



Every two months, Dr. Martin Thedens, Chair of IEC TC 31 "Equipment for explosive atmospheres", will offer his perspective on the latest developments in the world of standards.

The scope of the IEC TC 31 "Equipment for explosive atmosphere" is to prepare and maintain international standards relating to equipment for use where there is a hazard due to the possible presence of explosive atmospheres of gases, vapours, mists or combustible dusts.

Based on these standards, an Ex Equipment or an Ex Component certificate can be issued by a certification scheme such as the IECEx International Certification System. Such a certificate ensures that Ex Equipment or an Ex Component is designed and manufactured in accordance with the applicable Ex requirements. The well-known Types of Protection such as Flameproof Enclosure or Intrinsic Safety are typically used. But some electrical Ex Equipment cannot meet the requirements of the existing Types of Protection.

The reasons could be a special function of a product which does not comply with the standard requirements, or the use of a product is not within the scope of the IEC TC 31 standards, for example outside of atmospheric conditions. The solution for electrical Ex Equipment is the use of IEC 60079-33 "Special Protection". Based on an ignition hazard assessment and the verification of up to three independent verifiers, such electrical Ex Equipment can be certified as well. It's a similar assessment which is done for mechanical Ex Equipment.

But not all equipment is certified as Ex

The scope of IEC TC 31

Equipment. Especially some portable or personal equipment are not commercially available with an Ex Equipment certificate but are needed in a hazardous area for operational or health and safety reasons.

The use of such equipment requires a special assessment by the user and comes typically along with a safe work procedure. In November 2023, IEC SC 31J (our subcommittee for the users) issued Edition 1 of the Technical Specification IEC TS 60079-48 "Portable or Personal Electronic Equipment – Guide for the use of equipment without a certificate for use in Hazardous Areas". The aim of this guide is to assist users in understanding the potential for ignition from such portable or personal equipment.

The scope of IEC TS 60079-48 is clearly limited to the *use of portable or personal electronic equipment to be used in hazardous areas requiring Equipment Protection Level (EPL) Gb, Gc, Db, or Dc that are not otherwise commercially available with a certificate*. The document defines "PEP categories" and determines certain requirements for the different categories. PEP is the abbreviation of "portable or personal electrical electronic product" and defined as self-contained, low power equipment that can be hand-held or that is further defined by PEP 1b, PEP 1c and PEP 2c. For sure, national or regional regulations can differ from this guidance. But it's a good example of a guidance document issued by IEC TC 31 that was compiled as best practice by different users from all over the world.

This year's CAG meeting session of IEC TC 31 took place in Split. In the last two weeks of March, 28 different groups met. The Chair Advisory Group (CAG) made the start. Members of the CAG are all Convenors of all groups of IEC TC 31 and it's three SCs. The CAG cannot make decisions, but the discussions in the CAG result in resolutions. These resolutions are discussed further within the different groups and may result in IEC TC 31 plenary decisions. Here are some results of our discussions:

- IEC TC 31 WG 27 is responsible for electric machines (motors / generators). It's one of our oldest groups. We found new convenors but the group is also looking for new experts: Specifically, experts from motor manufacturers, motor repairers, and end users of motors, not necessarily explosion protection experts. Interested in getting involved? Please contact your national committee!
- The use of AI tools in hazardous areas was one of the topics for discussion, especially AI tools for the application of Ex standards. Thus, the IEC TC 31 CAG recommends the establishment of an ad-hoc Group (ahG) on the use of AI tools in the application of ISO/IEC 60079/80079 series standards.
- A similar discussion was the issue of robotics and drones, from remote controlled to fully autonomous equipment. The IEC TC 31 CAG also recommends the establishment of a horizontal ahG on the use of robotics and drones in or above hazardous areas. The task is to examine requirements in existing standards (other than the IEC TC 31 standards) and to propose additional or different requirements to address the unique Ex related requirements for this type of equipment.
- A further discussion was the marking of Ex Equipment with one part located in the hazardous area and one part located outside of the hazardous area. In the past, we had considered only Ex Equipment with parts in different zones, for example with one part in Zone 0 and the other in Zone 1; this Ex Equipment is marked with EPL Ga/Gb. In the ATEX world, the "-" is used for the marking of the part outside of the hazardous area. The TC 31 CAG recommends that for such equipment or assembly, the symbol "-" should be used as well, for example: EPL Gc/-. But as I mentioned, this is a proposal and needs to be discussed within the IEC TC 31 working group WG 22, responsible for the marking. ■