

# IECEX IEC/TS 60079-46 STANDARD UPDATE

Total Quality and Compliance Solutions

Compliance with IECEx IEC/TS 60079-46 may present new challenges. Intertek's breadth of services across testing, inspection, certification, and competency-based training programs help clients eliminate risk and deliver high-quality products.



## Overview of the standard

IEC/TS 60079-46:2017 specifies requirements for the design, construction, assembly, testing, inspection, marking, documentation and assessment of equipment assemblies for use in explosive atmospheres.

The document is intended to be used for verification of assemblies to assist in ensuring products comply with the requirements of the IEC 60079 and/or ISO/IEC 80079 series of standards.

The requirements apply to individual items that comprise the assembly; these individual items are then integrated as part of the equipment assembly.

## Upcoming deadlines

**The standard comes into immediate effect for all new evaluations.**

IECEX DS 2015/001A will be withdrawn in **2020** and can no longer be used to issue certificates for assemblies of certified components.

The timeline has been set to allow for completion of ongoing projects while introducing IEC/TS 60079-46 as soon as possible.

## Benefits to Compliance

IECEX certification of assemblies and skid packages combines electrical and mechanical features for the evaluation of assemblies into a single standard.

## Challenges

Not all local jurisdictions have adopted this standard for use.

Competency requirements for all parties involved with the design, construction, and certification of the assembly have been included within the standard.

## Scope

IEC/TS 60079-46:2017 is applicable to assemblies of certified components where individual components are already equipment certified and have registered IECEx certificates of conformity to the IEC 60079 and/or ISO/IEC 80079 series of standards.

The range of equipment can be a system integrating two pieces of equipment, up to and including large facilities made up of multiple assemblies and packages.

The scope of IEC/TS 60079-46:2017 does not include:

- Equipment which is covered, in its entirety, by one or more IEC 60079 and ISO 80079 equipment types of protection
- Pressurized rooms, "p," in accordance with IEC 60079-13, artificial ventilation for the protection of analyzer(s) houses in accordance with IEC TR 60079-16, and other standards addressing specific Ex assemblies
- Installation at the end-user site under the scope of IEC 60079-14

- Classification of the hazardous area
- Equipment assemblies for mines susceptible to firedamp (Group I applications)
- Inherently explosive situations and dust from explosives or pyrophoric substances (for example explosives manufacturing and processing)
- Rooms used for medical purposes; electrical installations in areas where the hazard is due to flammable mist

## Key Requirements

- IEC/TS 60079-46:2017 is a competency based standard and demonstrating competency is required in section 4.4. There are many ways to demonstrate competency, such as CompEx training.
- Item lists (bill of materials) are required, and the list should have a description of each component, the manufacturer, identification number, certificate number including issue number, type of protection, ambient range, and ingress protection.
- The manufacturer shall perform and document an assessment of all ignition hazards that may arise due to the combination of the Ex Equipment in accordance with IEC 60079 series and ISO/IEC 80079-36 for both electrical and non-electrical risks. Additionally, a risk assessment methodology specified by the end-user may also be performed.



- Calculations performed and required as part of the assessment are required in the documentation. For example, calculations for the connection of Intrinsically Safe associated apparatus to Intrinsically Safe devices.
- In addition to the requirements of the IEC 60079 series and ISO/IEC 80079-36, the certificate for the equipment assembly will address several other items, where applicable, such as, but not limited to, the specific clauses of IEC 60079-14 that have been satisfied and the level of inspection completed on the equipment assembly.
- Final documentation package to include, but not limited to:
  - Competencies associated with the related manufacturing process personnel or verifying party as applicable
  - Details regarding any sources of release
  - Explosion protection specifications related to the installation of the equipment assembly by the end-user
  - Drawings of the equipment assembly
  - Mechanical layout drawings of the equipment assembly
  - Information regarding each wiring method, including termination means, used as part of the equipment assembly

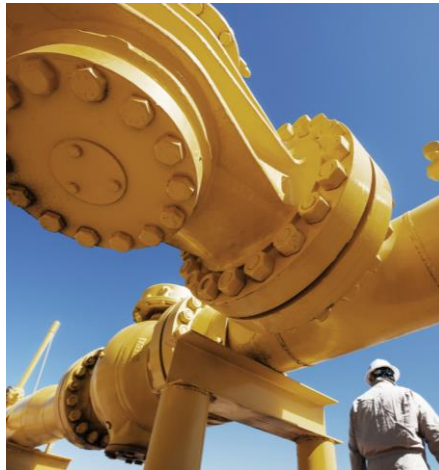
### Related standards

Assemblies are evaluated to IEC/TS 60079-46:2017 in addition to relevant parts of the IEC 60079 series, ISO/IEC 80079-36 and IEC 60079-14.

Third-party testing laboratories performing these evaluations need to have these standards within their IECEx TL scopes.

### Recommended next steps

Manufacturers should become familiar with the completion and assembly of integrated assemblies. The best method of doing this is by attending a CompEx training program.



### CompEx Certification Scheme

CompEx is an internationally recognized course and qualification in explosive atmospheres. It provides competency-based assessment for personnel working in hazardous locations.

CompEx validation and hazardous area training are essential to people who are involved in the design, selection, installation, inspection and maintenance of equipment, and for those managing people in these disciplines.

Intertek's licensed CompEx centres offer courses that lead the way in competency validation, providing attendees with all the practical knowledge and equipment required for assessment of the principals involved in hazardous area applications in a safe environment. Combining theoretical and practical skills, our courses are hands-on and interactive.

### Sample Courses:

- Ex F Foundation Course  
A nationally recognized certificate in the basic theory of hazardous areas. This course is part of the core competence of personnel who work on equipment for use in explosive atmospheres.
- Ex01-Ex04 Gas & Vapors  
Electrical/instrumentation installation, maintenance & inspection. This course consists of classroom based theoretical practical training (50%) and practical assessment and written examination.

- Ex12 Application Design Engineers  
When designing an electrical installation for use in explosive atmospheres there is a requirement to consider the design, selection and construction of the overall system. This course covers the application, design and selection of electrical equipment, and the requirements of IEC 60079-14.

CompEx training in Ex 01-04, Ex 05-06, Ex 11, Ex 12, Ex 14 and other customised trainings in the US, UK, Egypt, and remote locations are available on request. Intertek also offers evaluation to IEC/TS 60079-46 for IECEx facilities.

### About Intertek

Intertek is a leading Total Quality Assurance provider to industries worldwide. Our network of more than 1,000 laboratories and offices and over 46,000 people in more than 100 countries, delivers innovative and bespoke Assurance, Testing, Inspection and Certification solutions for our customers' operations and supply chains. Intertek Total Quality Assurance expertise, delivered consistently with precision, pace and passion, enabling our customers to power ahead safely.

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