



Understanding the impact of in Intrinsic Safety stand

Published in January 2023, Edition 7 of the IEC 60079-11 standard serves as a crucial guide for electrical equipment designed for use in explosive atmospheres, employing the intrinsic safety method of protection.

A year since its publication, manufacturers are actively engaging with Certification Bodies (CBs) seeking clarity on how the changes impact their products and influence associated files, such as ATEX for the European Union and other regional certification schemes that generally adopt the IEC 60079-11 principles. Here, let us explore the notable changes that will help you navigate Edition 7 of the IEC 60079-11 standard.

- **Major technical changes:** In total, there are 45 major technical changes which refer to substantial modifications or updates in the technical requirements outlined in Edition 7 of the IEC 60079-11 standard. These changes include the

addition of new technical requirements or an increase in the level or complexity of existing technical requirements when compared to the previous edition (Edition 6).

For instance, let us consider Clause 5.2.1 Ignition Compliance Requirements, which is a major technical change in the standard. It mandates consideration of the most challenging temperature within the specified service temperature range for the relevant part of the apparatus. For rating of components according to Clause 7, and thermal ignition compliance for Levels of Protection “ia” and “ib,” factors such as mounting conditions and the local service temperature of the component must be considered. The effects of heating from other components due to related faults might also need consideration. As a result, this significant change in the standard could potentially require a redesign of your existing certified equipment to align with the new edition and maintain compliance.

- **Extensions:** The new standard introduces 76 extensions, signifying additional options that either add or modify technical requirements. Importantly, these changes do not impact the compliance of equipment already meeting the previous edition of the standard.

As an example of an extension in seventh edition, the introduction of enhanced insulation options provides manufacturers greater flexibility in designing electrical equipment for hazardous locations. This extension allows for the incorporation of advanced insulation techniques, enabling manufacturers to adapt existing certified equipment, stay compliant with safety standards, and enhance equipment design versatility.

- **Minor or editorial changes:** In Edition 7, there are 52 revisions, categorized as minor editorial changes. These modifications include clarification of principles, minor technical

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adjustments, and a reduction of requirements or editorial corrections.

For example, in Clause 3.1, the term 'Intrinsic Safety' has been revised to provide a more precise and easily understandable definition. This editorial change aims to enhance the overall clarity of the standard without impacting the technical requirements or compliance of the equipment. Such minor adjustments contribute to a more user-friendly and accessible document for manufacturers, engineers, and other stakeholders in the field of hazardous locations.

Key considerations for navigating IEC 60079-11 Edition 7

With the introduction of a new edition, questions may naturally arise for manufacturers regarding IEC 60079-11 Edition 7. To help you better understand and navigate the changes from Edition 6 to Edition 7 and their potential implications, here are some key considerations to keep in mind.

Navigating IECEx CoC Updates to Edition 7

Updating your IECEx Certificate of Conformity (CoC) to Edition 7 is not an immediate requirement for those with an existing IECEx file. The IECEx scheme typically acknowledges compliance of new certifications with either the latest standard edition or the previous one. The IECEx test report is often acceptable in regional schemes. Therefore, it is strongly recommended to thoroughly assess your products against the new edition and determine whether an update is necessary. This helps confirm that your products align with the latest standards and with eventual regulatory developments across different regions.

Considerations for ATEX Certification Holders

If you currently hold an ATEX certification to EN 60079-11:2012 edition, you may be wondering about the need to update your certification. Typically, ATEX certification for intrinsic safety aligns with the prevailing harmonized standard, which, in this case, is the 2012 edition of the EN 60079-11 standard. However, it is anticipated that the harmonized standard will eventually transition to Edition 7, requiring compliance with the latest edition. Consequently, it is advisable to familiarize yourself with the requirements of the ATEX Directive and assess your products against Edition 7 to determine the feasibility of compliance.

Additionally, simultaneously pursuing CSA certification under Edition 7 while seeking ATEX certification for the same product is indeed possible. ATEX projects involve an assessment of Essential Health and Safety Requirements. Despite the current non-harmonization of the IEC version, choosing it can offer the benefit of aligning your ATEX and IECEx files.

Absence of Redline Version for Edition 7

While some manufacturers may be interested in a redline publication, which is a marked-up version highlighting differences between the two editions, no redline version will be provided for Edition 7. This edition incorporates extensive reorganization of the standard, involving clause renumbering, paragraph regrouping, and information modification. These structural changes make it impractical to create a redline version for Edition 7.

North American Adoption of Edition 7

Currently, Edition 7 has not been adopted for use in North America. This means that it cannot be employed for Canadian and US certifications, for the time being.

However, regarding the adoption of the seventh edition in North America, the standard is presently under review by the US and Canadian mirror technical



committees. These committees develop the national deviations for adoption of the IEC standard. Subsequently, the adoption proposal with national deviations will undergo public review, editing, and formal publication processes. While there is an estimation that the adoption process may reach its final stages by mid-2024, this is not an official timeline but rather a projection based on past similar adoptions.

Recommended Next Steps

For manufacturers who are currently preparing for the certification of new products, adhering to applicable requirements outlined in Edition 7 is crucial during the design and evaluation phases.

It is noteworthy that products which have already attained certification are not presently mandated to comply with Edition 7. However, the circumstance may change at some point in the future. The effective dates for the transition to Edition 7 will inevitably vary across certification schemes, geographical regions, and certification bodies.

To proactively prepare for the transition, manufacturers can undertake the following measures:

- **Comprehensive File Review:** Conduct an exhaustive review of existing certification files against the requirements stipulated in IEC 60079-11 Edition 7. This meticulous process is crucial for determining the current compliance status with the updated standard.
- **Understanding Certification Scheme Requirements:** Gain a thorough understanding of the specific requirements of the certification scheme applicable to your product. In most cases, standard documents are quite lengthy and complex, and not all requirements are applicable to every product.

Subsequently, manufacturers may encounter challenges in distinguishing which requirements are necessary for their products to comply with. Accounting for the necessary requirements early on in your product's life cycle, such as the design phase, can help avoid delays and costly revisions down the road. Many certification bodies offer some type of technical guidance or support services that can help manufacturers understand which regulatory requirements are relevant. More specifically, some

certification bodies may be able to conduct a gap analysis review of your files to help identify areas where the new requirements of Edition 7 can impact your product's compliance status.

- **Proactive Engagement with Certification Bodies:** In instances where modifications are deemed necessary to uphold compliance with Edition 7, manufacturers should initiate contact with an accredited certification body. Requesting an upgrade demonstrates a proactive approach to ensuring that the product aligns seamlessly with the latest safety standards.

Overall, adopting these proactive measures helps manufacturers to strategically navigate the potential transition to Edition 7 – regardless of where they operate. Staying well-informed about certification scheme updates, maintaining vigilance regarding compliance requirements, and fostering open communication with certification bodies are essential strategies for manufacturers in this dynamic and evolving regulatory landscape. ■

About the author



Goutam Das is a certification specialist at CSA Group. With over 15 years of experience in assessing and testing electrical and electronics equipment intended for use in hazardous atmospheres, Goutam has extensive knowledge of UKEx, ATEX, IECEx, and cCSAus hazardous area approvals for gas and dust atmospheres. He provides project mentoring and technical review, working with customers in the design stage to help determine compliance with applicable standards.

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