 and PR453 Cable Glands
Optional accessory:	
Type of Protection:	Flameproof, Increased Safety and Dust
Marking:	Ex d IIC Ex e II Ex ID A21 IP66 (-60°C ≤ ta ≤ +80°C) for the PR453, or +100°C for the PR411
Approved for issue on behalf of the IECEx Certification Body:	R S Sindler
Position:	Managing Director
Signature:	(for printed version)
Date:	
1. This certificate and schedule may only be reproduced in full. 2. This certificate is not transferable and remains the property of the issuing body. 3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.	
Certificate issued by:	Baseefa Rockhead Business Park Staden Lane Buxton Derbyshire SK17 9RZ United Kingdom



Baseefa Rockhead Business Park Staden lane, Buxton, Derbyshire SK17 9RZ United Kingdom	
ANNEX to IECEx BAS 08.0111X	Issue No. 0
Date: 2009/02/13	

Each of the following gland types may be manufactured in brass, stainless steel or aluminum and may be supplied with specified alternative entry thread forms.

Variant 0.1 - Type PR 411

The Type PR 411 cable gland is intended for use with an effectively filled circular cable in flameproof applications. For other protection concepts the cable gland is intended for use with effectively filled circular, unarmoured, armoured, steel basket weave armoured or braided (screened) cable and comprises the following components :-




- An entry component in the size ranges Os to F (M16 to M75)
- A compressible sealing ring
- A nylon skid washer
- A threaded compression spigot

Variant 0.2 - Type PR 453

The Type PR 453 cable gland is intended for use with an effectively filled and circular armoured or braided cable and comprises the following components :-

- An entry component, in the size range Os to F (M16 to M75)
- A compressible sealing ring
- A combined compression spigot and armour clamping cone
- A dedicated armour, or braid, clamping ring
- A middle nut
- An outer seal assembly (sleeve seal and support ring Os-F)
- A back nut



 		<h1 style="text-align: center;">IECEx Certificate of Conformity</h1>	
<h2 style="margin: 0;">INTERNATIONAL ELECTROTECHNICAL COMMISSION</h2> <h3 style="margin: 0;">IEC Certification Scheme for Explosive Atmospheres</h3> <p style="margin: 0; font-size: small;">for rules and details of the IECEx Scheme visit www.iecex.com</p>			
Certificate No.:	IECEx BAS 30 0274	Issue No.:	0
Status:	Current		
Date of issue:	2005-01-19	Page 1 of 4	
Applicant:	Boreas Limited 60000 Road Cambridge CB1 3RN United Kingdom		
Technical specification:	Xenon 222 and 222 Series Oxygen Transmitter		
Product description:	Intrinsic Safety, Flameproof, Dust Ingress Protection		
Marking:	IECEx BAS 30 0274 Ex ia I, Ex ia IIC, Ex ia IIC, Ex ia IIC, Ex ia IIC DIP AD 1A 1P1C Ex ia I, Ex ia IIC, Ex ia IIC, Ex ia IIC DIP AD 1A 1P1C Ex ia I, Ex ia IIC, Ex ia IIC, Ex ia IIC DIP AD 1A 1P1C		
Approved for issue on behalf of the IECEx	R R Smiler		
Signature:	Managing Director		
Date:			
<p>1. This certificate and its extension may only be reproduced in full.</p> <p>2. This certificate is not a guarantee and cannot be a proof of the issuing body.</p> <p>3. The extension of validity of this certificate may be verified by visiting the IECEx Website.</p>			
Certificate issued to:			
<h2 style="margin: 0;">Boresea (2001) Ltd.</h2> <p style="margin: 0; font-size: small;">Health & Safety Laboratory Site Derbyshire S61 7AD United Kingdom</p>			

11

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

UNIT VERIFICATION

Certificate No.: **IECEx TUN 12.0012X** Issue No.: **0** Certificate history: [View](#)

Status: **Current**

Date of issue: **2012-06-29** Page 1 of 3

Applicant: **ABB S.P.A.**
Viale Dell'Industria 18
20010 Vittuone (MI)
Italy

Electrical Apparatus: **3Phase Induction Electrical Motor AMI 1000 S18 ABBSTPYM**
Serial number(s) or Unique Identification: **8110003027.03**

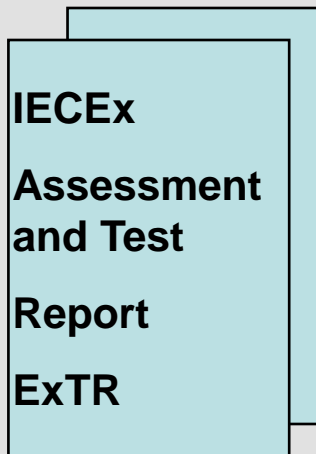
Type of Protection: **Pressurized enclosure pz, Intrinsic safety Ic**

Marking: **Ex ic pz IIB T3 Gc**

Approved for issue on behalf of the IECEx: **Karl-Heinz Schwedt**

Each Unit must be tested / assessed by the IECEx Body And identified on the Certificate, by serial No.

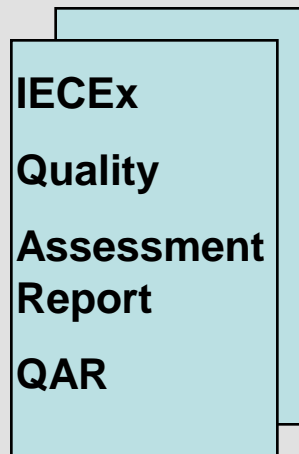
Product Test/Asses.



Testing of
Samples
(Type Testing)

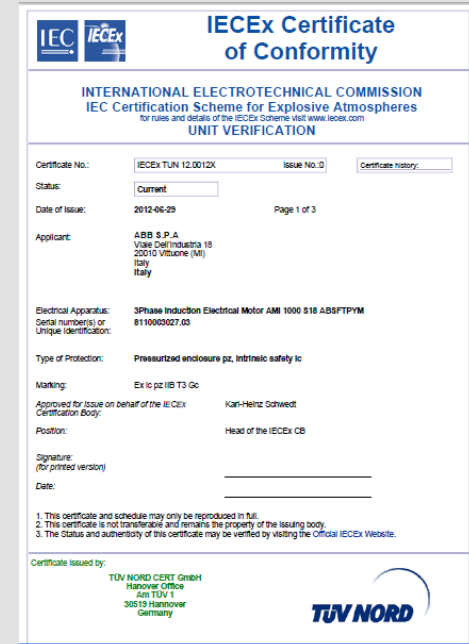
IEC/TC 31
International
Standards

Factory Audit + Ongoing surveillance



Assessment of
Manufacturers
Quality System

ISO/IEC 80079-34 In
line with EN 13980
and Based on
ISO 9001




IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com
UNIT VERIFICATION

Certificate No.:	IECEX TUN 12.0012X	Issue No. 0	Certificate history:
Status:	Current		
Date of Issue:	2012-06-29	Page 1 of 3	
Applicant:	ABB S.p.A. Via dell'Industria 18 20010 Vittuone (MI) Italy		
Electrical Apparatus: Serial number(s) or Unique Identification:	3Phase Induction Electrical Motor AM 1000 S18 ABSFTPM 811000027.03		
Type of Protection:	Pressurized enclosure pz, intrinsic safety ic		
Marking:	Ex ic pz IIB T3 Gc		
Approved for issue on behalf of the IECEx Certification Body:	Karl-Heinz Schwedt		
Position:	Head of the IECEx CB		
Signature: (for printed version)			
Date:			

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:
TUV NORD CERT GmbH
Hannover Office
Am TÜV 1
30519 Hannover
Germany



Live “On-Line”
System
In-built controls
Consistent format
Search capabilities
Covers only
Units identified

IECEx Unit Verification Certificate - Option



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
 for rules and details of the IECEx Scheme visit www.iecex.com

UNIT VERIFICATION

Certificate No.: IECEx TUN 12.0012X issue No.: 0 Certificate history: _____

Status: Current

Date of Issue: 2012-06-29 Page 1 of 3

Applicant: **ABB S.P.A**
 Viale Dell'Industria 18
 20010 Vittuone (MI)
 Italy
 Italy

Electrical Apparatus: 3Phase Induction Electrical Motor AMI 1000 S18 ABSFTPYM
 Serial number(s) or Unique Identification: 8110003027.03

Type of Protection: Pressurized enclosure pz, intrinsic safety ic

Marking: Ex ic pz IIB T3 Gc

Approved for issue on behalf of the IECEx Certification Body: Karl-Heinz Schw...

Issued on the basis of Satisfactory ExTR

Only covers items actually assessed/tested

Not require Factory inspection nor ongoing surveillance

Items traceable on certificate via serial numbers/etc

Can cover more than 1 item but all serial Nos appear .

IECEx Services Scheme

**Certification of Ex Service Providers, eg
Repair and overhaul workshops**





IECEx Services Scheme – Repair Workshops

Guide to IECEx Service Facility Certification
As per OD-013

Ex Equipment High Capital cost

Ex Equipment usually Cheaper to Repair than Replace!

Incorrect Repairs can compromise inherent Ex protection

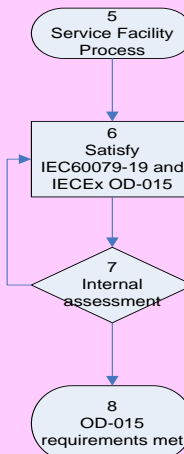
IECEx Certifies Workshops to IEC 60079-19

IECEx 03A Guide to Applicant Workshops www.iecex.com

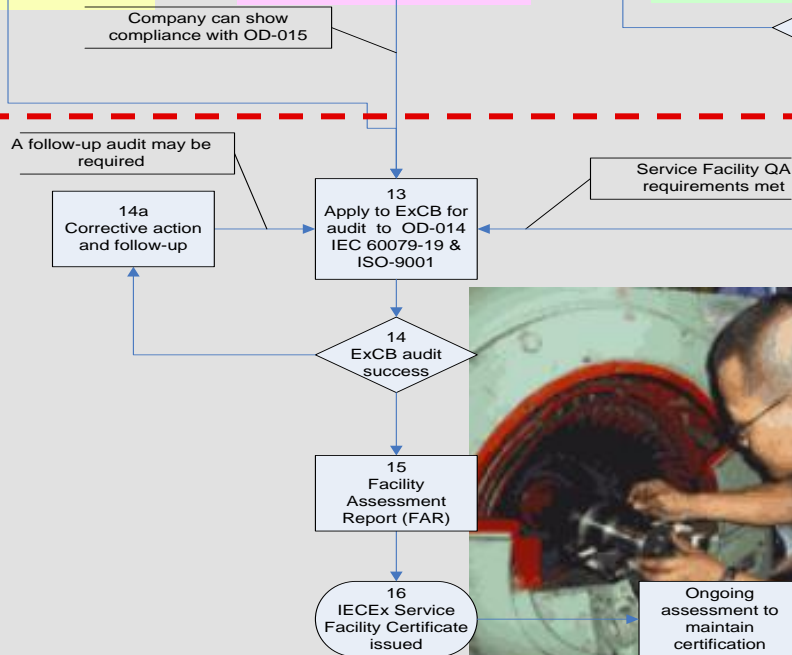
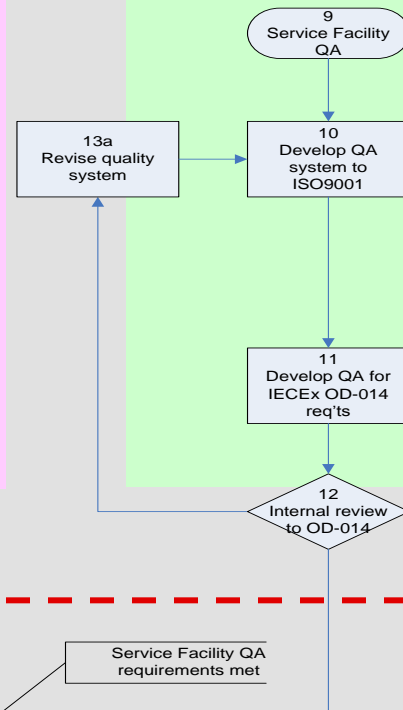
People



Technical



Quality





iecex.iec.ch:

[Home / Search](#)[Certified Equipment](#)[Conformity Mark Licenses](#)[Certified Persons](#)

View by:

["All ExCBs" Certificates](#)[Certificate ref. number](#)[IECEx Cert. Body \(ExCB\)](#)[Applicant](#)[Applicant Location](#)[FARs](#)

Services:

[Export to MS Excel](#)[Operational Manual](#)

IECEx CoC Certified Service Facility

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:

IECEx BAS S0013

issue No.:1

Certificate history:

Issue No. 1 (2012-6-13)

Issue No. 0 (2011-1-27)

Status:

Current

Date of Issue: 2012-06-13

Applicant:

ABB Pte Ltd

2 Tuas Lane

638611

Singapore

Type of Service:

Repair and Overhaul according to IEC 60079-19

Type of Protection:

Flameproof Enclosure "d"

Increased Safety "e"

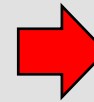
Type of Protection "n"

Scope of Service:

On site Repair and Overhaul of Exd, Exe, Exde, Exn Rotating Machine and enclosures .
Off site work limited to replacement of machine bearings.Locations covered
by this Certificate:

as above

IECEX Certified Persons Scheme (CoPC) Competency to work in Ex field (New)



IECEX Certificate
Personnel Competence

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres
for rules and details of the IECEx Certification of Personnel Competence (CoPC) Scheme visit www.iecex.com

Certificate No.: IECEx CP BAS11.0002 Issue No.: 0

Status: Current Date of Original Issue: 2011-02-01
Date of Expiry: 2014-02-01

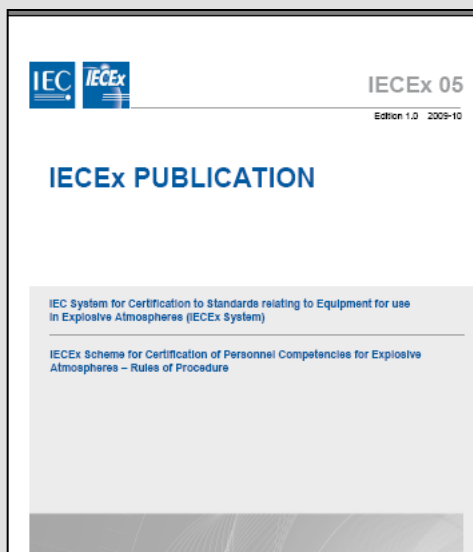
Applicant: **Arpad Veress**

Scope of Competence:
(Units according to IECEx OD 504)

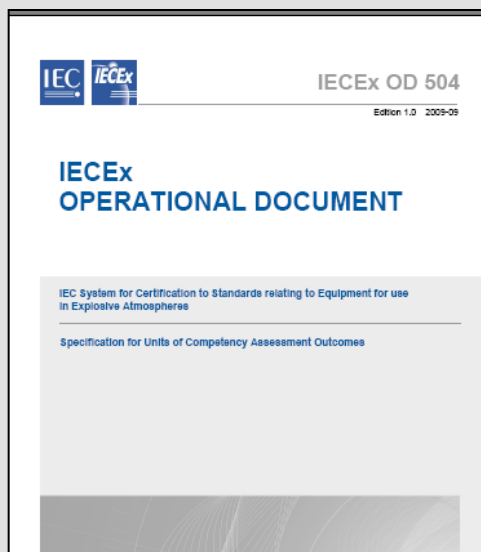
- Ex 001 - Basic principles -
Based on various parts of IEC 60079 series
- Ex 002 - Classification -
Based on IEC 60079-10 series
- Ex 004 - Maintenance -
Based on IEC 60079-17
- Ex 006 - Testing of installations -
Based on IEC 60079-14
- Ex 007 - Visual & Close inspection -
Based on IEC 60079-17
- Ex 008 - Detailed inspection -
Based on IEC 60079-17
- Ex 010 - Audit inspection -
Based on IEC 60079-17



- Same IEC TC 31 Standards already used by IECEx apply, 60079-10, -19, -14, -17
- **Certifies a Person's Competence to be able to apply the Standards**
- **Manufacturers now interested**



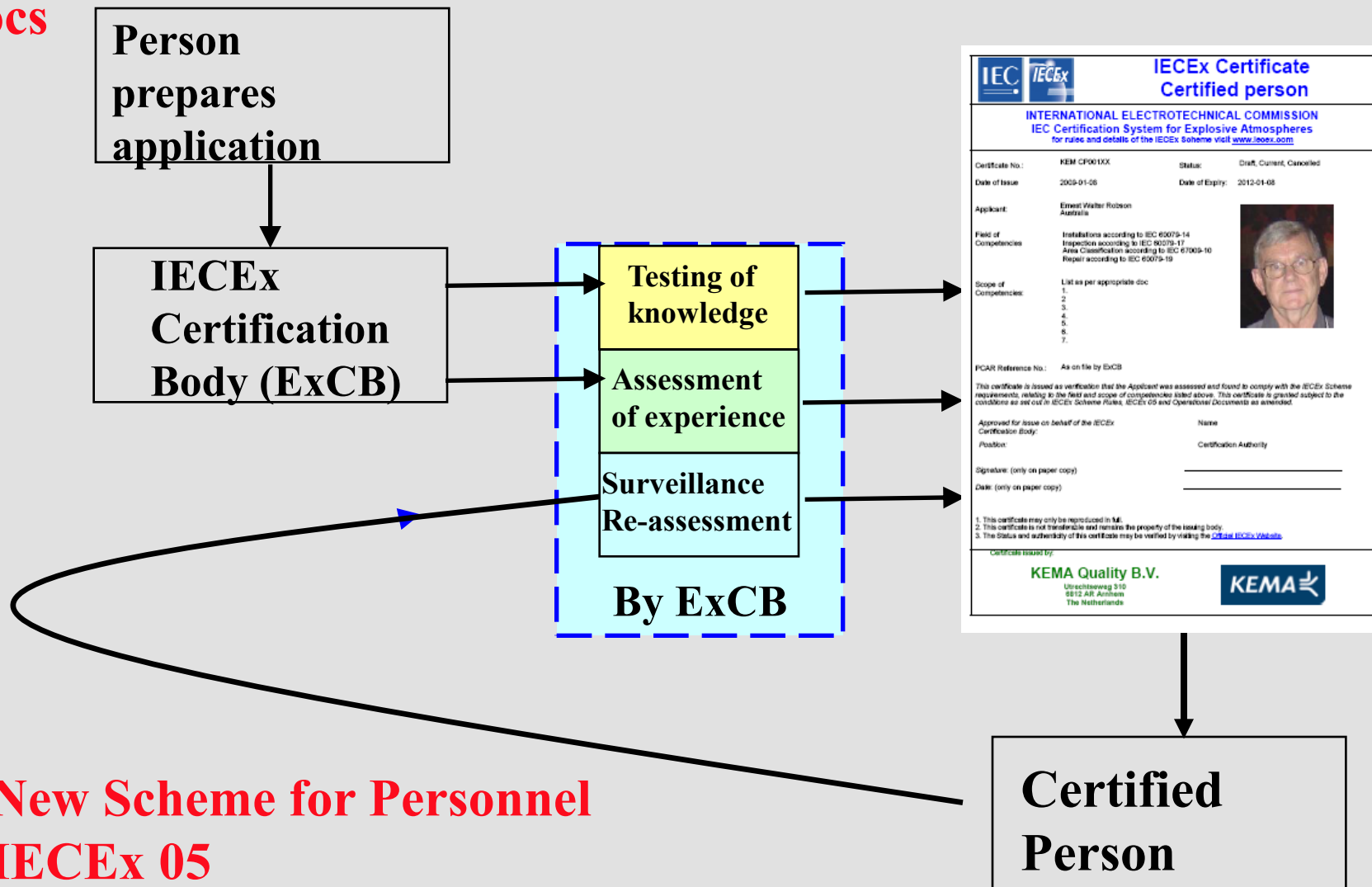
Scheme Rules



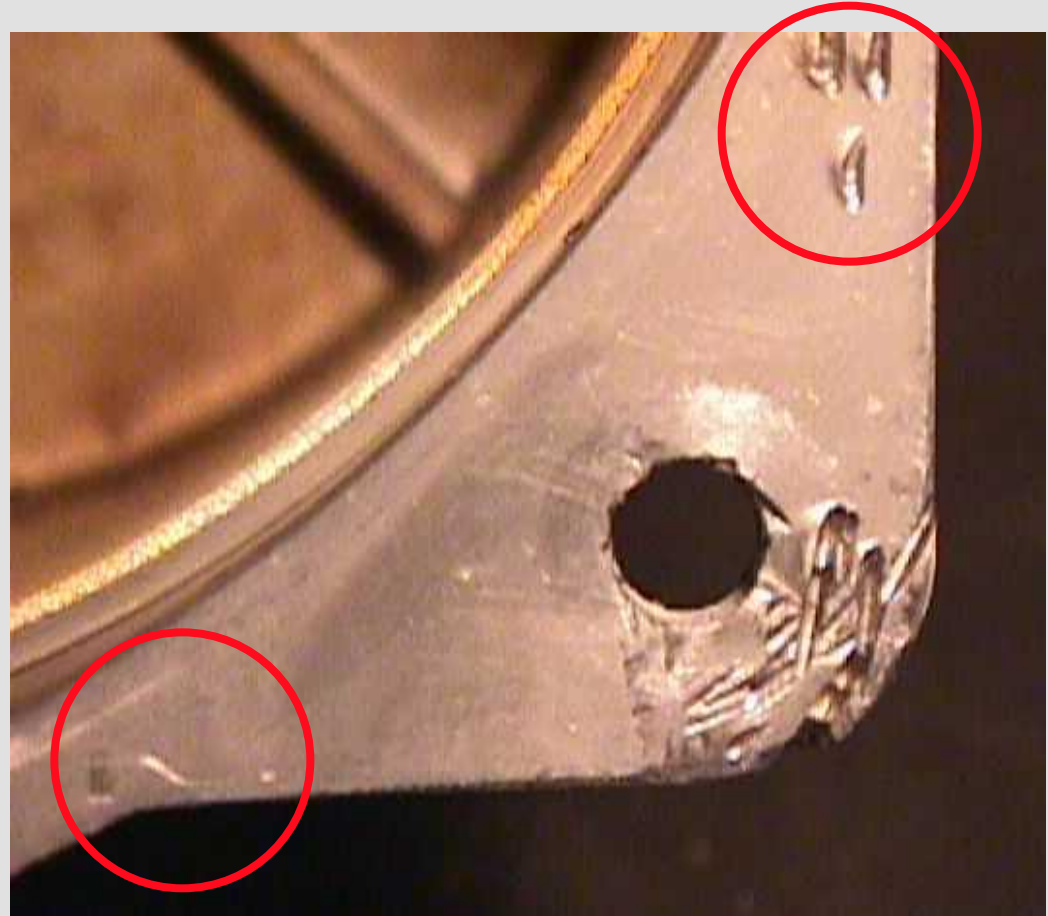
Operational Documents

Unit Ex 001	– Basic principles of protection in explosive atmospheres
Unit Ex 002	– Perform classification of hazardous areas
Unit Ex 003	– Install explosion-protected equipment and wiring systems
Unit Ex 004	– Maintain equipment in explosive atmospheres
Unit Ex 005	– Overhaul and repair of explosion-protected equipment
Unit Ex 006	– Test electrical installations
Unit Ex 007	– Perform visual & close inspection
Unit Ex 008	– Perform detailed inspection
Unit Ex 009	– Design electrical installations
Unit Ex 010	– Perform audit inspection of installations

According to ISO/IEC 17024 + IECEx Rules + Operational Docs

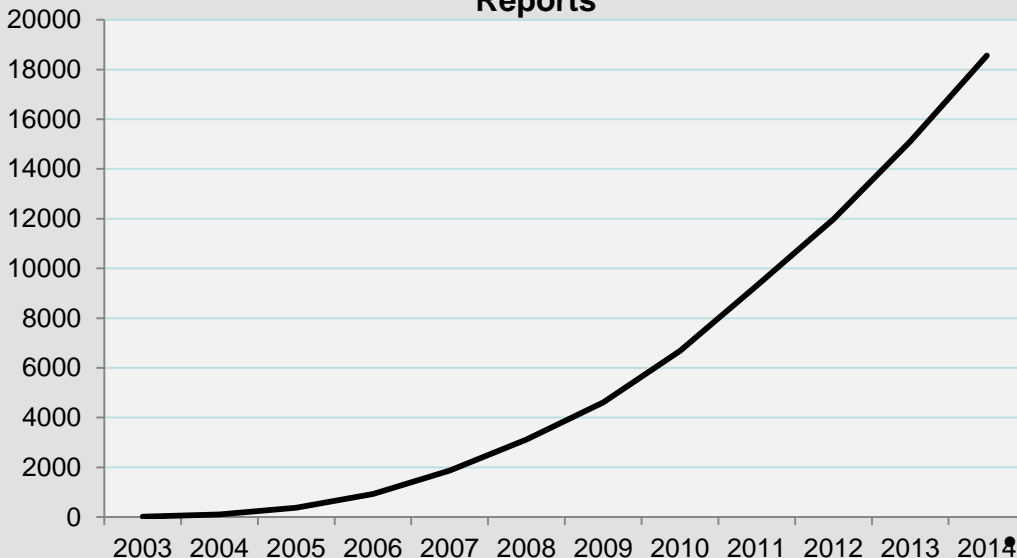


Examples of errors due to lack of competence

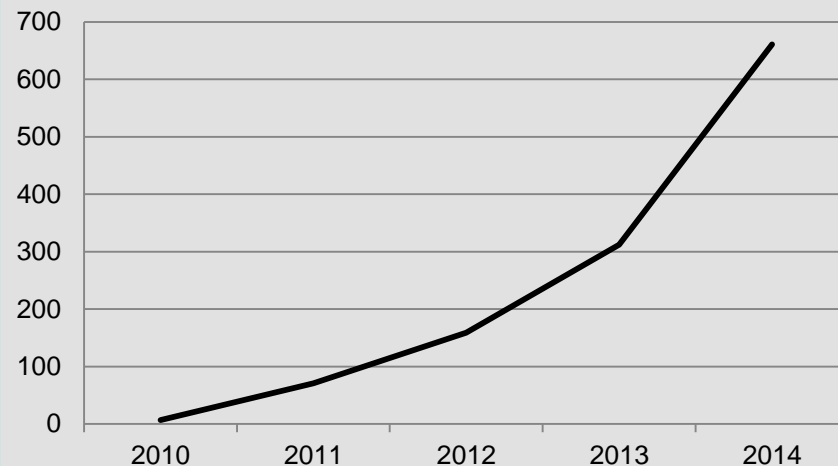


Year Statistics end Sep 2014

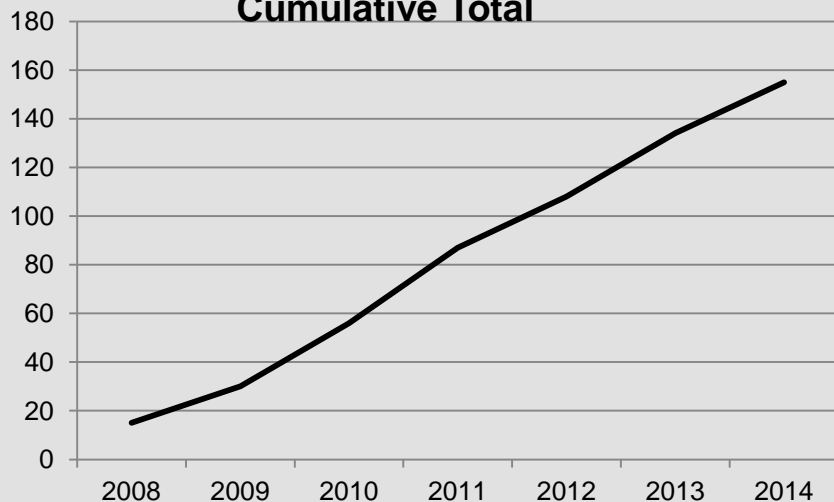
Cumulative Growth of IECEx Equipment CoCs and Reports



Certified Personnel Scheme - Cumulative Total



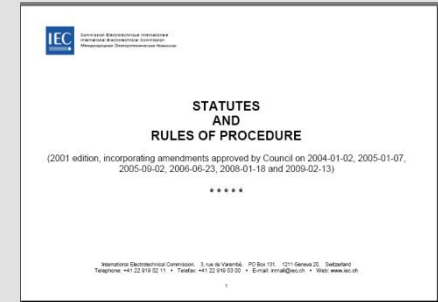
Service Facility Certificates - Cumulative Total



Sustained Growth and demand continues towards end 2014

- Increased inquiries received by Secretariat from industry
- Total Certificates + Reports issued across ALL IECEx Schemes at end Dec 2013 = **35768** [**>42,000 at Oct 2014**]
- Financially Stable: Gen. Reserves CHF 1'151'475

- Being part of IEC: Statutes + Rules
- Industry Based Management Committee
- One single set of Rules and Operational Procedures for TLs + CBs
- ALL TLs and CBs undergo the same qualification process to join, use of peer assessment.
- Common Test Report and Certificate Format used by ALL TLs and CBs but always maintaining CB Brand
- Use of Internet “On-Line” Systems for Certificates. [Equipment](#), [Services](#), [Personnel](#)
- Technical Secretariat - Day to Day Management





IECEX Promotional Activities:

IECEX 2012 Dubai Conference

Sponsors

2 Day Conference Hosted jointly by



PRESENTERS:

- Hiromichi Fujisawa IEC V/P
- Kerry McManama
- Jim Munro
- Lorenza Jachia
- Chris Agius
- Patrick Leroux
- Peter Thurnherr
- John Allen
- Ralph Wigg
- Gerold Klotz-Engmann
- Ron Sinclair
- UAE Governmental
- Others





IECEX 2014 Conference

19 + 20 February 2014 Kuala Lumpur



2014 IECEX INTERNATIONAL CONFERENCE

Equipment and Services in Explosive Atmospheres

Kuala Lumpur, Malaysia 19-20 February 2014

IEC System for Certification to Standards relating to Equipment for use
in Explosive Atmospheres (IECEX)



<http://www.iecex.com/malaysia/>

- **Information on**
 - **Standards**
 - **Conformity Assessment**
- **Information on Regulations**
- **Practical Presentations / tuition**
 - **Area Classification**
 - **Installation requirements**
 - **Inspection**
 - **Maintenance**
 - **Repair**

- **IECEX/UNECE Paper at PCIC Europe Conference Prague, June 2012**
- **Joint IECEx/UN Technical Paper Presented at 1st PCIC Middle East Conference Abu Dhabi November 2012, by Head of UNECE Regulatory Unit**
- **Joint Paper to PCIC Nth America 2012 “Personal Competence in IECEx” by Marty Cole + Kerry McManama**
- **IECEX Vice Chairman, Dr Zalogin presentation EU-Russia Industrialists' Roundtable meeting in Kazan, RU, Oct. 2012**
- **2 Day IECEx African Training Workshop + Capacity Building by Thierry Houiex + Peter Thurnherr, 2012 – Very Successful**
- **HazardxEx Presentations + regular articles Ron Sinclair, Jim Munro**

IECEx Planned Activities:

- **22+23 April 2015 : 2 Day International Conference to be held in Poland**

2015 IECEx INTERNATIONAL CONFERENCE
Equipment and Services in Explosive
Atmospheres

Gdansk, Poland 22+23 April 2015

IEC System for Certification to Standards relating to
Equipment for use in Explosive Atmospheres (IECEx)



- **During 2014 Upgrading of the iPhone/Android App**
- **During 2014 Enhanced Search features for the IECEx On-Line Certificate System.**
- **18-22 May 2015: IECEx series of Operational meetings in Toronto Canada**
- **14-18 Sep 2015: IECEx annual Meetings, NZ**

- **Sept. 2014:** IECEx Annual Meetings, NL Hosts.
 - IEC V/President (Dr Fujisawa) along with IEC General Secretary (Mr Vreeswijk) attended
- **May/June 2014:** 7 Days of IECEx Operational Meetings hosted by ESMA in United Arab Emirates
 - WG1/WG5 – IECEx 02 Rules and Factory Auditing
 - WG 13 – IECEx Business Development
 - ExPCC/WG 4 – Training Body Certification
 - WG 15 – Non Electrical Standards
 - ExPCC – IECEx CoPC Committee
 - ExMarkCo – IECEx Mark Overseeing Committee
 - IECEx Executive – Oversight of the IECEx System

Future Annual IECEx Meetings Planned

- **2015: Australia/New Zealand**
- **2016: South Africa**
- **2017: USA**
- **2018: France**
- **2019: UAE**
- **2020: Canada**
- **2021: Japan**

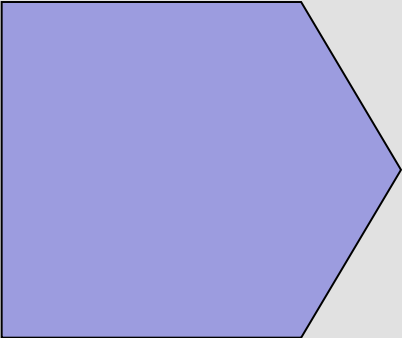
United Nations, via its UNECE Endorses IECEx –



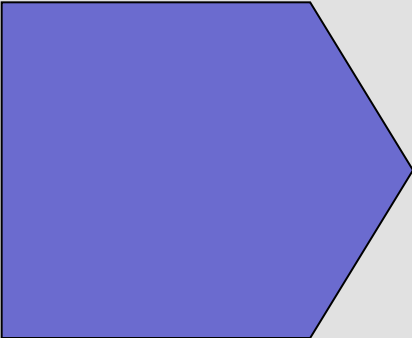
REGULATORY DIALOGUE AT THE UNITED NATIONS



To promote trade as a means of development



To protect the safety of workers and consumers & preserve the natural environment



To foster the international transfer of knowledge & technology



The United Nations System

UN Principal Organs

General Assembly

Security Council

Economic and Social Council

Secretariat

International Court of Justice

Trusteeship Council⁵

Subsidiary Bodies

Main and other seasonal committees
Disarmament Commission
Human Rights Council
International Law Commission
Standing committees and ad hoc bodies

Subsidiary Bodies

Counter-terrorism committees
International Criminal Tribunal for Rwanda (ICTR)
International Criminal Tribunal for the former Yugoslavia (ICTY)

Programmes and Funds

UNCTAD United Nations Conference on Trade and Development

- **ITC** International Trade Centre (UNCTAD/WTO)

UNDP United Nations Development Programme

- **UNCDF** United Nations Capital Development Fund

- **UNV** United Nations Volunteers

UNEP United Nations Environment Programme

UNFPA United Nations Population Fund

UN-HABITAT United Nations Human Settlements Programme

UNHCR Office of the United Nations High Commissioner for Refugees

UNICEF United Nations Children's Fund

UNODC United Nations Office on Drugs and Crime

UNRWA¹ United Nations Relief and Works Agency for Palestine Refugees in the Near East

UN-Women United Nations Entity for Gender Equality and the Empowerment of Women

WFP World Food Programme

Research and Training Institutes

UNICRI United Nations Interregional Crime and Justice Research Institute

UNIDIR¹ United Nations Institute for Disarmament Research

UNITAR United Nations Institute for Training and Research

UNRISD United Nations Research Institute for Social Development

UNSSC United Nations System Staff College

UNU United Nations University

Other Entities

UNAIDS Joint United Nations Programme on HIV/AIDS

UNISDR United Nations International Strategy for Disaster Reduction

UNOPS United Nations Office for Project Services

Related Organizations

CTBTO PrepCom Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization

IAEA² International Atomic Energy Agency

OPCW Organisation for the Prohibition of Chemical Weapons

WTO³ World Trade Organization

Advisory Subsidiary Body

UN Peacebuilding Commission

Specialized Agencies⁴

ILO International Labour Organization

FAO Food and Agriculture Organization of the United Nations

UNESCO United Nations Educational, Scientific and Cultural Organization

WHO World Health Organization

World Bank Group

- **IBRD** International Bank for Reconstruction and Development

- **IDA** International Development Association

- **IFC** International Finance Corporation

- **MIGA** Multilateral Investment Guarantee Agency

- **ICSID** International Centre for Settlement of Investment Disputes

IMF International Monetary Fund

ICAO International Civil Aviation Organization

IMO International Maritime Organization

ITU International Telecommunication Union

UPU Universal Postal Union

WMO World Meteorological Organization

WIPO World Intellectual Property Organization

IFAD International Fund for Agricultural Development

UNIDO United Nations Industrial Development Organization

UNWTO World Tourism Organization

Functional Commissions

Crime Prevention and Criminal Justice

Narcotic Drugs

Population and Development

Science and Technology for Development

Social Development

Statistics

Status of Women

Sustainable Development

United Nations Forum on Forests

Regional Commissions

ECA Economic Commission for Africa

ECE Economic Commission for Europe

ESCAP Economic and Social Commission for Asia and the Pacific

ESCAP Economic and Social Commission for Latin America and the Caribbean

ESCAP Economic and Social Commission for Asia and the Pacific

ESCAP Economic and Social Commission for Asia and the Pacific

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ESCAP Economic and Social Commission for Asia and the Pacific

ESCAP Economic and Social Commission for Asia and the Pacific

Other Bodies

Committee for Development Policy

Committee of Experts on Public Administration

Committee on Non-Governmental Organizations

Permanent Forum on Indigenous Issues

United Nations Group of Experts on Geographical Names

Other seasonal and standing committees and expert, ad hoc and related bodies

Departments and Offices

EOSG Executive Office of the Secretary-General

DESA Department of Economic and Social Affairs

DFS Department of Field Support

DGACM Department for General Assembly and Conference Management

DM Department of Management

DPA Department of Political Affairs

DPI Department of Public Information

DPKO Department of Peacekeeping Operations

DSS Department of Safety and Security

OCHA Office for the Coordination of Humanitarian Affairs

OHCHR Office of the United Nations High Commissioner for Human Rights

OIOS Office of Internal Oversight Services

OLA Office of Legal Affairs

OSAA Office of the Special Adviser on Africa

OSRSG/CAAC Office of the Special Representative of the Secretary-General for Children and Armed Conflict

UNODA Office for Disarmament Affairs

UNOG United Nations Office at Geneva

UN-OHRLLS Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States

UNON United Nations Office at Nairobi

UNOV United Nations Office at Vienna

NOTES:

¹ UNRWA and UNIDIR report only to the General Assembly.

² IAEA reports to the Security Council and the General Assembly.

³ WTO has no reporting obligation to the General Assembly (GA) but contributes on an ad-hoc basis to GA and ECOSOC work inter alia on finance and developmental issues.

⁴ Specialized agencies are autonomous organizations working with the UN and each other through the coordinating machinery of ECOSOC at the intergovernmental level, and through the Chief Executive Board for Coordination (CEBC) at the inter-secretariat level. This section is listed in order of establishment of these organizations as specialized agencies of the United Nations.

⁵ The Trusteeship Council suspended operation on 1 November 1994 with the independence of Palau, the last remaining United Nations Trust Territory, on 1 October 1994.

This is not an official document of the United Nations, nor is it intended to be all-inclusive.

United Nations Endorsement of IECEx

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



 **UNECE** United Nations Economic Commission for Europe

Home About UNECE Programmes Information Meetings Contact Us

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



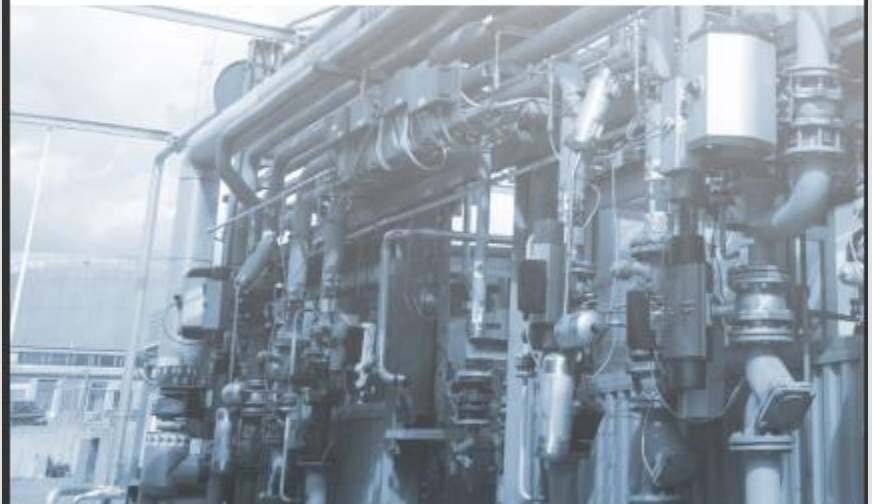
A photograph of a desert landscape with a 'DANGER' sign. The sign is a yellow rectangular sign with black text that reads 'DANGER', 'Mining Area', 'KEEP OUT', 'PENALTY \$100', and 'No unauthorized entry into mining district'. The sign is set against a background of a desert with mountains in the distance.

Full Text

http://www.unece.org/press/pr2011/11trade_p03e.htm

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

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

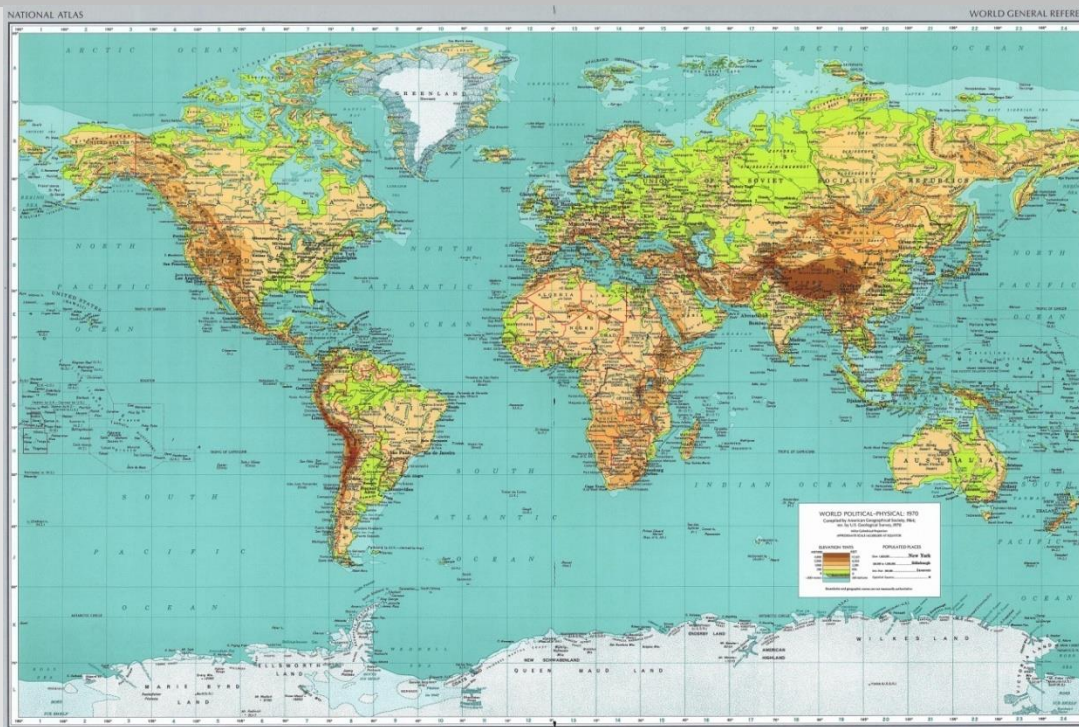


United Nations Endorsement of IECEx

10. The CROs are drawn up with reference to international standards and conformity assessment procedures developed by IEC and ISO and to best practice in the assessment of conformity to such standards, within the IECEx.
11. The CROs address the requirements both for electrical and mechanical equipment being placed on the market (part one of the present document) and for the safe installation and use of the equipment in the workplace (part two of the present document).
12. Explosion protection in industry can be assured through a variety of legitimate means. The present document is based on one of them, namely, the “IEC Zone Concept, in accordance with IEC 60079-10 Parts 1 + 2”. This concept classifies hazardous locations as high, medium and low risk zones based on a standard risk-assessment methodology.

B. Definition of applicable conformity assessment procedures

22. Compliance with this CROs shall be by use of an international certification scheme such as the IECEx for direct market acceptance of products carrying IECEx Certification. Alternatively, where national legislation does not allow for use of IECEx Certificates, national certification of compliance should be based on IECEx testing and assessments.



Manufacturers trade Globally

Re-testing/ Re-certification

- Adds undue costs
- Results in delays to access markets
- Denies smaller countries access to new products/technology

IECEX Provides a Single Global Process :-

a) Issuing of Test/Audit Reports and International Certificates that can either:

- Be exchanged among participating Certifiers (ExCBs)
- Be used both on a voluntary (purchasing requirements) or Regulatory basis.

b) Qualifying and Monitoring the operation of credible Certifiers + Labs 61

- **Demand for Oil and Gas (excluding biofuels) continues to grow steadily expected to reach 99 million barrels per day by 2035 – 15 mb/d up on 2009. (*IEA Report 2011*)**
- **Despite the concerns of the late 1970s/80s Fossil Fuel is in super abundant supply**
- **Developing economies are expected to account for largest growth in energy demand hence demand for Ex Equipment, Services and Competent Persons continue to grow**
- **Demand for CA Services covered by IECEx will continue.**

Oil and Gas will continue to meet 60% of the world's energy needs thru to 2040 due to a growing population

There is enough Gas resources to meet the current demand and consumption for more than 200 years.

It is estimated that by 2030 the demand of Oil and Gas will rise by 50%



In 2012 **84,141,209** cars and commercial vehicles were produced globally.

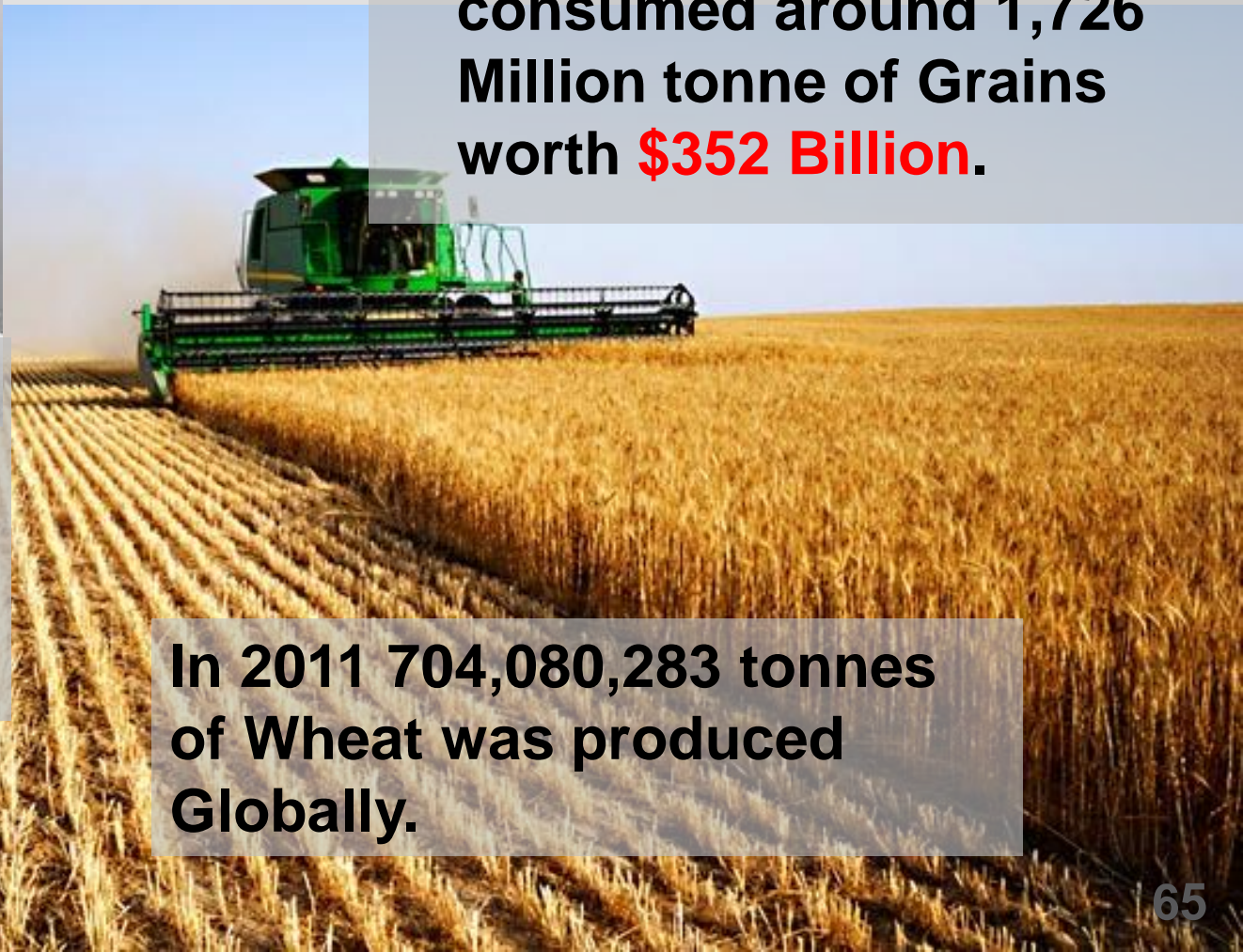
In 2010 Over **1 billion** cars were on the road. Every Petrol Station is an Ex Installation.

It is projected that by 2014 there will be **3.3 Billion** airline passengers annual worldwide. (IATA) – Every airport in the world is an Ex installation.





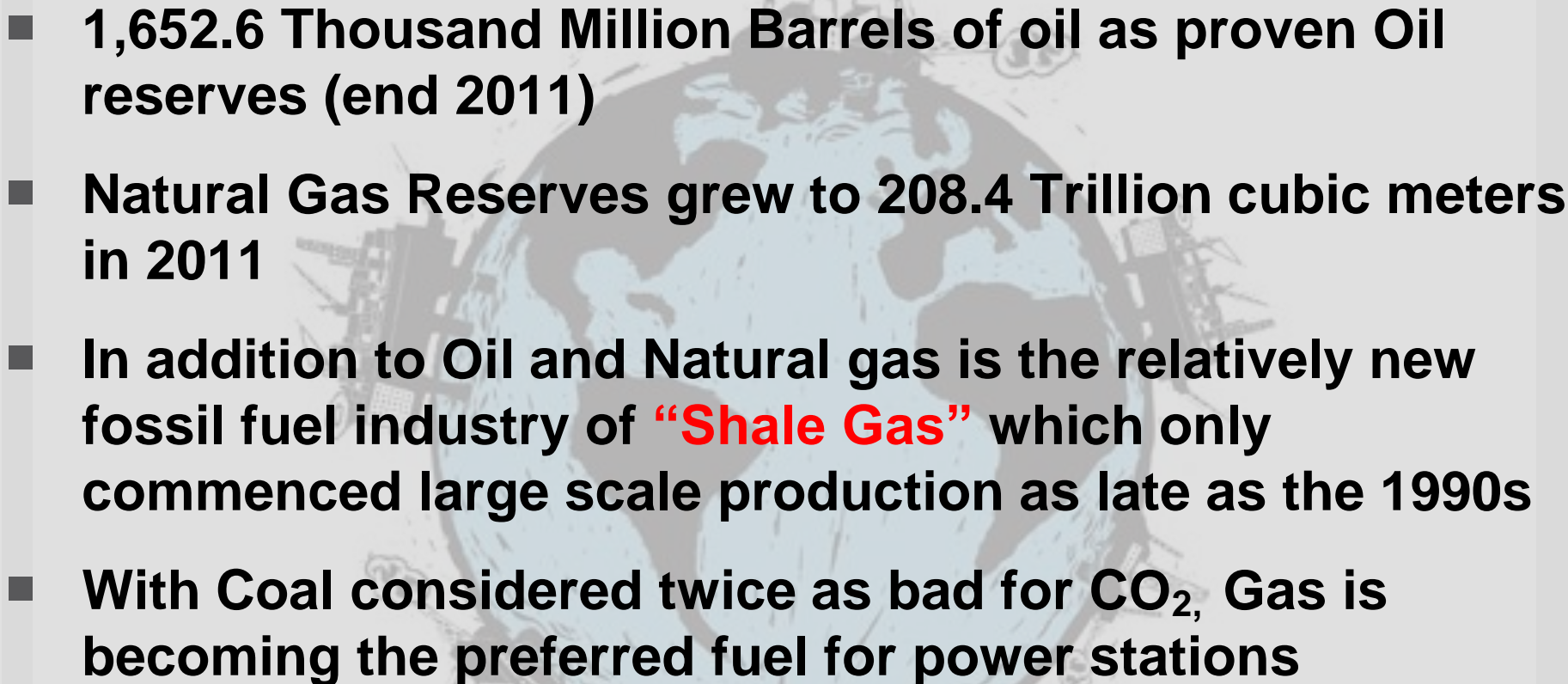
In 2011 The global production of Sugarcane was 1,794 Million Tonne



In 2010 the world consumed around 1,726 Million tonne of Grains worth **\$352 Billion.**

In 2011 704,080,283 tonnes of Wheat was produced Globally.

- Coal is mined commercially from over 50 countries worldwide with the 2011 top 5 producers:
 - China = 3,471 Million tonnes
 - USA = 1,004 Million tonnes
 - India = 585 Million tonnes
 - Australia = 414 Million tonnes
 - Indonesia = 376 Million tonnes
- **'In 2011 coal's share in global primary energy consumption increased to 30.3% - the highest since 1969.'** (IEA)
- Coal provides **30.3%** of global primary energy needs and generates **42%** of the world's electricity
- 'Total world coal production reached a record level of 7,678Mt in 2011, increasing by 6.6% over 2010. The average annual growth rate of coal since 1999 was 4.4%.' (IEA and BP)
- **There are 1004 billion tones of coal reserves left, equivalent to 130 years of global coal output in 2011.** (German Federal Institute for Geosciences and Natural Resources (BGR))

- 
- 1,652.6 Thousand Million Barrels of oil as proven Oil reserves (end 2011)
 - Natural Gas Reserves grew to 208.4 Trillion cubic meters in 2011
 - In addition to Oil and Natural gas is the relatively new fossil fuel industry of “**Shale Gas**” which only commenced large scale production as late as the 1990s
 - With Coal considered twice as bad for CO₂, Gas is becoming the preferred fuel for power stations



www.namur.net: experience exchange for process industry

- Field experience documented in „NAMUR recommendations“ („State of the Art“)
- National expert working groups under the umbrella of NAMUR welcome!!!!
- Visit NAMUR conference once a year beginning of November
- Contact other field experts e.g. from Germany to achieve more information
- Be aware: to comply with the „State of the Art“ protects you against accidents



INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

Thank You

