

The background of the slide is a photograph of an offshore oil rig at sunset. The sky is a mix of purple, pink, and blue, and the water is dark with some reflections. The rig's structure is silhouetted against the sky, with some lights visible on its platform.

Personnel Competence for working with Potentially Explosive Atmospheres, IECEx CoPC

Jumpol Thojun

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TÜV Rheinland Thailand Ltd**

Contents

- **Introduction to TÜV Rheinland**
- **The IECEx Scheme for CoPC**
- **The adoption of the Scheme**
 - **Internationally**
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- **TÜV Rheinland's experience in CoPC**

At home on all continents

A leading international technical services provider. Since 1872, TÜV Rheinland strives to improve the safety and performance of products, systems, processes and people.

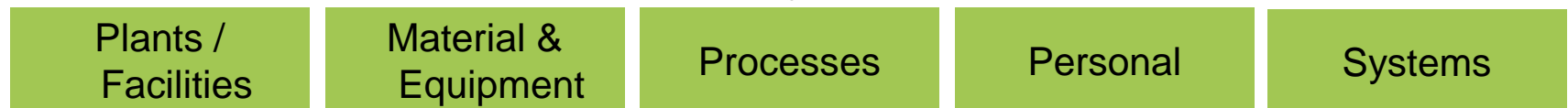
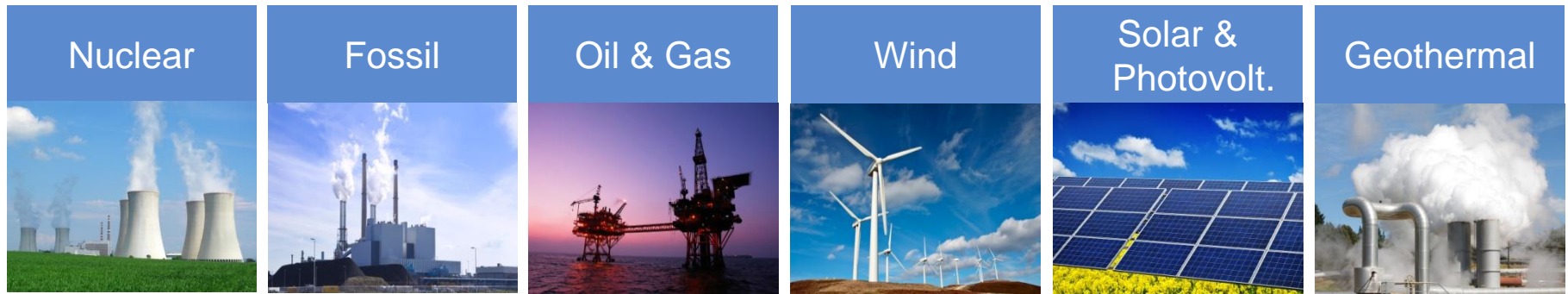


19.000 perm. Employees

500 Locations

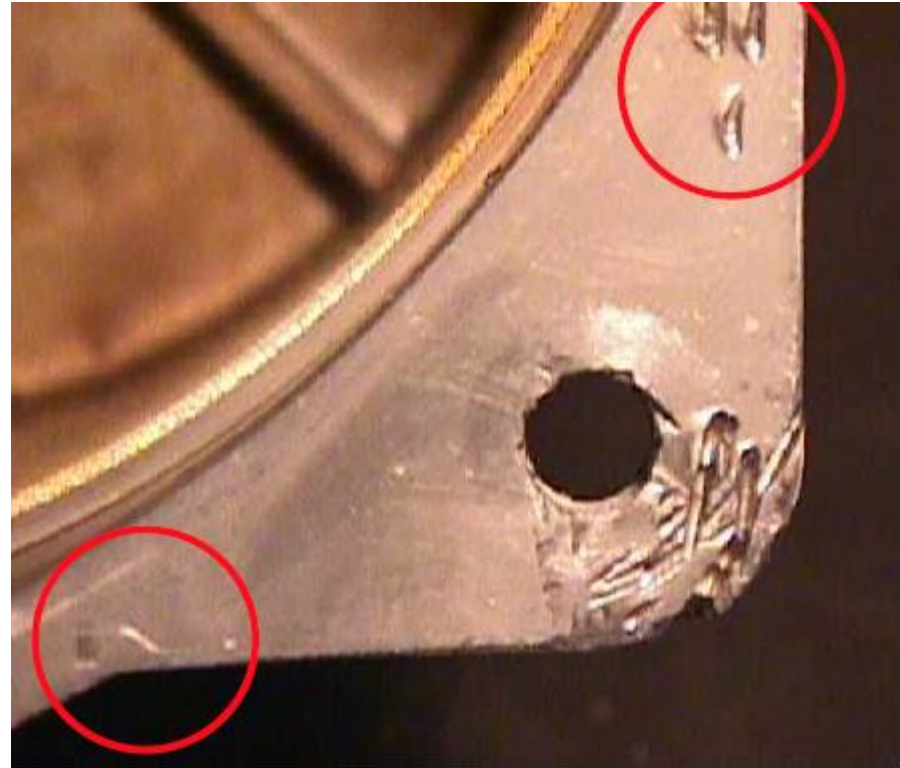
66 Countries

The energy market and industries, we serve



- Accepted as an Issuing and Recognizing National Certification Body (NCB) and Certification Body Testing Laboratory (CBTL) in the IECEE CB Scheme.
- Test reports and Test certificates issued by TÜV Rheinland are recognized and accepted by member countries of the IECEE CB Scheme
- An approved IECEx Certification Body (ExCB)
 - IECEx Certified Equipment Scheme
 - IECEx Certified Service Facility Scheme
 - **IECEx Certified Personnel Competencies Scheme (CoPC)**

Why Personnel Competence ?



... to avoid these through awareness and competence

Why Personnel Competence ?



... to avoid these through awareness and competence

IECEx CoPC Scheme

- The IECEx Certification of Personnel Competence Scheme is the international scheme aimed at providing personnel with a worldwide recognized certificate.
- Covering competence areas of basic knowledge, areas classification, design of installations, selection, installation, maintenance, inspection, audit inspection, and repair of Ex equipment (1+10 units)
- Shows that the certificate holder is competent:
 - working in the Ex industry safely,
 - conducting work on Ex equipment,
 - ensuring Ex equipment is operating safely in accordance with its protection techniques.

IECEx CoPC Units of Competence

- Ex 000** Basic knowledge and awareness to enter a site which includes classified hazardous areas
- Ex 001** Apply basic principles of protection in explosive atmospheres
- Ex 002** Perform classification of hazardous areas
- Ex 003** Install explosion-protected equipment and wiring systems
- Ex 004** Maintain equipment in explosive atmospheres
- Ex 005** Overhaul and repair of explosion-protected equipment
- Ex 006** Test electrical installations in or associated with explosive atmospheres
- Ex 007** Perform visual and close inspection of electrical installations in or associated with explosive atmospheres
- Ex 008** Perform detailed inspection of electrical installations in or associated with explosive atmospheres
- Ex 009** Design electrical installations in or associated explosive atmospheres
- Ex 010** Perform audit inspection of electrical installations in or associated with explosive atmospheres

Why CoPC?

- Many Majors O&G are mandating the requirements at every level.
- Suppliers to the Middle East are especially affected; oil majors from Europe will be followed.
- Provides **plant owners/companies** with independent proof that a person has the knowledge and skills necessary to implement the International Standards.
- **Enhances confidence** to the certificate holders as they have been deemed competent to International Standards, and certified as having required knowledge to perform their tasks.
- Facilitates **plant owners/companies** to promote safety awareness among employees, suppliers and contractors.
- Maintains the **integrity of safety features of equipment** and installation, hence safety of human are ensured.

IECEX CoPC: Online Certificate

IECEX Home - Internet Explorer provided by TÜV Rheinland Service GmbH

http://www.iecex.com/

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Create a Basic RACI Chart ... RACI - YouTube RACI explained its simple ye...

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

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Poland to host IECEX event
Third IECEX International Conference to take place in Europe


The ultimate safeguard in Ex areas
IECEX is a trusted partner for the Ex industry

Raising awareness on high-risk mining operations
IECEX and AFSEC international seminar in DRC

Lighting up Ex areas
IECEX certifies new generation of LED-based lighting solutions

Global safety and security
IECEX helps minimize risks in the Ex sector

Minimizing risks



IECEX Poland 2015
Gdansk, 22-23 April 2015

The 2015 IECEX International Conference was organized by the IEC and IECEX, together with Urząd Dozoru Technicznego (UDT), in conjunction with UNECE, and held in Gdańsk, Poland on 22+23 April 2015.

[More information from the conference website](#)

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[Meetings of the IECEX System 2015, Christchurch, New Zealand, 14-18 September](#)

[IECEX International Conference was held in Gdansk, Poland, April 2015](#)

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

IECEx CoPC: Online Certificate



IECEx CoC ONLINE

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

CoC
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IECEX Certified Persons

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IECEX Certificates of Personnel Competence Scheme [PUBLIC AREA]

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Type in reference number or applicant name (e.g.: "IECEX CP BAS10.0001.")

Free text search: [search](#)
You can use boolean operators "AND", "OR"

The IECEX Online Certified Persons Scheme enables:

- IECEX Certification Bodies to issue new IECEX Certificates of Personnel Competence "On-line"
- Full Public access to consult, view and print issued IECEX Certificates
- View Statistical information
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For any questions, please contact [Mr. Chris Agius](#) , IECEX Secretary.



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- List of Units of Competence
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(Selection: **All** | **TUR**)

ExCB	Year	Month	Certificate No	Original Issue date	Date Created	Status	Applicant
TUR							
	2016						
		05					
			IECEx EFOC TUR16.0001 issue 0	2016-05-27	2016-05-27	Current	Yeo Kim Ann

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→ Services:




Country / Location	Applicant name	Certificate Reference Number	Units of Competence
+ Australia	19		
+ Brunei Darussalam	3		
+ Canada			
+ China	+ Singapore	43	
+ Cyprus	+ Sweden	4	
+ Egypt	+ Switzerland	18	
+ Finland	+ Taiwan	1	
+ France	- Thailand	8	
+ Germany	Jumpol Thojun	IECEX CP BAS11.0014 issue 1	Ex 001,Ex 002,Ex 004,Ex 007,Ex 008,Ex 009
+ Hungary	Nathawut Serbsinchai	IECEX CP BAS14.0009 issue 0	Ex 001
+ India	Murray Hart	IECEX CP BAS14.0007 issue 1	Ex 001,Ex 003,Ex 004,Ex 005,Ex 006,Ex 007
+ Indonesia	Murray Hart	IECEX CP BAS14.0007 issue 0	Ex 001,Ex 003,Ex 004,Ex 006,Ex 007,Ex 008
+ Ireland	Wirote Wannasiwaporn	IECEX CP SIR10.0002 issue 0	Ex 001
+ Italy	Wirote Wannasiwaporn	IECEX CP SIR10.0002 issue 1	Ex 001
+ Japan	Jumpol Thojun	IECEX CP BAS11.0014 issue 2	Ex 001,Ex 002,Ex 003,Ex 004,Ex 006,Ex 007
+ Korea, Dem.Peop	Jumpol Thojun	IECEX CP BAS11.0014 issue 0	Ex 001,Ex 002
+ Korea, Republic	+ The Netherlands	70	
+ Kuwait	+ United Arab Emirates	8	
	+ United Kingdom	258	
	+ United States of America	69	
	+ (Not Categorized)	2	
		1166	

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IECEx CoPC: Certificate and ID Card (Sample)

	Ex Facility Orientation Certificate	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres <small>for rules and details of the IECEx Certification of Personnel Competence (CoPC) Scheme visit www.iecex.com</small>		
Certificate No.:	IECEx EFOC TUR16.0001	Issue No.: 0
Status:	Current	Date of Original Issue: 2016-05-27 Date of Expiry: 2019-05-24
Applicant:	Yeo Kim Ann	
Scope of Competence: (Units according to IECEx OD 504)		
Ex 000 Basic Knowledge and Awareness		
<i>This certificate is issued as verification that the Applicant has successfully completed an assessment to qualify for this Ex Facility Orientation Certificate. Other site specific requirements may apply. This certificate is granted subject to the conditions as set out in IECEx CoPC Scheme Rules, IECEx 05 as amended.</i>		
<i>Attention is draw to the fact that this certificate confirms only that the applicant has an awareness of how to conduct themselves safely in a hazardous area as identified in Unit Ex 000. It does not confirm competence to perform work on Ex equipment.</i>		
Approved for issue on behalf of the IECEx Certification Body: Dipl.-Ing. Klauspeter Graffi		
Position:	Head of Certification Body	
<ol style="list-style-type: none">1. This certificate 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 Rheinland Industrie Service GmbH Am Grauen Stein 51105 Cologne Germany		

IECEX CoPC: Certificate and ID Card (Sample)

		IECEX Certificate Personnel Competence	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres <small>for rules and details of the IECEX Certification of Personnel Competence (CoPC) Scheme visit www.iecex.com</small>			
Certificate No.:	IECEX CP TUR15.0045	Issue No.:	1
Status:	Current	Date of Original Issue:	2016-03-16
		Date of Expiry:	2018-11-11
Applicant:	Jeffrey Strath		
Scope of Competence: (Units according to IECEx OD 504)	<div>Ex 001 - Apply basic principles of protection in explosive atmospheres</div> <div>Ex 002 - Classification - Based on IEC 60079-10 series</div> <div>Ex 003 - Installation - Based on IEC 60079-14</div> <div>Ex 004 - Maintenance - Based on IEC 60079-17</div> <div>Ex 006 - Testing of installations - Based on IEC 60079-14</div> <div>Ex 007 - Visual & Close Inspection - Based on IEC 60079-17</div> <div>Ex 008 - Detailed Inspection - Based on IEC 60079-17</div> <div>Ex 009 - Design Electrical Installations - Based on IEC 60079-14</div> <div>Ex 010 - Audit Inspection - Based on IEC 60079-17</div>		
For Detailed Information on Scope Application in accordance with IECEX OD 502 click on PCAR Number below:			
PCAR Reference No.:	DE/TUR/PCAR15.0004/01 DE/TUR/PCAR15.0045/00		
<small>This certificate is issued as verification that the Applicant was assessed and found to comply with the IECEX CoPC Scheme requirements, relating to the scope of Competence and referenced Standards listed above. This certificate is granted subject to the conditions as set out in IECEX CoPC Scheme Rules, IECEX 05 as amended.</small>			
Approved for issue on behalf of the IECEX Certification Body:	Dipl.-Ing. Klauspeter Graffi		
Position:	Head of Certification Body		
<div>1. This certificate and schedule may only be reproduced in full.</div> <div>2. This certificate is not transferable and remains the property of the issuing body.</div> <div>3. The Status and authenticity of this certificate may be verified by visiting the Official IECEX Website.</div>			
Certificate issued by: TUV Rheinland Industrie Service GmbH Am Grauen Stein 51105 Cologne Germany			



Application of Competencies

Position/Job Function	Suggested Unit of Competence
None-Technical	Ex 000 Basic knowledge and awareness to enter a site
Plant Manager	Ex 001 Apply basic principles of protection in explosive atmospheres
Safety Manager	Ex 001 Apply basic principles of protection in explosive atmospheres Ex 002 Perform classification of hazardous areas
Site Supervisor and Inspector	Ex 001 Apply basic principles of protection in explosive atmospheres Ex 003 Install explosion-protected equipment and wiring systems Ex 004 Maintain equipment in explosive atmosphere Ex 006 Test electrical installations in or associated explosive atmospheres Ex 008 Perform detailed inspection of electrical installations
Technician (Installer, Inspector)	Ex 001 Apply basic principles of protection in explosive atmospheres Ex 003 Install explosion-protected equipment and wiring systems Ex 004 Maintain equipment in explosive atmosphere Ex 007 Perform visual and close inspection of electrical installations
Engineer Designers	Ex 002 Perform classification of hazardous areas Ex 009 Design electrical installations in or associated explosive atmospheres
Ex-Auditors	Ex 010 Perform audit inspection of electrical installations

Scope limitation

Table 4.1 – List of Units of Competence

Reference	Title	Scope limitation ^{a)}
Unit Ex 000 – Basic knowledge and awareness to enter a site that includes a classified hazardous area.		Not applicable
Unit Ex 001 – Apply basic principles of protection in explosive atmospheres		1
Unit Ex 002 – Perform classification of hazardous areas		3
Unit Ex 003 – Install explosion-protected equipment and wiring systems		1, 2, 3, 4
Unit Ex 004 – Maintain equipment in explosive atmospheres		1, 2, 3, 4
Unit Ex 005 – Overhaul and repair of explosion-protected equipment		1, 2, 3, 4
Unit Ex 006 – Test electrical installations in or associated with explosive atmospheres		1, 3, 4
Unit Ex 007 – Perform visual and close inspection of electrical installations in or associated with explosive atmospheres		3, 4
Unit Ex 008 – Perform detailed inspection of electrical installations in or associated with explosive atmospheres		1, 3, 4
Unit Ex 009 – Design electrical installations in or associated with explosive atmospheres		1, 3, 4
Unit Ex 010 – Perform audit inspection of electrical installations in or associated with explosive atmospheres		3
^{a)} Limitation by: <ol style="list-style-type: none"> 1. Explosion-protection technique or 2. Product Type 3. Group 4. Voltage 		

Evidence of qualification/ experience

- **General qualifications not specific to explosive atmospheres**

- Technical education: Engineering or Technical Degree, Diploma, College Certificates, Trade tests and Professional Institute recognition etc.

- **Qualifications specific to explosive atmospheres**

- Formal external training undertaken on subjects and topics relevant to explosive atmospheres, Unit of Competence applied for
- Formal internal training programme set by and endorsed/ countersigned by the relevant employer

- **Work experience both hazardous and non-hazardous area**

A resume prepared in a chronological order with latest experience first which should include

- Employer and type of industry
- Position and responsibility in these organizations
- Protection techniques used
- Standards and codes of practice used
- Work safety procedure and guideline
- Duties undertaken: HAC, Installation & Circuit Design, Equip selection/ installation/ inspection/ maintenance/ testing/ repair

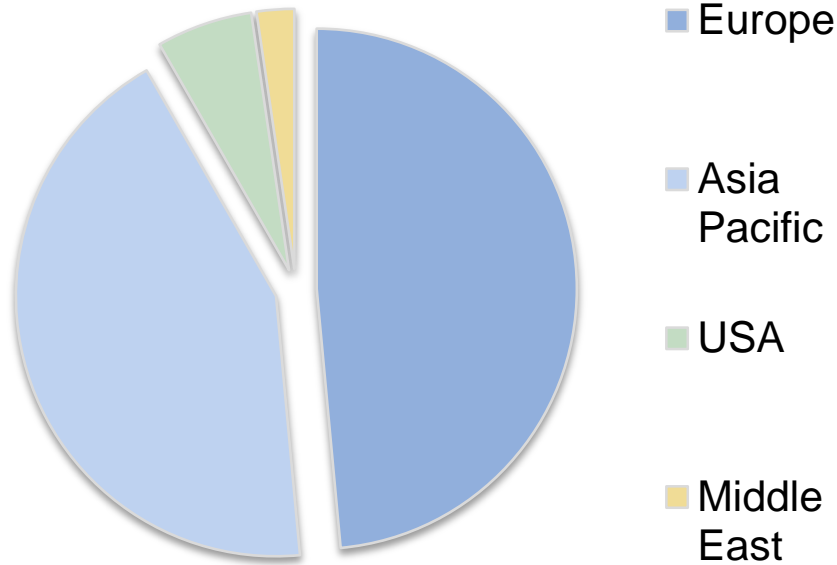
Re-certification

▪ Re-certification

Before a date **three (3) years** from the date of issue of the PCAR, a re-assessment of the competence units included in the PCAR and Certificate shall be undertaken. To review of

- Existing certifications
- Recent relevant work experience
- Scope of certification requested by applicant

CoPC International Distribution

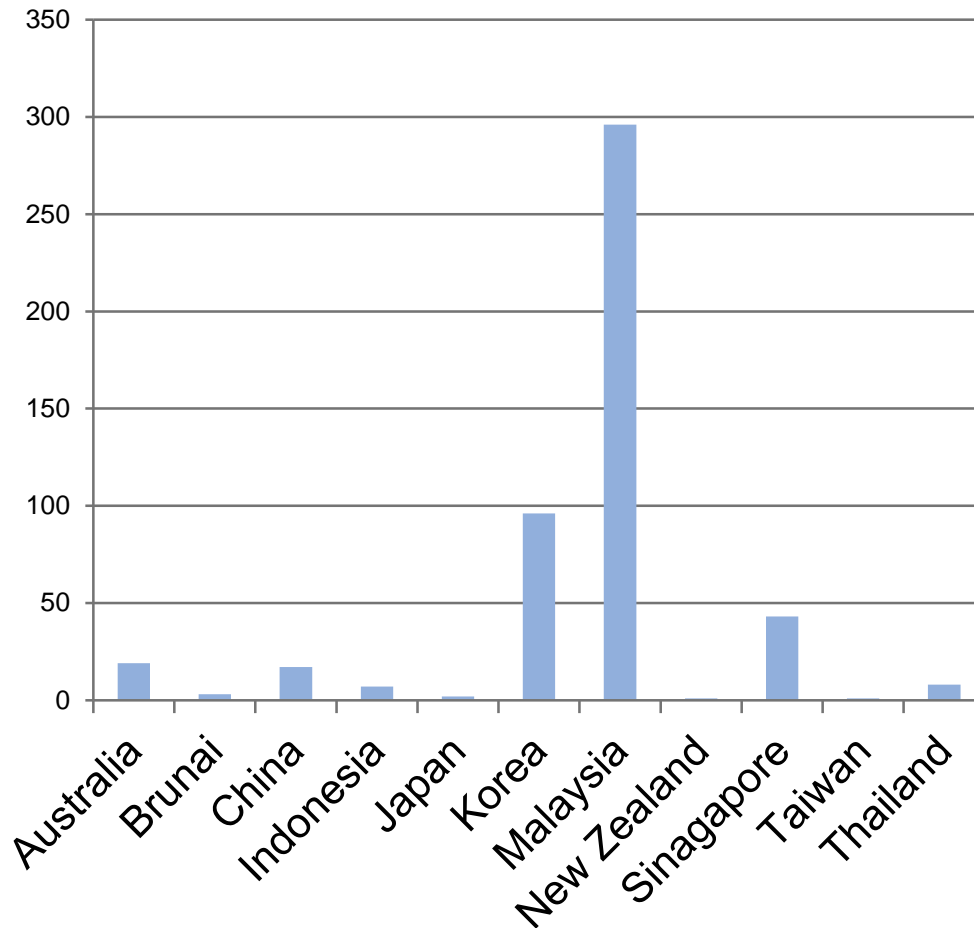


- Globally, there're 1,166 CoPCs since introduction (in July 2010)
- Europe has the highest number of CoPCs (562)
- Asia Pacific has the second highest (500)
- USA has 69
- Middle East has 27

The adoption of the scheme are driven by **end-users** and **government regulators**.

Source: www.iecex.com

Current Situation in Asia Pacific



Source: www.iecex.com

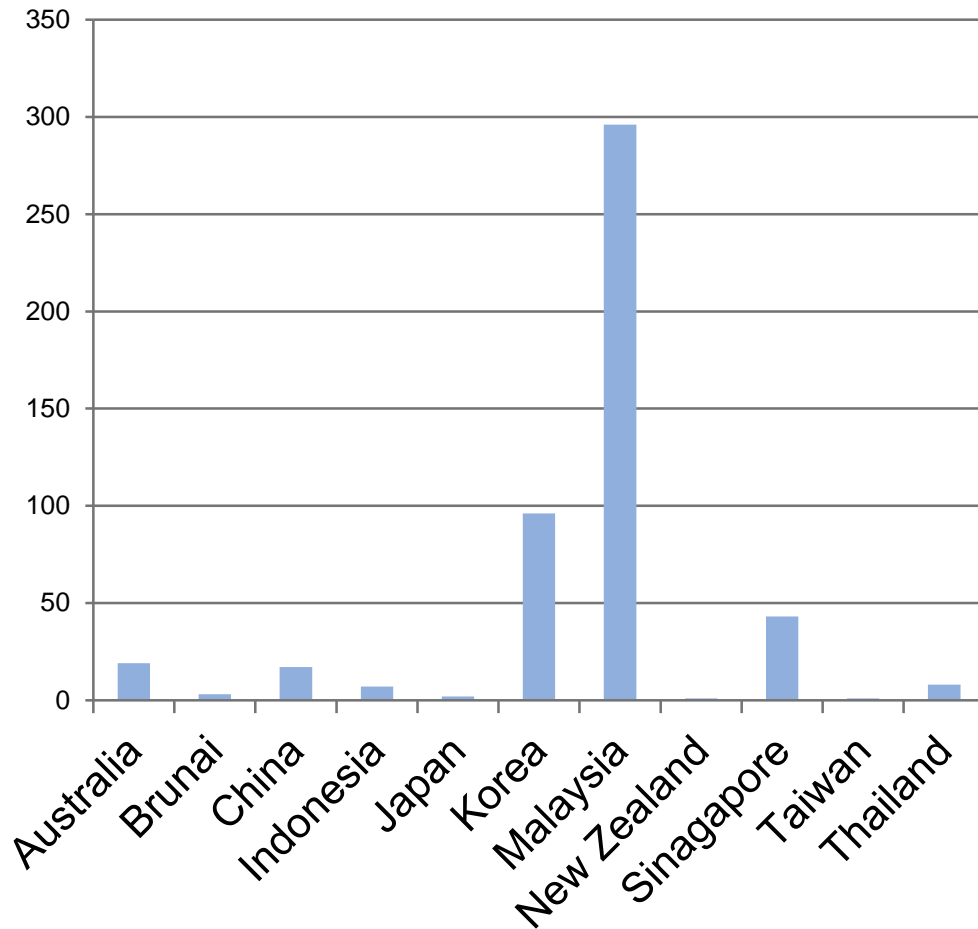
Asia Pacific

- In AP there are 500 CoPCs
- Malaysia has highest number of CoPCs (296) in the world
- In South Korea are fast growing from 9 to 96 CoPCs in 7 months
- Singapore has 43

Key Drivers:

Petronas
Government HRDF

Current Situation in Singapore



Source: www.iecex.com

- Singapore is far behind Malaysia in an International Standard. Despite Singapore's strong export orientation, local suppliers are slow to react to the trend.
- From end 2014, TÜV Rheinland issued 15 CoPCs to applicants in Singapore but mostly only Ex 001, MNCs who are quick to leverage the trend
 - Pass rate is around 85%

Key objections

- Cost of Certification
- No regulation issued by Govnt
- Customer doesn't require it

ExCBs for IECEx CoPC

Country	Acronym
Brazil	UL do Brasil
Canada	QPS
France	INERIS
France	LCIE
Germany	TUV Rheinland
Malaysia	SIRIM
Netherlands	DEKRA KEMA
United Kingdom	SGS BASEEFA
United Kingdom	SIRA
United States of America	UL

Country: Germany

Name: TÜV Rheinland Industrie Service GmbH

Acronym: TÜV Rheinland

Logo:



Contact: Mr. Klauspeter Graffi
Am Grauen Stein
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Tel: +49 211 6354 114

Fax: +49 211 6354 277.

E-Mail: graffik@de.tuv.com

Scope: Unit Ex 000 – Basic knowledge and awareness (EFOC)

Unit Ex 001 – Apply 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 in or associated with explosive atmospheres

Unit Ex 007 – Perform visual & close inspection of electrical installations in or associated with explosive atmospheres

Unit Ex 008 – Perform detailed inspection of electrical installations in or associated with explosive atmospheres

Unit Ex 009 – Design electrical installations in or associated with explosive atmospheres

Unit Ex 010 – Perform audit inspection of electrical installations in or associated with explosive atmospheres

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Thank You