Information on standards

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1 Introduction

On the occasion of the last IEC standards meeting of the Technical Committee TC 31, which was held from 21 October to 1 November 2019 in China (Nanyang), this document is intended to provide an overview of the current development of international standards in explosion protection. In addition to the ATEX directives, which are binding throughout the EU, these IEC standards form the most important basis for manufacturers of electrical and non-electrical equipment for use in potentially explosive atmospheres and for operators of systems in these areas.

2 List of abbreviations

AG	Advisory Group
AHG	Ad Hoc Working Group
CD	Committee Draft
CDV	Committee Draft for Voting
DC	Document for Comments
FDIS	Final Draft International Standard
MT	Maintenance Team
JWG	Joint Working Group
PT	Project Team
SC	Subcommittee
SD	Stability Date
TC	Technical Committee
WG	Working Group

3 Current status of the series of standards relevant to explosion protection IEC 60079 and IEC 80079

The documents listed below are distributed by the IEC to the national committees for revision of the current edition of the respective standard. Depending on the revision status of the document, the respective comments or votes are expected.

Standard	Stability Date	Current status
IEC 60079-0: 2017, Ed. 7; Explosive atmospheres - Part 0: Equipment - General requirements	2022	Work on the 8th edition of 60079-0 was started in autumn 2019. The internal comments were discussed in October 2019 and will be completed in April 2020. The goal is to release an 8th edition CD after the meeting in April 2020.
IEC 60079-1: 2014, Ed. 7; Explosive atmospheres - Part 1: Equipment protection by Flameproof Enclosures “d”	2021	The next edition will be prepared. In summer 2019, a DC will be distributed to the national committees and national comments are expected. The next MT Meeting will take place in April 2020. The Stability Date was changed to 2021.
IEC 60079-2: 2014, Ed. 6; Explosive atmospheres - Part 2: Equipment protection by Pressurized Enclosure “p”	2021	The comments received will be processed. The next meeting is scheduled for spring 2020. The Stability Date was changed to 2021.
IEC 60079-5: 2015, Ed. 4; Explosive atmospheres - Part 5: Equipment protection by Powder Filling “q”	2021	This standard is up to date. Currently, there are no activities.
IEC 60079-6: 2015, Ed. 4; Explosive atmospheres - Part 6: Equipment protection by Liquid Immersion “o”	2019	Working Group TC 31 WG 43 "High voltages" developed the requirements for voltages higher than 15 kV. These were included in the standard as Annex D.
IEC 60079-7: 2015, Ed. 5; Explosive atmospheres - Part 7: Equipment protection by Increased Safety “e”	2020	Many comments (creepage distances and clearances, use of luminaires, consideration of temperature,...) were discussed. The CD of the 6th edition is expected after the meeting in April 2020.
IEC 60079-10-1: 2015, Ed. 2; Explosive atmospheres - Part 10-1: Classification of areas - Explosive gas atmospheres	2020	The comments received have all been processed and a CDV will be distributed. It is expected that the FDIS of this standard will be published in 2020.
IEC 60079-10-2: 2015, Ed. 2; Explosive atmospheres - Part 10-2: Classification of areas - Explosive dust atmospheres	2020	Work on the third edition of this standard will begin in 2020.
IEC 60079-11: 2011, Ed. 6; Explosive atmospheres - Part 11: Equipment protection by Intrinsically Safety “i”	2020	Work on the new edition has been going on for years. The CDV of the new edition will not be published before the meeting in April 2020. There are currently 59 members registered in this Maintenance Team.

Standard	Stability Date	Current status
IEC 60079-13: 2017, Ed. 2; Explosive atmospheres - Part 13: Equipment protection by Pressurized Rooms	2021	With the comments received, a CD of the 3rd edition is to be distributed in spring 2020. In future, this standard will also include the analyser rooms so that the 60079-16 can be deleted. The Stability Date was changed to 2021.
IEC 60079-14: 2013, Ed. 5; Explosive atmospheres - Part 14: Electrical installations design, selection and erection	2021	The elaborated document will be distributed as a CD to the national committees. In the April meeting, the comments received will be discussed. The Stability Date was changed to 2021.
IEC 60079-15: 2017, Ed. 5; Explosive atmospheres - Part 15: Equipment protection by Type of protection “n”	2020	An annex "Dynamic testing of sealed units" is currently being prepared.
IEC 60079-17: 2013, Ed. 5; Explosive atmospheres - Part 17: Electrical installations inspection and maintenance	2020	A CD of the 6th edition was distributed to the national committees. These comments will be discussed in April 2020. A CDV is to be created.
IEC 60079-18: 2014, Ed. 4; Explosive atmospheres - Part 18: Equipment protection by Encapsulation “m”	2022	This standard is state of the art. The Stability Date was changed to 2022.
IEC 60079-19: 2019, Ed. 4; Explosive atmospheres - Part 19: Equipment repair, overhaul and reclamation	2022	The 4th edition of the standard was published in October 2019.
IEC 60079-25: 2010, Ed. 2; Explosive atmospheres - Part 25: Intrinsically safe electrical systems	2020	A CDV of the third edition was distributed to the national committees for approval at the beginning of 2019. The vote must be taken by 14 June 2019.
IEC 60079-26: 2014, Ed. 3; Explosive atmospheres - Part 26: Equipment with Equipment Protection Level (EPL) Ga	2021	In the new edition, in addition to the separators between Zone 0 and Zone 1 applications, new separators will be introduced between dust Ex areas and gas Ex areas as well as between Zone 0 and Zone 2 applications. The CDV of the 4th edition, prepared electronically, will be sent to the national committees at the end of 2019. The comments received will be discussed in April 2020.
IEC 60079-28: 2015, Ed. 2; Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation	2024	The MT discusses new measurement techniques for the measurement of: • thermal ignition of particles by optical radiation, • optical power and • irradiance. The technical feasibility of the ignition tests will also be discussed. The Stability Date is extended to 2024.
IEC 60079-29-1: 2016, Ed. 2; Explosive atmospheres - Part 29-1: Gas detectors - Performance	2019	The 3rd edition, in which general requirements for detectors of combustible/toxic/oxygen atmospheres are also used, is developed.

Standard	Stability Date	Current status
requirements of detectors for flammable gases		An annex in which the test requirements regarding the pressure, EMC and preconditioning of the test samples were revised was distributed as a CDV. An IEC Decision Sheet with the topics air velocity and the velocity of the test gas will be distributed. The MT met in Tokyo in early November 2019.
IEC 60079-29-2: 2015, Ed. 2; Explosive atmospheres - Part 29-2: Gas detectors - Selection, installation, use and maintenance of detectors for flammable gases and oxygen	2019	The national comments for the next edition had to be submitted by the end of March 2019.
IEC 60079-29-3: 2014, Ed. 1; Explosive atmospheres - Part 29-3: Gas detectors - Guidance on functional safety of fixed gas detection systems	2021	This standard is up to date. Currently, there are no activities.
IEC 60079-29-4: 2009, Ed. 1; Explosive atmospheres - Part 29-4: Gas detectors - Performance requirements of open path detectors for flammable gases	2021	This standard is up to date. Currently, there are no activities.
IEC/IEEE 60079-30-1: 2015, Ed. 1; Explosive atmospheres - Part 30-1: Electrical resistance trace heating - General and testing requirements	2020	The CD of the 2nd edition is currently being prepared.
IEC/IEEE 60079-30-2: 2015, Ed. 1; Explosive atmospheres - Part 30-2: Electrical resistance trace heating - Application guide for design, installation and maintenance	2020	The CD of the 2nd edition is currently being prepared.
IEC 60079-31: 2013, Ed. 2; Explosive atmospheres - Part 31: Part 31: Equipment dust ignition protection by enclosure “t”	2019	Work on the new edition will begin in April 2020.
IEC TS 60079-32-1: 2013, Ed. 1; Explosive atmospheres - Part 32-1: Electrostatic hazards, guidance	2021	Work on the new edition will start in June 2019. The Stability Date was changed to 2021.
IEC 60079-32-2: 2015, Ed. 1; Explosive atmospheres - Part 32-2: Electrostatics hazards - Tests	2021	Work on the new edition will start in June 2019. The Stability Date was changed to 2021.
IEC 60079-33: 2012, Ed. 1; Explosive atmospheres - Part 33: Equipment protection by special protection ‘s’	2020	This IEC standard has been published in Europe as a Technical Report only. Currently, more and more IECEx certificates are being issued to which this IEC standard is applied. MT will use these certificates as a basis for the next edition.
IEC 60079-35-1: 2011, Ed. 1; Explosive atmospheres - Part 35-1: Caplights for use in mines susceptible to firedamp - General requirements - Construction and	2021	This standard is up to date. Currently, there are no activities.

Standard	Stability Date	Current status
testing in relation to the risk of explosion		
IEC 60079-35-2: 2011, Ed. 1; Explosive atmospheres - Part 35-2: Caplights for use in mines susceptible to firedamp - Performance and other safety-related matters	2021	This standard is up to date. Currently, there are no activities.
IEC TS 60079-39: 2015, Ed. 1; Explosive atmospheres - Part 39: Intrinsically safe systems with electronically controlled spark duration limitation	2021	TC 31 will decide soon whether a standard will be created from this TS or not. Currently, no chairman is appointed for this project team.
IEC TS 60079-40: 2015, Ed. 1; Explosive atmospheres - Part 40: Requirements for process sealing between flammable process fluids and electrical systems	2021	This TS was created by WG 30. The certificates issued in accordance with this standard will be used as the basis for the new edition. The appropriate steps will be taken soon. See also WG 30.
IEC TS 60079-42: 2019, Ed. 1; Explosive atmospheres - Part 42: Electrical safety devices for the control of potential ignition sources for Ex-Equipment	2021	Technical Specification IEC TS 60079-42 was published on 17.04.2019. WG 42 will shortly ask the national committees whether there should be a new edition and whether this TS will then be converted into a standard. In Europe, this TS will be adopted as standard 60079-42 and will replace EN 50495. See WEG 42.
IEC TS 60079-43: 2017, Ed. 1; Explosive atmospheres - Part 43: Equipment in adverse service conditions	2020	The next edition of IEC TS 60079-43 will be published as a standard entitled "Guidance on equipment intended for use in adverse environmental service conditions". Besides the requirements for extremely cold operating conditions (Arctic), extremely warm operating conditions (desert) and high humidity conditions will also be considered.
IEC PT 60079-44: Personal Competence	-	The first CD of this Technical Specification was sent to the national committees to be commented. A lot of comments were prepared.
IEC PT 60079-45: Electrical Ignition Systems for Internal Combustion Engines	-	This Technical Specification has been under development since 2018 and is to be published by 2021. The voltage range will be extended to up to 60 kV.
IEC TS 60079-46: 2017 Ed. 1 Explosive atmospheres - Part 46: Equipment assemblies	2020	This first edition was published in 2017. Here, care must be taken that not all configured units are declared as assemblies. If a separate certificate is available for the assembly of several Ex components / Ex devices, this assembly does not fall within the scope of this TS. For the operator, the assembly of several Ex devices may be monitored. Work is in progress on the 2nd edition of this Technical Specification.
ISO/IEC 80079-20-1: 2017, Ed. 1	2020	This standard originated from IEC 60079-20-1, which was distributed in 2017. During this change

Standard	Stability Date	Current status
Explosive atmospheres - Part 20-1: Material characteristics for gas and vapour classification - Test methods and data		of name, only editorial changes were made. The Stability Date is to be postponed to 2024.
ISO/IEC 80079-20-2: 2016, Ed. 1; Explosive atmospheres - Part 20-2: Material characteristics - Combustible dusts test methods	2020	It is currently being examined whether the scope of this standard should be extended to include ISO 6184-1 "Explosion protection systems - Part 1: Determination of explosion indices of combustible dusts in air" or EN 14034 "Determination of explosion characteristics of dust clouds - Part 1: Determination of maximum explosion pressure p_{max} of dust clouds".
ISO/IEC 80079-34: 2018, Ed. 2; Explosive atmospheres - Part 34: Application of quality management systems for Ex Product manufacture	2021	The new edition has been published at IEC level but has not yet been adopted in Europe. In this new edition, the requirements for testing types of protection have been detailed and adapted to the new edition of ISO 9001:2015.
ISO 80079-36: 2016, Ed.1 Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic method and requirements	2019	The requirements currently contained in both IEC 60079-0 and ISO 80079-36 will be deleted from the new edition of ISO 80079-36. Work is in progress on "non-electrical" requirements for IEC 60079-14, IEC 60079-17 and IEC 60079-19. See SC 31 M, WG 1.
ISO 80079-37: 2016, Ed. 1; Explosive atmospheres - Part 37: Non-electrical equipment for explosive atmospheres - Non electrical type of protection constructional safety “c”, control of ignition source “b”, liquid immersion “k”	2021	Work is in progress on "non-electrical" requirements for IEC 60079-14, IEC 60079-17 and IEC 60079-19. See SC 31 M, WG 1.
ISO/IEC 80079-38: 2016, Ed. 1; Explosive atmospheres - Part 38: Equipment and components in explosive atmospheres in underground mines	2021	The new edition is intended to illustrate the possibility of using this standard for certification purposes. New employees were requested for this purpose.
ISO PT 80079-41: Development of ISO/IEC 80079-41/Ed1: Explosive atmospheres - Part 41: Reciprocating internal combustion engines	-	This Technical Specification is currently being developed. The 2nd CD is created and several Working Groups have been formed. The aim is to publish this Technical Specification in 2021.

4 Overview of the active Working Groups of TC 31

The following table gives an overview of the active Working Groups of TC 31 with their current work contents.

Team	Current work status
SC 31G: Intrinsically-safe apparatus	Responsible for all "intrinsically safe" issues and standards IEC 60079-11, IEC 60079-25, IEC TS 60079-39, SC 31G WG 4 and the new PT 60079-47.
SC 31G WG 4: Spark test apparatus	Inspection of the spark tester and development of an electronic solution.
SC 31J: Classification of hazardous areas and installation requirements	Responsible for the "operator issues" and standards IEC 60079-10-1, IEC 60079-10-2, IEC 60079-13, IEC 60079-14, IEC 60079-17, IEC 60079-19, SC 31J WG 1 and SC 31J WG 2.
SC 31J WG 1: Electrical installations design, selection, erection and inspection in underground mines susceptible to firedamp	Depending on the development of IEC 60079-14, further activities will follow.
SC 31J WG 2: Portable and personal equipment	Comparable with TC 31 AG 49, but focuses on operator demands. Here, possibilities (as annex to IEC 60079-14 and IEC 60079-17), such as medical devices (insulin pumps, hearing aids,...), shall be elaborated, evaluated and applied.
SC 31M: Non-electrical equipment and protective systems for explosive atmospheres	Responsible for the "non-electrical (mechanical)" part of the equipment and standards ISO/IEC 80079-20-1, ISO/IEC 80079-20-2, ISO/IEC 80079-34, ISO/IEC 80079-38, IEC 80079-41 and SC 31M WG 1 with standards ISO 80079-36 and ISO 80079-37.
SC 31M WG 1: Requirements for installation, maintenance, repair, overhaul and reclamation of non-electrical equipment as well for the standards ISO 80079-36 and ISO 80079-37	Work is in progress on "non-electrical" requirements for IEC 60079-14, IEC 60079-17 and IEC 60079-19. The requirements currently contained in both IEC 60079-0 and ISO 80079-36 will be deleted from the new edition of ISO 80079-36.
TC 31 AG 36: Chairman's Advisory Group	This group usually meets in the first TC 31 meeting of the year and makes recommendations, which are then decided in the plenary meeting (second meeting of the year) of TC 31.

Team	Current work status
TC 31 AG 49: Portable and personal Equipment. It is examined whether certain requirements have to be defined for portable or personal equipment for use in hazardous areas.	Here, requirements for portable and personal devices are to be developed, which are then to be used in the various types of protection. It is currently recommended to reduce the requirements for COT (Continuous Operating Temperature) of the plastics used in portable equipment. This elaborated proposal will be included in the next edition of 60079-0.
TC 31 AG XX	A new Working Group will be formed to develop the requirements for "Special Conditions". For this purpose, the national committees are requested to nominate members.
TC 31 AHG 51: Basic Safety Publication	The document prepared by the group was presented to other technical committees (TCs) at IEC ACOS (Advisory Committee on Safety) and received positively. From the AHG, a TC 31 WG will be founded and the task will be to finalize the document and to keep in contact with the other TCs. TC 31 WG 54 was formed from the AHG.
TC 31 AHG 53: Entry threads	Metric and NPT threads are currently specified in the Ex standards. The Working Group recommends that no other threads should be used, if necessary, adapters may be used. An Interpretation Sheet on 60079-1 was prepared and published. This AHG was dissolved.
TC 31 JWG 29: Electrostatics, linked to TC 101	This JWG is also active in the development of the IEC 60079-32 series. It ensures that the concerns of TC 101 are taken into account when preparing the IEC 60079-32 standards and vice versa, the TC 31 requirements in TC 101.
TC 31 JWG 45: Toxic gas detection for workplace atmospheres linked to ISO/TC 146/SC 2	This JWG is also active in the development of the IEC 60079-29 series. It ensures that the concerns of TC 146 are taken into account in the preparation of the IEC 60079-29 standards and vice versa, the TC 31 requirements in TC 146.
TC 31 JWG 50: Liaison with IECEx	The cooperation between TC 31 and IECEx has been extended. It is ensured that those responsible for the relevant standard are always informed/consulted by IECEx. The chairman of TC 31 and this Working Group, Mark Coppler, must be involved in all activities of this kind of IECEx.
TC 31 WG 22: Responsible for MT 60079-0; MT 60079-5; MT 60079-6; maintenance of IEV 60050.426 and other specific tasks assigned by TC 31	MT 60079-0; MT 60079-5 and MT 60079-6, see above. The 3rd edition of the IEV 60050-426 dictionary is currently being prepared. Care must be taken here to ensure that all definitions of the different standards that are used are incorporated and harmonized.
TC 31 WG 27: Electric Machines (motors and generators)	In this group, the requirements for electric drive machines and generators are discussed and passed on to the respective standards committees.
TC 31 WG 28: Dusts + MT 60079-31	The general dust requirements are elaborated and passed on to the respective standards committees. As MT of 60079-31, updating the standard is also the responsibility of this WG.
TC 31 WG 30: Process Sealing	This WG has created the IEC TS 60079-40 and uses the certificates created according to this standard as the basis for the new edition. See also TS 60079-40.

Team	Current work status
TC 31 WG 31: Gas/dust hybrid mixtures	Currently, the requirements for the use of devices in hybrid mixtures cannot be standardized. Their development will be monitored.
TC 31 WG 32: Creepage and clearance distances	Once again the necessity is discussed whether the Pollution Degree and the Overvoltage Category are relevant for the development and selection as part of the TC 31 standards and should be included.
TC 31 WG 37: Electrochemical cells and batteries in equipment for explosive atmospheres	Batteries can be used in several types of protection. As the technical development of these batteries is very fast moving, this group monitors the use of batteries and provides input for the development of type of protection standards.
TC 31 WG 39: Adverse service conditions	Technical Specification IEC TS 60079-43 prepared by the Working Group is to be published in the next edition as a standard entitled "Guidance on equipment intended for use in adverse environmental service conditions".
TC 31 WG 40: Luminaires	There are several types of protection according to which luminaires can be developed and certified. In order to harmonize the product-specific requirements in all standards, this WG brings together the necessary requirements for the different types of protection.
TC 31 WG 42: Safety Devices Related to Explosion Risk	The IEC TS 60079-42 was created by this group. See IEC TS 60079-42. WG 42 will shortly ask the national committees whether there should be a new edition and whether this TS will then be converted into a standard.
TC 31 WG 43: High Voltages	This Working Group is currently working on the possibility of applying voltages higher than 15 kV in the Ex area. See also IEC 60079-6.
TC 31 WG 47: Gc Equipment	This Working Group is working on ensuring that the requirements for Gc devices (Zone 2 devices) are uniform in all type of protection standards.
TC 31 WG 54: Basic Safety Publication	This document is currently being prepared and will probably be published in 2020 (formerly TC31 AHG 51).

At the TC 31 Plenary Meeting in 2019, all convenors of the MTs, WGs and AGs were confirmed for another 3 years.