

IECEx System in support of the Hydrogen Economy

2024 IECEx International Hydrogen Conference - Singapore

Katy Holdredge, IECEx Vice Chair, Senior Staff Engineer, UL Solutions May 29, 2024

Safety. Science. Transformation.™

Agenda

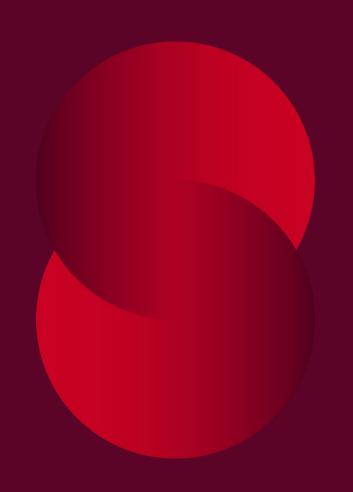
- Equipment, components, assemblies, unit verification certification
- 2. Service facility certification
- 3. Personnel certification
- 4. Process to gain IECEx certificate
- 5. Value in holding an IECEx certificate



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IECEx Certified Equipment Scheme

Equipment, components, assemblies and unit verification





IECEx Overview

- Started 1996
- Currently 76 IECEx Approved Certification Bodies offer IECEx Product Certification
- > 80 Test Labs
- >140,000 Certificates + Reports issued
- Industries that use flammable/combustible materials include:
- Production, Storage, Dispensing and use of flammable liquids and Gases, such as <u>Hydrogen, including GH2</u>
- Transport, eg cars / plans / ships / trucks (Passenger + Freight)
- Fueling stations and storage facilities
- Oil and gas exploration and processing
- Coal mining
- Food manufacture and processing...









IECEx Product Certificates









Ex Equipment

Ex Components

Assemblies

Unit Verification





IECEx Website <u>www.iecex.com</u> updates / enhancements

Direct access to 3 separate IECEx Animated Videos (also accessible from YouTube):-

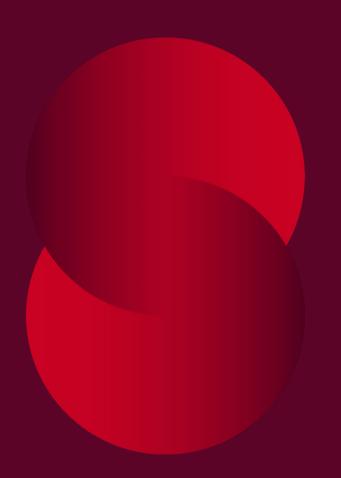
- 1. Certified Equipment Scheme
- 2. Certified Services Scheme
- 3. Certified Persons Scheme

Tailored version of the videos available to ExCBs to insert their own logos – many have taken this up

IECEx Website Video Guides on how to use/navigate:

- 1. The IECEx Website (intended for everyone)
- 2. The On-Line Certificate System (aimed at those seeking to look up certificates)
- The On-Line Certificate System Back Office (mainly for ExCB Staff – how to create/issue CoCs)

IECEx Certified Service Facility Scheme





IECEx Service Facilities

- Selection + Design
- Installation + Initial Inspection
- Inspection + Maintenance
- Repair + Overhaul + Reclamation





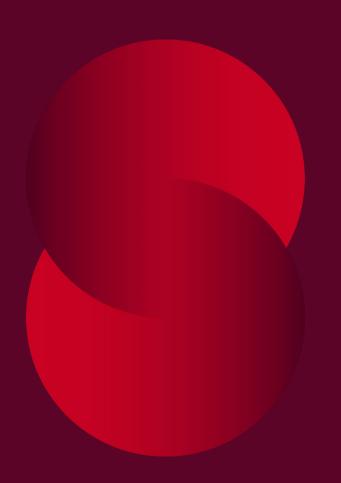


IECEx Service Facility Certificates





IECEx Scheme for Certification of Personnel Competence (CoPC)





IECEx CoPC Units of Competence

Reference	Title
Unit Ex 000	Basic knowledge and awareness to enter a site that includes a classified hazardous area
Unit Ex 001	Principles of protection in explosive atmospheres knowledge
Unit Ex 011	Basic knowledge of the safety of hydrogen systems

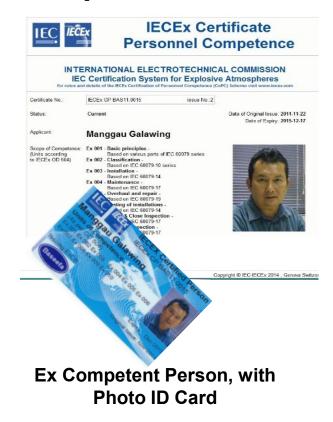






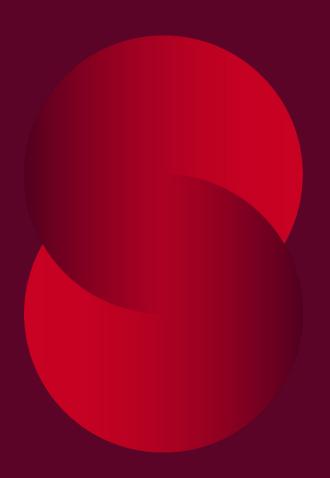
IECEx Certification of Personnel Competence

 Dedicated Unit 011 for Hydrogen Safety according to ISO/TR 15916





Process to gain IECEx certification





Process for IECEx Product Certification



Choose an approved IECEx Ex Certified Body (ExCB) with appropriate scope

Submit application materials for ExCB review.

3

Evaluation & testing

4

Quality system assessment

5

Review & IECEx certificate, test report & quality assessment report issuance

6

On-going surveillance



Process for IECEx Service Facility Certification



Choose an approved IECEx Ex Certified Body (ExCB) with appropriate scope

Submit application materials for ExCB review.

3

Service facility assessment

Review & IECEx certificate & facility assessment report issuance

5

On-going surveillance



Process for IECEx Certification of Personnel Competence



Choose an approved IECEx
Ex Certified Body (ExCB)
with appropriate scope

Submit application materials for ExCB review

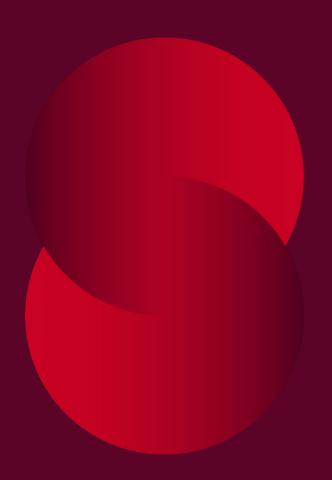
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Examination, Written/practical

4 ExCB Review & IECEx certificate issuance



Value in holding an IECEx certificate





IECEx Value Proposition



Provides assurance to Industry, Commerce, Regulators and Consumers that operations and activities involving flammable and combustible materials can continue safely and reliably, by providing an Internationally Standardized Approach to Testing and Certification, regardless which IECEx Approved Certification Body is used.





IECEx Organization



- Operation within the IEC Not for Profit
- >100 IECEx Approved Certification Bodies can issue International IECEx Certificates
- Self-funded with annual operating Budget CHF 1.8M / 2.7M in reserves
- Dedicated IECEx WG 19, Application of IECEx to the Hydrogen Economy
- Centralized On-Line Certificates Free Public Access



IECEx Working Group WG 19



Membership includes AU, BR, CA, CN, FR, DE, HU, IT, JP, KR, UK, US

- Manufacturers
- Users
- Regulators
- Testing and Certification Bodies
- Experts from the Standardization side
 - ISO TC 197
 - IEC TC 31
 - IEC TC 105 Chair + Secretary



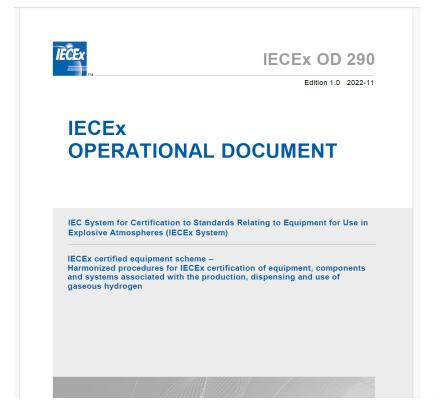




IECEx ExMC WG19 Objective



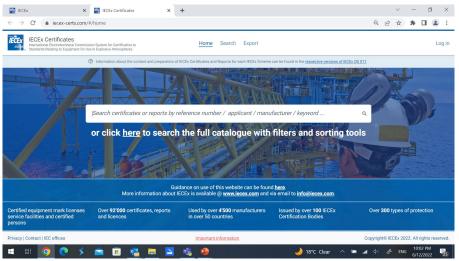
Extend the harmonized approach of International Testing and Certification to cover IEC and ISO Standards covering Hydrogen Technologies, beyond explosion protection, in support of the H2 economy including GH2





Verification of IECEx Product Certificates







https://www.iecex-certs.com/#/deliverables/CERT/3339/view





Thank you

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