



IECEX Scheme, ExTAG Training Workshop Buxton 3 October 2005

**IECEX Scheme features, fees and
report on audit of issued
certificates**

**Chris Agius
Secretary IECEx**



What is IECEx + Why ??

IECEx Features??

Ex Certification the “IECEx Way”

IECEx Financing + Fees

Secretariat Review of IECEx CoCs

Where to; What is the future??



**The IECEx Scheme is the IEC,
International Conformity Assessment
Scheme covering Certification to
Standards relating to Equipment for use
in Explosive Atmospheres.**



➤ IECEx 01: 2005 – Basic Rules

2 Object

Taking into account the object of the International Electrotechnical Commission (IEC) as given in Article 2 of the Statutes, the particular object of the IECEx Scheme, operated under the authority of the IEC in conformity with the Statutes, is **to provide a global frame work for independent assessment and certification of equipment and services associated with explosive atmospheres.**



➤ **IECEX 01: 2005 – Basic Rules**

3 Field of application

The IECEx Scheme is applicable to such Standards and types of protection and services referred to in clause 2 as approved by its Ex Management Committee (ExMC) and notified to the IEC Conformity Assessment Board (CAB).



**IECEX Scheme
Basic Rules IECEx 01**

**IECEX Certified Equipment
Rules IECEx 02**

**IECEX Certified Service Facilities
Rules IECEx 03 (in draft)**

Other Future Service Offerings

Types of Industries



- **Automotive refueling stations or petrol stations**
- **Oil refineries, rigs and processing plants**
- **Chemical processing plants**
- **Printing industries, paper and textiles**
- **Hospital operating theatres**
- **Aircraft refueling and hangars**
- **Surface coating industries**
- **Underground coal mines**
- **Sewerage treatment plants**
- **Gas pipelines and distribution centres**
- **Grain handling and storage**
- **Woodworking areas**
- **Sugar refineries**
- **Metal surface grinding,**



IECEx Features??

The IECEx Product !!!!

What does IECEx offer the Market??????



End Users

Regulators

Confidence

Manufacturers

Test + Cert. Bodies

Confidence in ????????



- **Products listed on the Certificate do comply with the Standards listed on the Certificate**
- **Traceability of Compliance by way of “Objective Evidence” to support claimed compliance, ie completed ExTRs + QARs**
- **Capabilities, Competence and Facilities of ExTLs + ExCBs**
- **Thoroughness of Assessments on both ExTLs and ExCBs as well as Manufacturers holding an IECEx CoC**
- **ExCB audits of Manufacturers**
- **The supporting Management Structure behind the IECEx Scheme**
- **Integrity of all involved in IECEx**

Sole aim **“The facilitation of International Trade in Ex Products, Systems and Services while preserving an acceptable level of safety”**

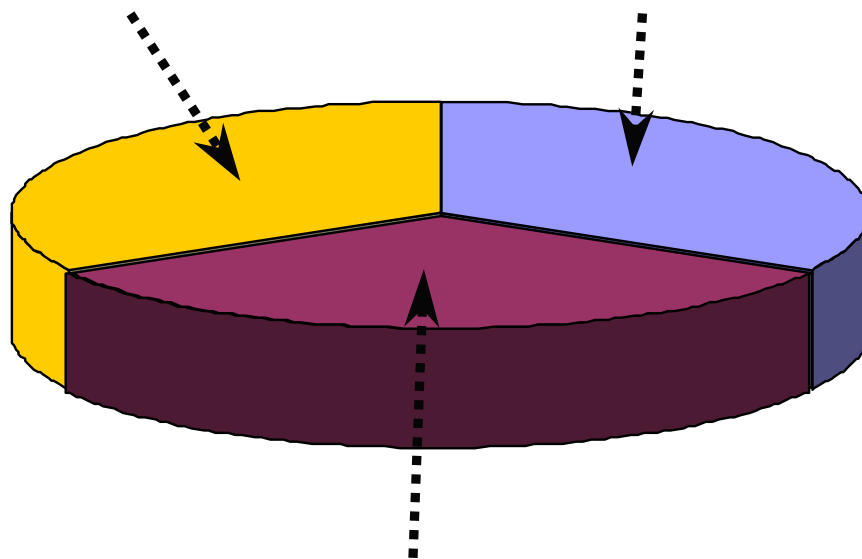
What do you See ????



Core Elements of IECEx Certification

Testing of
Samples
(Type Test)

Initial Assessment of
Manufacturer's Quality
System (factory audit)



On-going Surveillance
(factory audits)

Back Edit Quit Save New Print

IEC IECEx

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 TSA 03.0000X Issue No.: 0

Status: ☐ Draft ☒ Current ☐ Suspended ☐ Cancelled

Date of Issue: 2003-07-26 Page 1 of 4

Applicant Name: SAMPLE CERTIFICATE

Applicant Address: 132 Sample Street
SAMPLE TOWN NSW 2000

Applicant Country: Australia

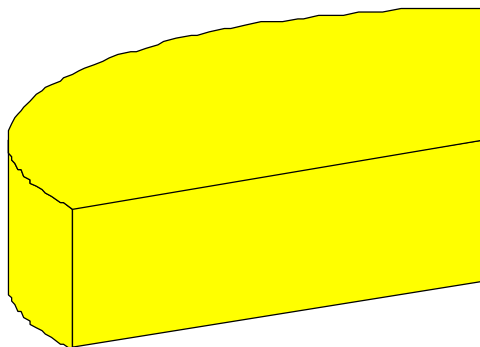
Electrical Apparatus: Portable Radios

Optional accessory: Nil

Core Elements (1 of 3) of IECEx Certification



**Testing of
Sample(s)**



**Conduct Testing to IEC
Standard(s)**

Compile & issue an ExTR (ATR)

**Provisions for use of previous
testing**

IECEx ASSESSMENT AND TEST REPORT			
Section 1 To be completed by ACE			
Reference No:		IEC 60079-0	
Field of application This form is intended to be used when assessing and testing electrical apparatus for explosive atmospheres according to the standard specified in the adjoining column. The test results are valid for the tested items only.	Standard: IEC 60079-0 : 2000 Edition 3.1 Electrical apparatus for explosive atmospheres - General requirements	Instructions for use The comment column can be used to e.g. specify test values, applied during the assessment test or to refer to enclosed additional pages with comments. Abbreviations: N/A = Not applicable (for the assessment of the and its design documentation)	
Reproduction This report must not be reproduced other than in its entire form without the prior written approval of the issuing body. This test report may only be used for the IECEx Scheme and must be accompanied by an ATR cover page issued by an ACE.	This ATR covers the consolidated version of IEC 60079-0 which is based on the standard edition (1998), incorporating amendment 1 (2000).	The applicant is the body/person who has requested the assessment test to which the results, as specified in this report are provided. The short descriptions in the column for 'Class' do not replace the complete text in the standard.	
Product name		Model/Type designation	
Serial No	Code (e.g. S, II, I)	Ambient temperature (max/min)	
Applicant (name and postal address)		Manufacturer by (name and postal address)	
Test sample received (date)			
Product description			
The equipment complies with the standard (yes/no)	Prepared by (signature)		Date (year-month-day)

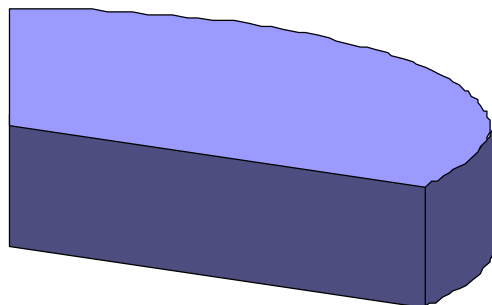
ATR 000/790/Version 3

Page 1 of 31

Core Elements (2 of 3) of IECEx Certification



Initial Factory Audit



Document Review and on-site
factory audit of manufacturer, by
ExCB

Provision for previously conducted
audits

IECEx Quality Assessment Report (QAR) APPENDIX A

CONFIDENTIAL

Audit Report No: _____
(Include name and identification of IECEx Certification Body)

Manufacturer (auditee) : _____

Address : _____
(Include post code)

No. of employees : _____
(Include the total number of employees on site and those involved in production of Ex products)

Scope of audit : _____
List all applicable IECEx Test Reports (or attachments) to which this audit applies and indicate product type.

Electrical equipment with type(s) of protection : Is ☐ d ☐ o ☐ e ☐ m ☐ n ☐ other (specify) ☐

Protective system : ☐

Safety, controlling or regulating device : ☐

Audit Team Leader : _____
(print name)

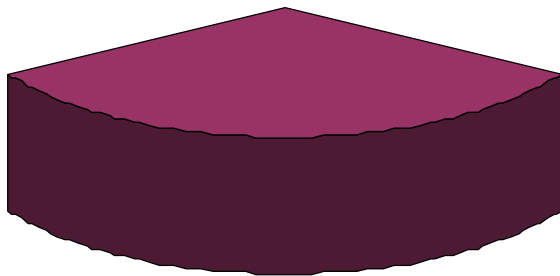
Audit Team Leader : _____
(signature)

CONTENTS	
1	Summary Report
2	Introduction
3.1	Audit data
3.2	Document review
4	Individual Assessor's Report
5	Nonconformity report
6	Appendices (optional)

Core Elements (3 of 3) of IECEx Certification



**Surveillance
Factory audit**



=

**Review Documentation or other
Changes ?????**

**ExCB, IECEx CoC issuer, ensures
On-site factory audit is conducted.
Other ExCBs may perform**

Provision for coordination

IECEx Quality Assessment Report (QAR)

APPENDIX A

CONFIDENTIAL

Audit Report No: _____
(Include name and identification of IECEx Certification Body)

Manufacturer (auditee) : _____

Address : _____
(Include post code/zip code)

No. of employees : _____
(Include the total number of employees on site and those involved in production of Ex products)

Scope of audit : _____
(List all applicable IECEx Test Reports (if attached) to which this audit applies and indicate product type.)

Initial assessment ☐ reassessment ☐ surveillance ☐

Electrical equipment with type(s) of protection Is ☐ D ☐ E ☐ M ☐ n ☐ other (specify) ☐

Protective system ☐

Safety, controlling or regulating device ☐

Audit Team Leader : _____
(print name)

Audit Team Leader : _____
(signature)

CONTENTS

1 Summary Report
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5 Nonconformity report
6 Appendices (optional)



Meaning of an IECEx Certificate of Conformity (IECEx CoC)

Question:

What does an ExCB Certify when issuing an IECEx CoC?

Answer:

The **manufacturer's capability** to consistently produce the product/equipment, listed on the certificate to be in compliance with the standards also listed on the Certificate.

IECEx 02: 2003 Clause 5.1 Extract:

“The certificate will attest that the equipment's design conforms to the relevant IEC standards and that the manufacturer is manufacturing the product under a quality system and associated quality plan(s), meeting the requirements of this Scheme and under the surveillance of an ExCB”.



Ex Certification the “IECEx Way”



- ▶ IECEx Scheme – alignment with relevant ISO/IEC Conformity Assessment Standards and Guides, eg Guide 65, 67, 17025, etc
- ▶ At all times, Only System No 5 Certificates are issued, (i.e Issuing of Certificates **MUST** require Design validation, Initial Factory Audits + On-Going Surveillance
- ▶ Single Certification Process applies to all Ex products under Certification, including Zone 2 products
- ▶ Industry input into the development and management of IECEx, eg IECEx Technical Guidance Documents (TGDs) introduced by EEMUA, UK Users Association
- ▶ Acknowledgement of the high regulatory nature of the Ex field

IECEx Basic Rules

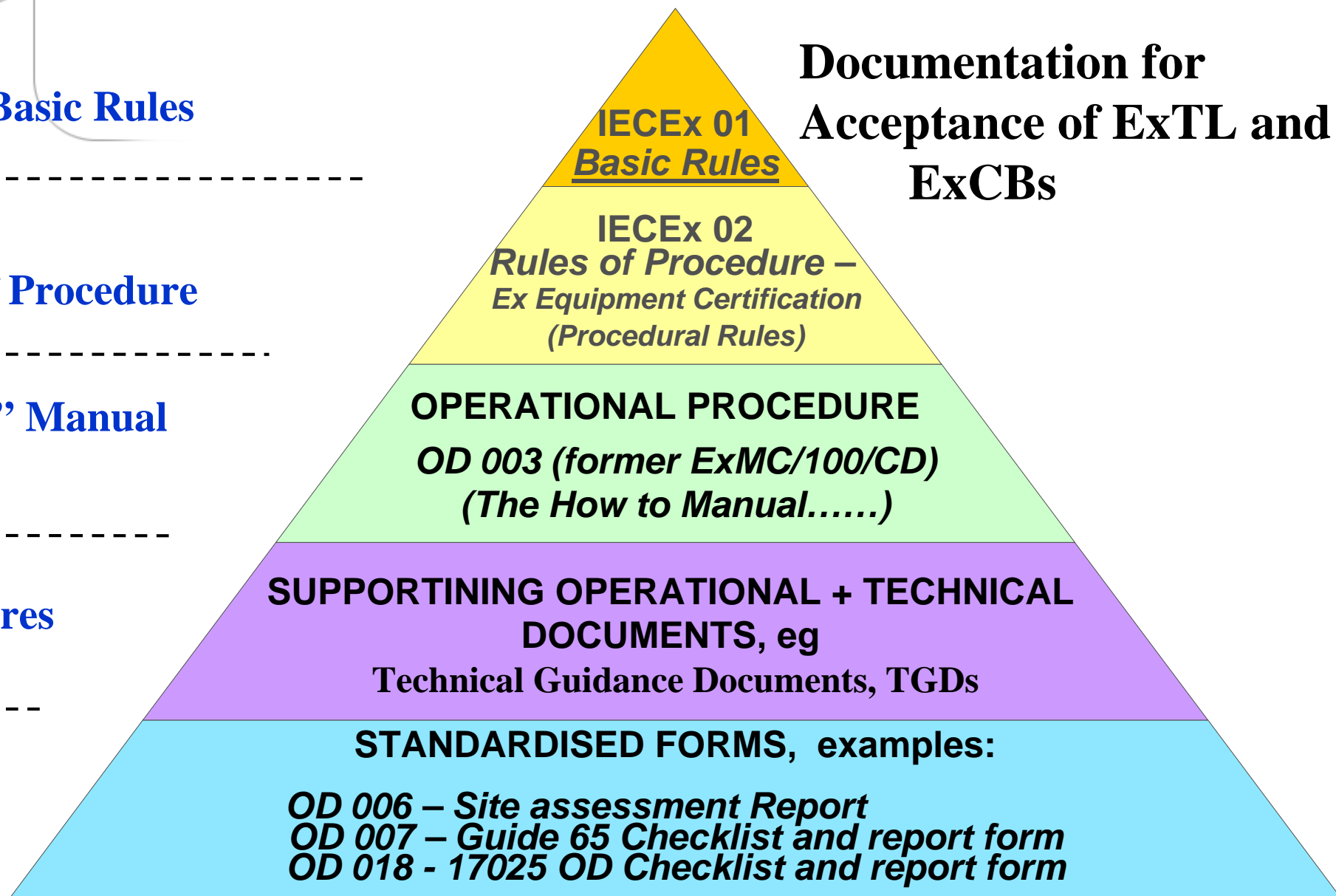
Rules of Procedure

“How to” Manual

Procedures

Forms

Documentation for
Acceptance of ExTL and
ExCBs



IECEX Equipment Certification Procedure

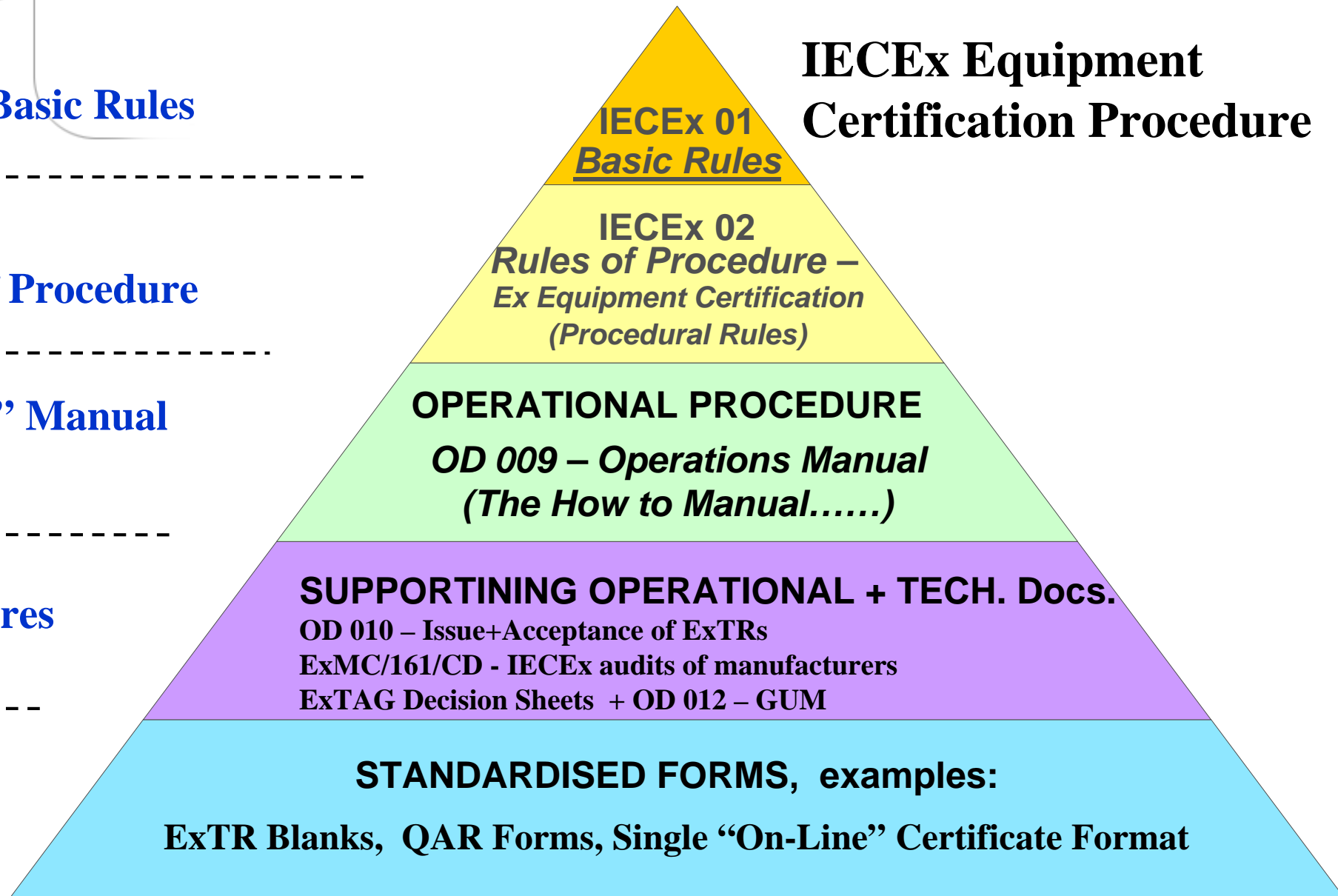
IECEX Basic Rules

Rules of Procedure

“How to” Manual

Procedures

Forms



IECEX Basic Rules

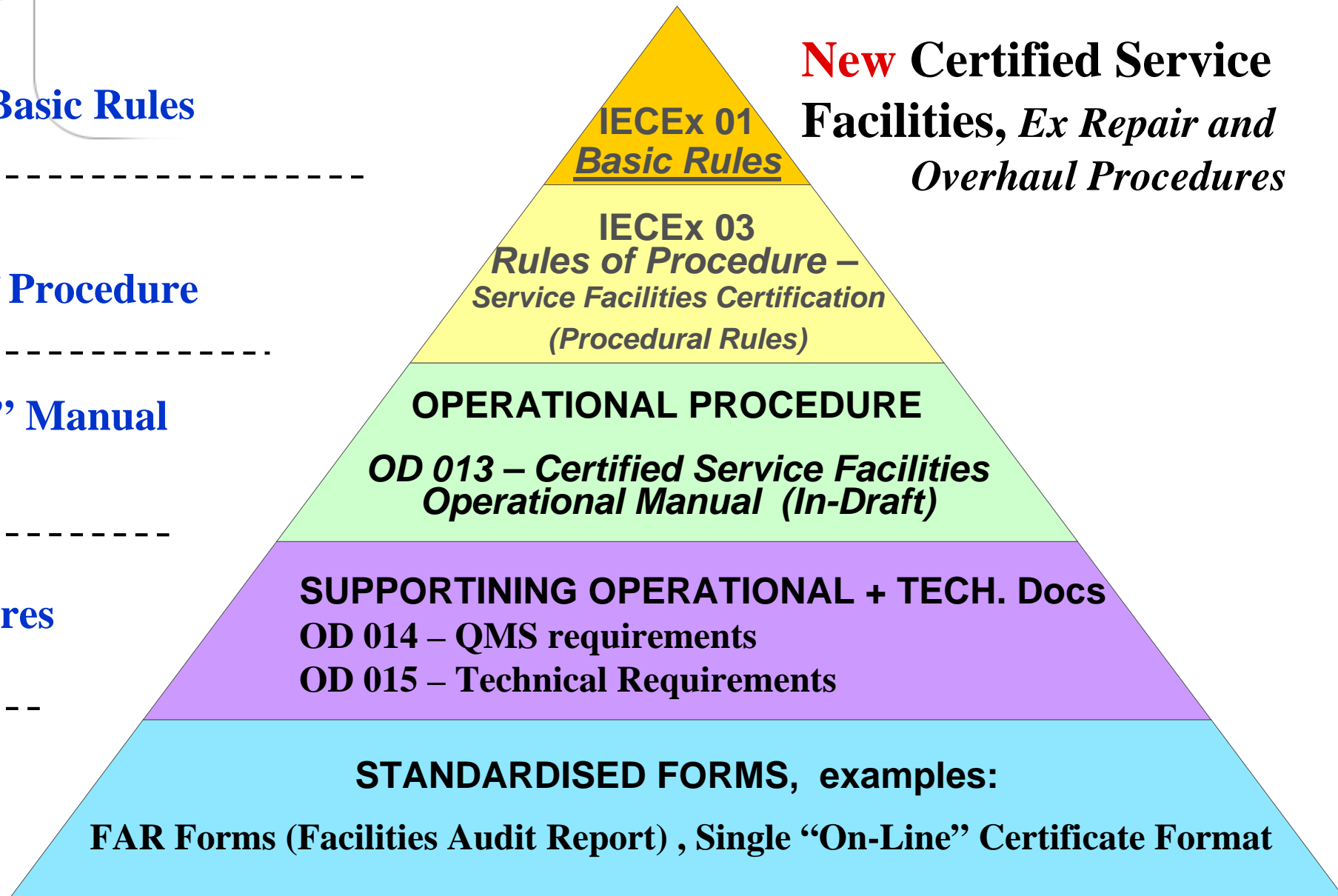
Rules of Procedure

“How to” Manual

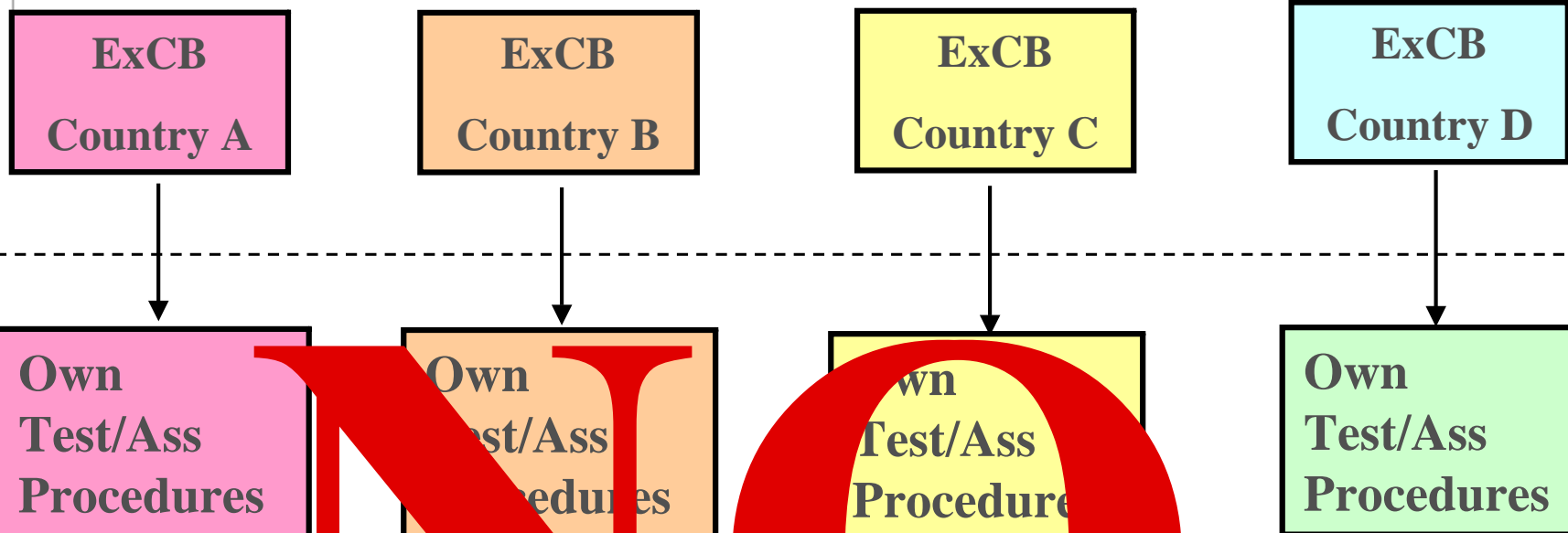
Procedures

Forms

**New Certified Service
Facilities, *Ex Repair and
Overhaul Procedures***



Does IECEx allow ExCBs and ExTLs to decide on their own IECEx Procedures????



IECEx Certificate of Approval

NATIONAL ELECTROTECHNICAL CERTIFICATION SCHEME for Explosive Atmospheres

for rules and details of the IECEx scheme visit www.iecex.org

Certificate No.: IECEx BAS 04 0027X Issue No.: 0

Status: Current

Date of Issue: 2005-01-19 Page 1 of 4

Applicant: Servomex Limited
Jama Brook
Cirencester
Glos GL7 6JH
United Kingdom

Electrical Apparatus: Xenos 2223 and 2222 Series Oxygen Transmitter

Optional accessory:

Type of Protection: Intrinsic Safety, Flameproof, Dust Ingress Protection

Marking: IECEx BAS 04 0027X
Ex iud IIC T4 (-20°C < Ta < +50°C)
DIP A21 TA 90°C
Ex iud IIC T3 (-10°C < Ta < +50°C)
DIP A21 TA 90°C
Ex iud IIC T3 (-10°C < Ta < +50°C)
DIP A21 TA 90°C

Approved for issue on behalf of the IECEx
Certification Body: R S Brindley
Position: Managing Director

Signature: (for printed version)

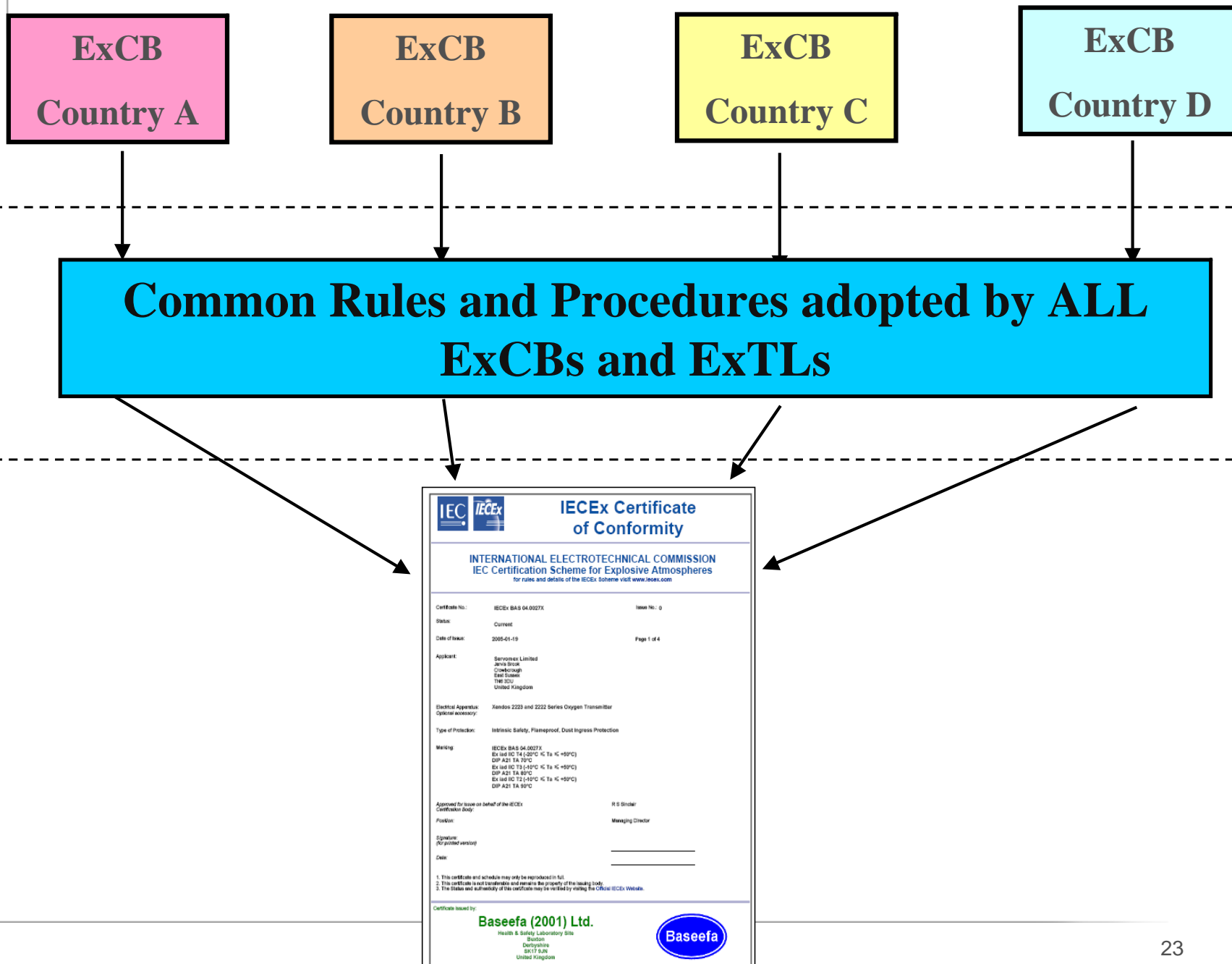
Date:

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 (2001) Ltd.
Health & Safety Laboratory Site
Buxton
Derbyshire
SK17 9JN
United Kingdom

Baseefa

The IECEx Way for Ex Certification





IECEx Financing + Fees



- ▶ Self Funded to cover costs
- ▶ Operates on a cost recovery basis, not set out to generate profits
- ▶ IECEx Management appoint an IECEx Treasurer to oversee ALL matters of Finance for the Scheme
- ▶ IECEx accounts are subject to Swiss Law regarding reporting and annual auditing
- ▶ With the Secretariat located in Australia, the Australian based Secretariat also subject to AU Laws and auditing of expenditure
- ▶ IECEx is in a sound financial position.
- ▶ Significant points
 - ▶ Shrinking of Voluntary resources – Major Scheme Issue
 - ▶ IECEx intends to replace reliance on annual dues with User Pay
 - ▶ Scheme Integrity and growth require resourcing
 - ▶ Published [Schedule of Fees](#)



- ▶ Significant points
 - ▶ Shrinking of Voluntary resources – Major Scheme Issue
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 - ▶ Published [Schedule of Fees](#)
 - ▶ Certificate Fees 15 Feb 05 to June 05 Report



Secretariat Review of IECEx CoCs



Criteria for IECEx Secretariat Review of Issued Certificates:

- ▶ Standards nominated on CoC by ExCB correspond with Ex Techniques, CoC covering Ex d shows IEC 60079-1 and NOT 60079-11
- ▶ Where conditions “X” is selected, that actual conditions are specified
- ▶ Actual manufacturer location(s) is specified and NOT Post Office Box
- ▶ There is a clear description to identify what is actually Certified – eg Just to record “Flameproof Box” as the certified products is NOT enough
- ▶ ExTR and File references are given
- ▶ An overall check to see if the CoC “Makes Sense”, eg editorial errors
- ▶ **Does NOT replace checking by ExCBs** as part of their internal processes, re ISO/IEC Guide 65 – See OD 009
 - **Step 9** – ExTR Review
 - **Step 18** – QAR Review
 - **Step 21** – Certification Process Review
 - **Step 24** – CoC Review



Why do Review

- ▶ **Confidence in CoC and supporting testing/assessment and audits**
- ▶ **Small editorial errors send bad signals to the market**
- ▶ **Confidence by the Market in the IECEX “Checks and Balances”**



Log of CoCs Reviewed

Certification Body	Number of CoC's checked		Certification Body	Number of CoC's checked
BAS	49		LCI	37
BKI	8		NEM	2
BVS	14		PTB	33
CSA	9		SIM	16
ITS	21		SIR	55
KEM	1		TSA	30
KGS	2		Total	277



Negative Observations

- ▶ Manufacturer's location (site audited) was not always clearly shown as a street or site address.
- ▶ Annex attached to CoCs do not always contain a reference to the CoC number.
- ▶ The equipment description not always clear.
- ▶ Component Certificates Issued without the symbol "U" .
- ▶ In two cases the Standard reference was to the incorrect Standard number (60079-15 used for Ex e).
- ▶ Some minor spelling mistakes and other editorial omissions.



Positive Observations

- ▶ ExTRs and Files were clearly referenced
- ▶ ALL ExCBs responded both in both a very timely manner and positive sense, providing full cooperation to the Secretariat.
- ▶ Knowledge of process and OD 009 and supporting ODs by ExCBs – significant increase over the past 12 months.
- ▶ Industry and Regulators are most impressed with the checks noting that the checks and balances in IECEx do not occur in any other National or Regional Scheme.



Website Link:

<http://www.iecex.com/operational.htm>

Ex/OD020/V1	Guidance for the Sampling of Group I Ex d Motors for Testing as Representative of a Range for Certification Purposes
Ex/OD019/V1	IECEX Participation and Scheme Fees
Ex/OD018/V1	Report on ISO/IEC 17025
Ex/OD017/V2	Drawing and Documentation Guidance for IEC Ex Certification
Ex/OD012/V1	ExTAG Guide for Application of Uncertainty of Measurement to conformity for laboratory tests carried out under the IECEX Scheme
Ex/OD011.1/V1	Guidance on Use of the IECEX Internet based "On-Line" Certificate of Conformity System Part 1: General Information
Ex/OD011.2/V2	Guidance on Use of the IECEX Internet based "On-Line" Certificate of Conformity System Part 2: Creating IECEX Certificates of Conformity CoCs
Ex/OD010/V1	Operational Decision "Guidance for the Preparation of IECEX Test Reports (ExTRs) by IECEX Certification Bodies (ExCBs) and the Processing of ExTRs by Receiving ExCBs"
Ex/OD009/V1	IECEX Operations Manual - Procedures for the Issuing of IECEX Certificates of Conformity, IECEX Test Reports and IECEX Quality Assessment Reports
Ex/OD008/V1	Reciprocal arrangements covering exchange of information and meeting participation between ExNB and IECEX
Ex/OD007/V2	IECEX ACB Assessment Checklist for ISO/IEC Guide 65
Ex/OD006/V1	Site Assessment Report for Assessment of IECEX Candidate and Accepted Certification Bodies (ACBs) and Ex Testing Laboratories (ExTLs)
Ex/OD005/V2	IECEX QUALITY SYSTEM REQUIREMENTS FOR MANUFACTURERS
Ex/OD003/V1 NEW	IECEX Assessment Procedures
Ex/OD001/V21 NEW	Operational document No Ex/OD001/Version 21 Participating Countries, Accepted Ex Certification Bodies (ExCBs) and Accepted Ex Test Laboratories and Candidate ExCBs and ExTLs
Ex/OD001/V20	Operational document No Ex/OD001/Version 20 Participating Countries, Accepted Ex Certification Bodies (ExCBs) and Accepted Ex Test Laboratories and Candidate ExCBs and ExTLs



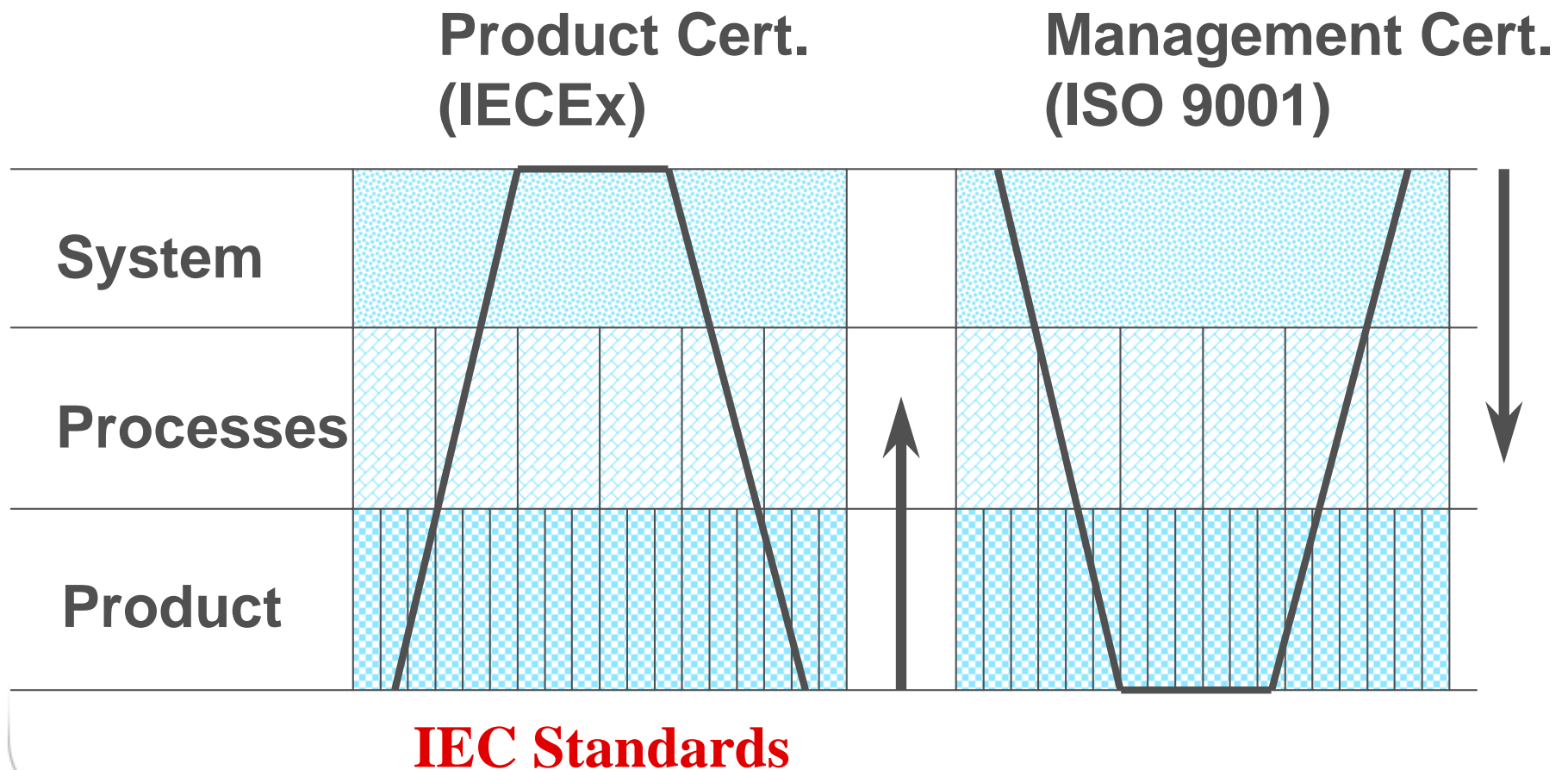
In Draft Form:-

IECEx - Certified Service Facilities Program

- OD013** Draft procedures for assessing and certifying Ex Repair workshops
- OD014** Draft Quality system requirements for Ex Repair Workshops
- OD015** Draft Technical requirements, revision of IEC 60079-19
- OD016** Draft Assessment procedures for acceptance of ExCBs

ISO 9001 QMS Different to Product Cert.

(Focus and level of depth)





Where to; What is the future??



- ▶ 25 Members of the IECEx Management (Countries)
- ▶ Others expressing interest

Ex Equipment Certification Program

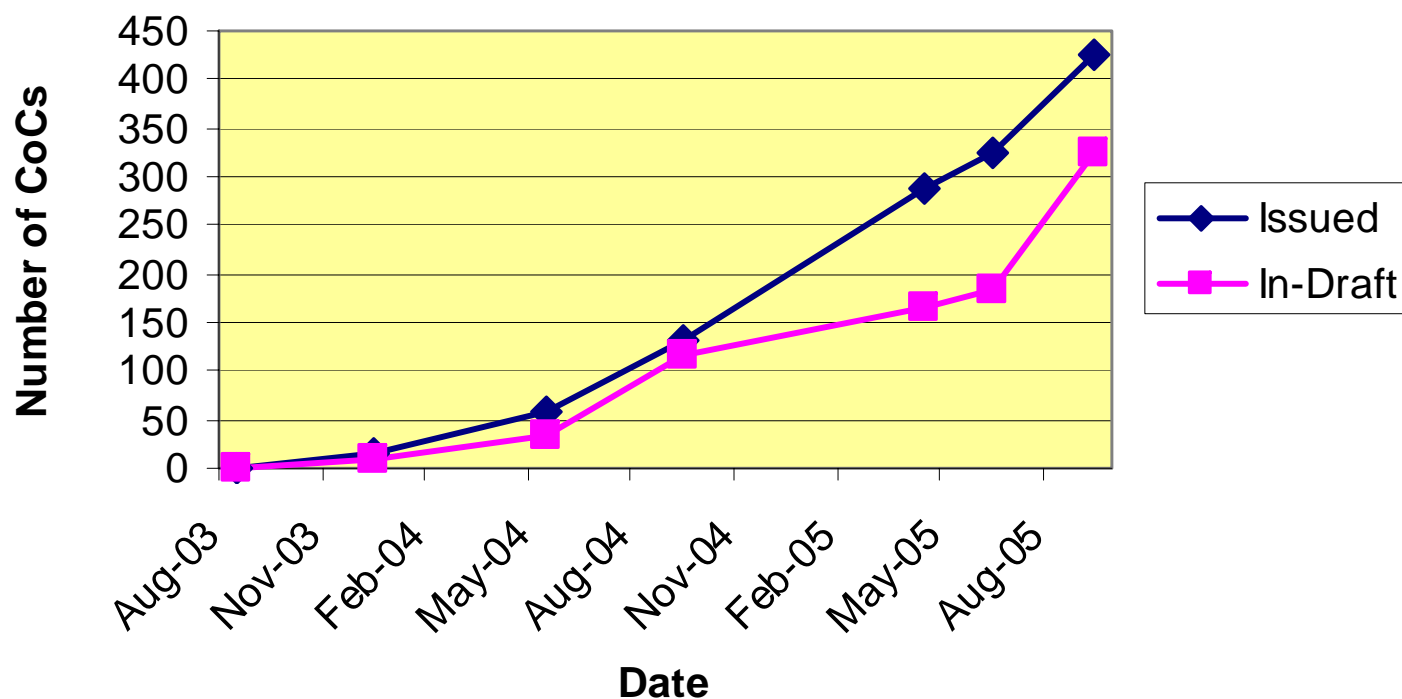
- ▶ 22 ExCBs (approved) from 14 Countries
- ▶ 4 more ExCBs (approved) by end of this week
- ▶ 424 CoCs Issued + 326 in Draft form

Ex Certified Service Facilities Program (coming)

- ▶ Ex Repair and Overhaul
- ▶ New Countries have an interest as Users of Ex equipment

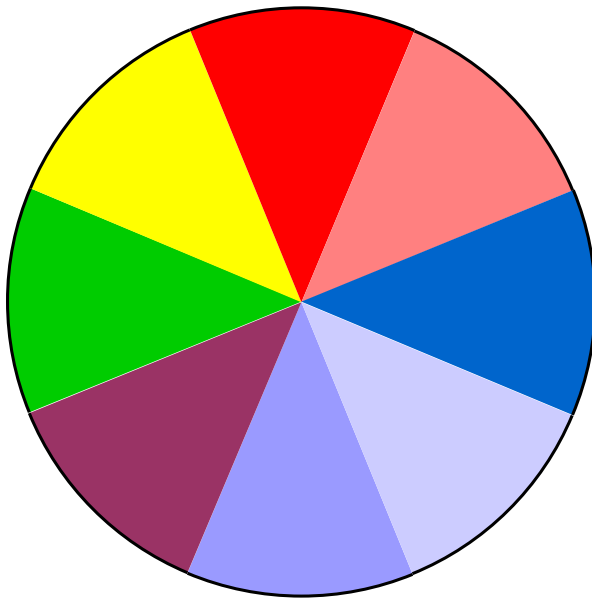
TODAY – 424 Issued Ex Equipment CoCs

IECEx Certificates - Issued + In-Draft Sep 05





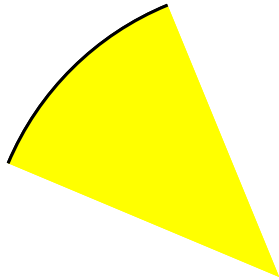
Technical Compliance Elements of the Ex Field



- Elec Product Manufacture
- Elec Product Repair
- Mech Product Manufacture
- Mech Product Repair
- Installation
- Inspection
- Area Classification
- Personnel Competency

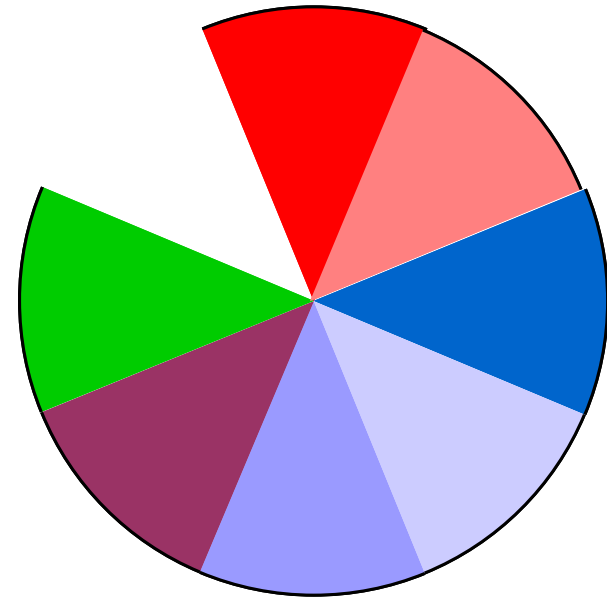
What does IECEx Cover to date??

Covered by IECEx



■ Elec Product Manufacture

Not Currently Covered by IECEx (87.5%)



■ Elec Product Repair

■ Installation ■ Mech Product Repair ■ Mech Prod Man

■ Personnel Competency ■ Area Classification ■ Inspection

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Saving Energy & Reducing Emissions

Making a Positive Contribution to Communities

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Energy Challenges

Over 80 million barrels of oil. Close to 300 billion cubic feet of natural gas. Every day. That's what it takes to keep the world running. And experts predict that as the world grows it will require about 50% more energy in 2030 than today.

Billions of times every day – at the flip of a switch, turn of a key or push of a button – energy is instantly delivered. Creating movement, generating commerce, and making countless products not only available, but safer, stronger, and more efficient than at any time in history.



IECEx Continual strive to be
the Global Centre of
Excellence in the Ex Field

WWW.iecex.com