



Every two months, Prof. Dr. Thorsten Arnhold, IECEx Chairman 2014-2019, provides an update on developments within the organisation.

About a year ago, I wrote in this column about the opportunities and challenges of hydrogen technologies in the course of the development of new energy concepts.

An important aspect is the correct and safe handling of the specific hazards of hydrogen. If you want to achieve a broad acceptance among the population for the widespread use of hydrogen as one of the most important energy carriers, this is an absolute prerequisite!

The pronounced explosive tendency of this gas is to be regarded as particularly critical. In addition to the use of suitable explosion-proof equipment, sufficient competence of all employees who have to handle hydrogen in any way is of crucial importance.

With this conviction and the knowledge of the urgency of safe solutions for the rapid development of hydrogen technologies, IECEx went to work at the beginning of 2021 and founded a new working group (WG 19) of which I can be a convener. As part of its work, IECEx WG19 conducted a business case analysis as well as a survey of IECEx certification bodies to gauge their level of interest in this area, noting that IECEx has been issuing certificates to equipment suitable for use in areas where hydrogen may be present

IECEX rides the hydrogen wave

since its inception, so inclusion of the ISO TC 197 standards are a logical addition to the IECEx portfolio of standards.

Following the IECEx Executive's endorsement, WG19 continued with its work and created the following three Task Teams to assist in progressing its work:

- **Task Team 1:** development of an additional IECEx Unit of Competence for Hydrogen Safety within its IECEx CoPC Scheme
- **Task Team 2:** Integration of ISO TC 197 standards with focus on gaseous hydrogen dispensers and dispensing equipment
- **Task team 3:** Integration of IEC TC 105 standards within IECEx with initial coverage for the IECEx CoPC Scheme.

Task Team 1 focused its efforts on the creation of a new Unit 11: "Basic knowledge of the safety of hydrogen systems" for the operational document OD 504. This Operational Document sets out the competence requirements for personnel working with equipment for explosive atmospheres according to IEC International Standards. Its purpose is to support certification where competence is required, for example, Repair and Overhaul Service Facilities, and may be considered for Certification of Persons undertaking the work in various aspects of explosive atmospheres where it may be advantageous to maintain competence certification.

The new Unit of Knowledge on hydrogen technologies covers the knowledge regarding safe working in the presence of a hydrogen atmosphere or on equipment producing, storing, transporting, processing, using or consuming hydrogen in gaseous or liquid form. It also covers the safety obligations and minimum basic knowledge of persons entering a site that has classified hazardous areas.

In order to carry out hydrogen-specific certificate examinations, examination questions adapted to the hydrogen topic were created. Should the IECEx Management Committee approve the recast of OD 504 at its annual meeting (which took place after this column was written), then the way would be clear for the issuance of certificates of competence for employees in hydrogen plants.

Team 2 developed the text for a new Operational document OD 290: "Harmonized procedures for IECEx Certification of Equipment, Components and Systems associated with the production, dispensing and use of gaseous Hydrogen". This document sets out the approach for certification of equipment, components and systems, associated with the production, distribution, dispensing and use of hydrogen, including gaseous hydrogen dispensing equipment, components and systems for light and heavy-duty vehicles, within the IECEx Equipment Certification Scheme.

For several years now, it has been possible to obtain IECEx certificates for explosion-proof assemblies. The basis for this is the IEC 60079-46 standard and IECEx-OD 280. This certificate variant is used very actively by manufacturers (to date, 260 such certificates have been issued).

With the new OD 290 it will be possible to issue certificates especially for hydrogen assemblies such as compressors and dispensers which, in addition to the conventional Ex standards, also have the hydrogen standards such as ISO 19880 for hydrogen filling stations as a basis.

This new OD will also be discussed at the IECEx-MC conference and, once approved, will contribute to further increasing the safety level of hydrogen applications. ■