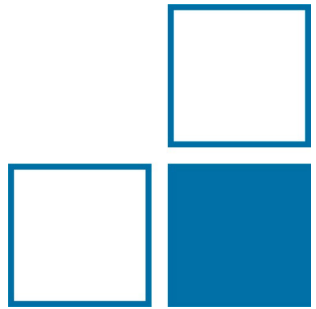
Physikalisch-Technische Bundesanstalt
Braunschweig and Berlin
National Metrology Institute

International Standards Update

Tim Krause, 20th of September, 2023, Edinburgh
2023 INTERNATIONAL SYMPOSIUM – EXPLOSIVE ATMOSPHERES



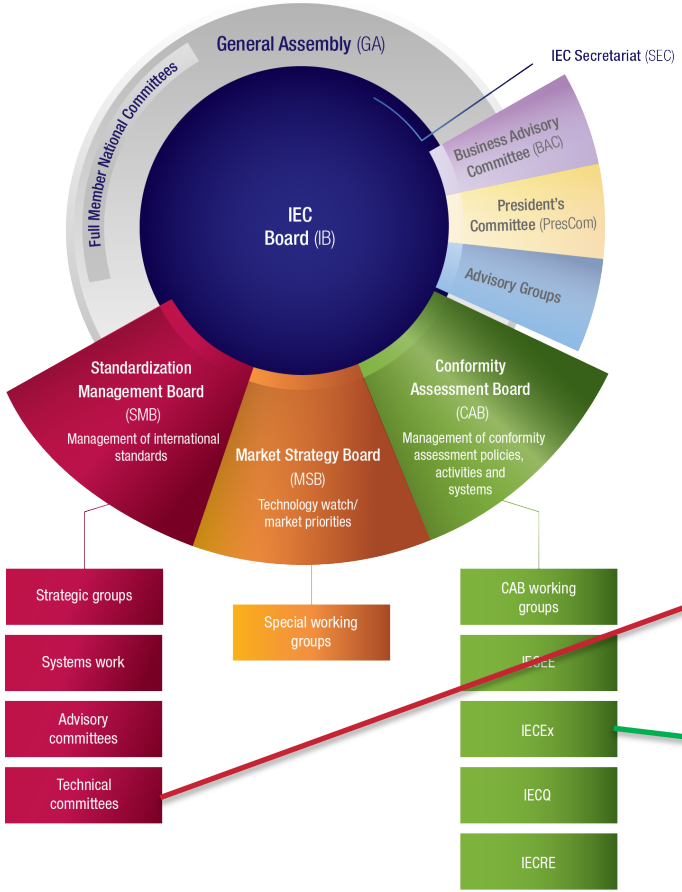
International Standardisation

ITU
International Telecommunication Union

ISO
International Organisation for Standardisation

IEC
International Electrotechnical Commission

IEC - Structure



TC31 - Equipment for explosive atmospheres

International Electrotechnical Commission System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres (IECEx System)

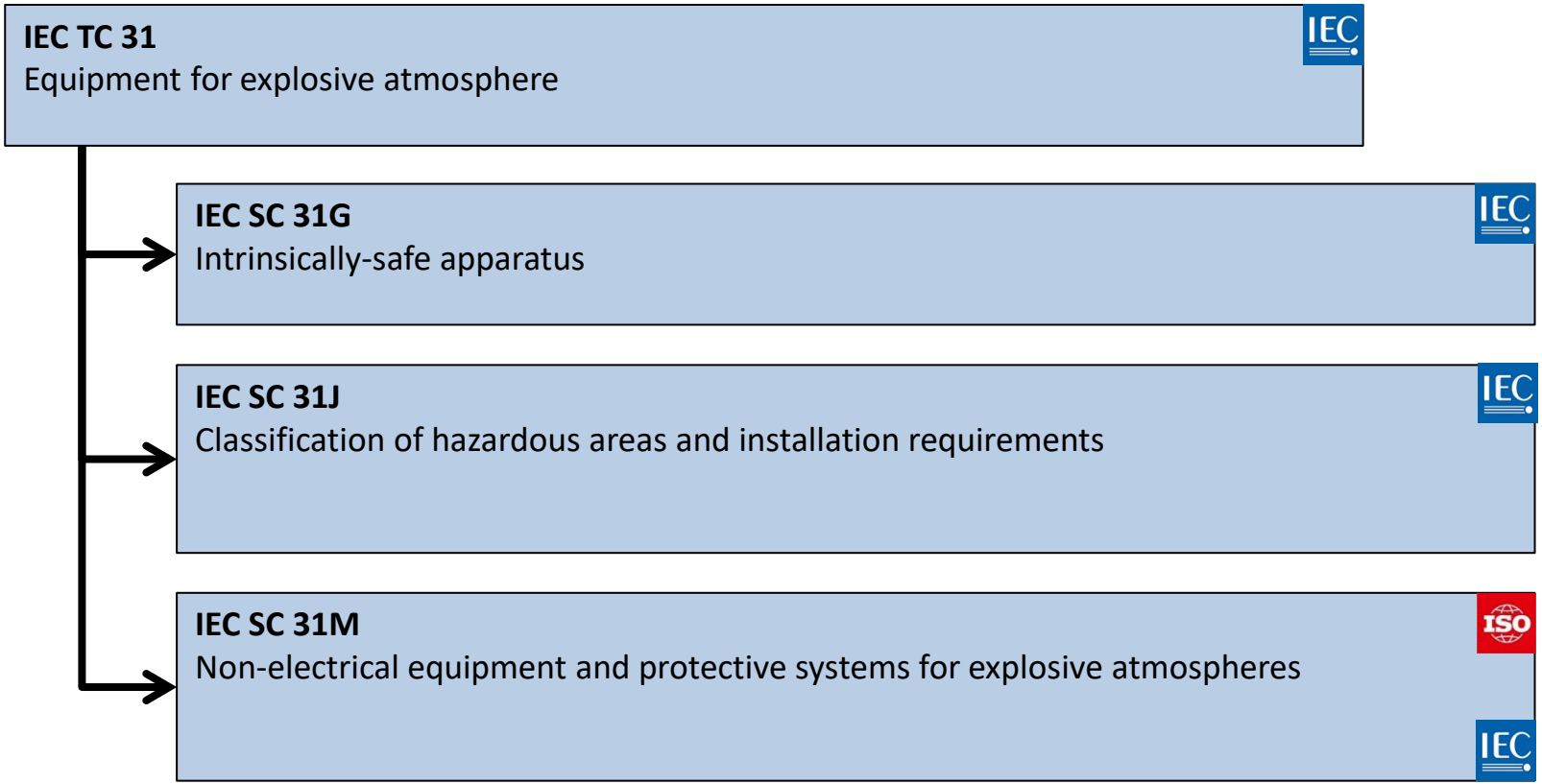
TC 31 - Overview

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

TC 31 Officers

Chair	**Mr Martin Thedens** (DE) Term of office : 2026-07
Vice-Chair	**Mr Jason McGee** (AU) Term of office : 2023-10
Vice-Chair	**Mr Brad J Zimmermann** (US) Term of office : 2023-10
Secretary	**Mr Tom Stack** (GB)

TC 31 - Structure



TC 31 - Structure

- **3 Subcommittees:**
  A TC can form one or more SCs depending on the extent of its work programme. Each SC defines its scope and reports directly to the parent TC.
- **13 Working Groups & 3 Joint Working Groups:**
  Develop one or a set of standards. Should be disbanded when the work is done or when inactive.
- **3 Project Teams:**
  Deal with the development of a single standard. Established when a project cannot be assigned to an existing WG and when the TC/SC does not want to establish a WG for a single project.
- **12 Maintenance Teams & 1 Joint Maintenance Team:**
  Responsible to maintain one or a set of standards. As maintenance is a never ending job, an inactive MT will not be disbanded.
- **4 Advisory Groups:**
  Established for providing advice to the TC. These groups cannot develop standards. They may propose recommendations to be further approved.
- **1 Ad-Hoc Groups:**
  Short term group dealing with a specific subject.
- **1 Editing Group:**
  Responsible for editing draft documents (Standards, Technical Specifications, Technical reports, Amendments and Interpretation Sheets) to ensure their conformity to the ISO/IEC Directives.

TC 31 - Publications


IEC 60079-0

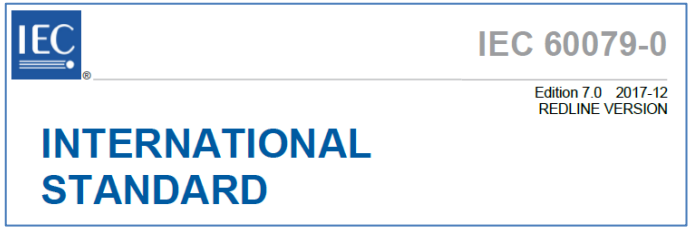
Edition 7.0 2017-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

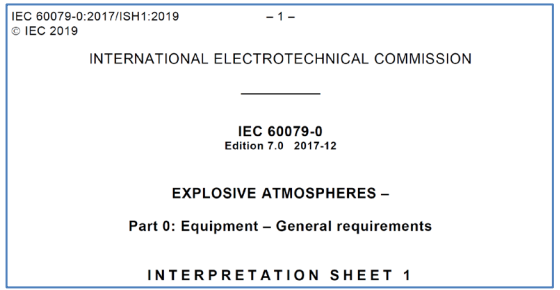
Explosive atmospheres –
Part 0: Equipment – General requirements

Atmosphères explosives –
Partie 0: Matériel – Exigences générales


IEC 60079-0

Edition 7.0 2017-12
REDLINE VERSION

INTERNATIONAL STANDARD


IEC 60079-0:2017/ISH1:2019 – 1 –
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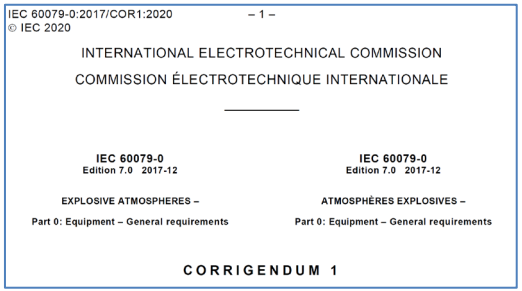
INTERNATIONAL ELECTROTECHNICAL COMMISSION

IEC 60079-0
Edition 7.0 2017-12

EXPLOSIVE ATMOSPHERES –

Part 0: Equipment – General requirements

INTERPRETATION SHEET 1


IEC 60079-0:2017/COR1:2020 – 1 –
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INTERNATIONAL ELECTROTECHNICAL COMMISSION
COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

IEC 60079-0
Edition 7.0 2017-12

EXPLOSIVE ATMOSPHERES –
Part 0: Equipment – General requirements

IEC 60079-0
Edition 7.0 2017-12

ATMOSPHÈRES EXPLOSIVES –
Part 0: Equipment – General requirements

CORRIGENDUM 1


IEC 60079-7

Edition 5.0 2017-08

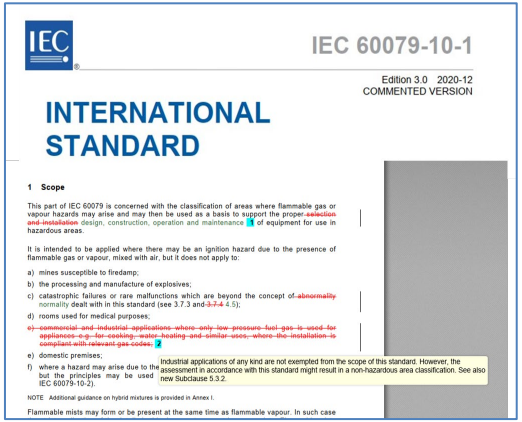
INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

Explosive atmospheres –
Part 7: Equipment protection by increased safety "e"

Atmosphères explosives –
Partie 7: Protection du matériel par sécurité augmentée «e»


IEC 60079-10-1

Edition 3.0 2020-12
COMMENTED VERSION

INTERNATIONAL STANDARD

1 Scope

This part of IEC 60079 is concerned with the classification of areas where flammable gas or vapour hazards may arise and may then be used as a basis to support the proper ~~selection and installation~~ design, construction, operation and maintenance [3] of equipment for use in hazardous areas.

It is intended to be applied where there may be an ignition hazard due to the presence of flammable gas or vapour, mixed with air, but it does not apply to:

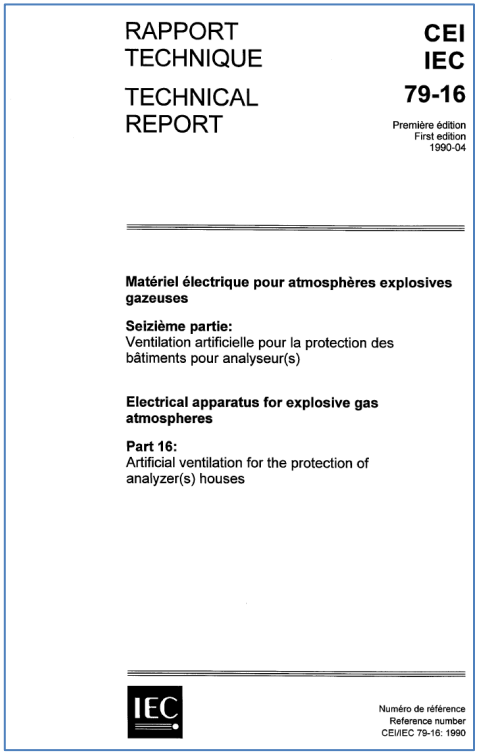
a) mines susceptible to firedamp;
b) the processing and manufacture of explosives;
c) catastrophic failures or rare malfunctions which are beyond the concept of ~~abnormality~~ normality dealt with in this standard (see 3.7.3 and ~~3.7.4~~ 4.5);
d) rooms used for medical purposes;
e) ~~commercial and industrial applications where only low pressure fuel gas is used for appliances e.g. for cooking, water heating and similar uses, where the installation is compliant with relevant gas codes;~~ [2]
e) domestic premises;
f) where a hazard may arise due to the but the principles may be used IEC 60079-10-2).

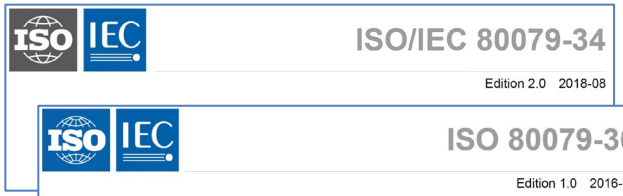
Industrial applications of any kind are not exempted from the scope of this standard. However, the assessment in accordance with this standard might result in a non-hazardous area classification. See also new Subclause 5.3.2.

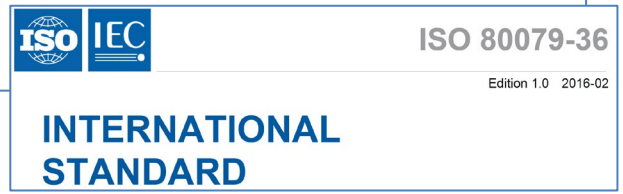
NOTE Additional guidance on hybrid mixtures is provided in Annex I.

Flammable mists may form or be present at the same time as flammable vapour. In such case

TC 31 - Publications







Ex Standards - Stages for preparation of a new standard

	Stages	Action	Documents
1	Preliminary (optional)	Preliminary work item added to the work programme	PWI
2	Proposal	Proposal to start a new project comes from NC, TC, SMB, liaison org.	NP → Vote → RVN
3	Preparatory	Preparation of Working Draft within the working group (WD)	WD — Internal to WG, not circulated
4	Committee	Working draft circulated as Committee Draft (CD)	CD → Comments → CC
5	Enquiry	When mature, the CD is circulated as a Committee Draft for Vote (CDV)	CDV → Vote + Comments → RVC
6	Approval	Final Draft International Standard prepared from approved CDV and NCs comments (FDIS)	FDIS → Vote → RVD
7	Publication	IEC publishes International Standard (IS)	IS

Preliminary **W**ork **I**tem

New work item **P**roposal

Result of **V**oting on **N**ew work item proposal

Working **D**raft (internal to the WG)

Committee **D**raft

Compilation of **C**omments

Committee **D**raft for **V**ote

Result of **V**oting on **C**ommittee draft for vote

Final **D**raft **I**nternational **S**tandard

Report of **V**oting on final **D**raft international standard

International **S**tandard

Ex standards - Overview & Numbering system (Part 1)

Structure:

- 60079-series: IEC-standards for electrical equipment
- 80079-series: ISO/IEC-standards of SC 31M for non-electrical equipment
- No number is used twice!

- 60079-0: General requirements
- 60079-1: Flameproof enclosure “d”
- 60079-1-1: MESG-apparatus (→ part 20-1)
- 60079-2: Pressurization “p”
- 60079-3: Spark test apparatus (→ part 11)
- 60079-4: Ignition temperature(→ part 20-1)
- 60079-5: Powder filling “q”
- 60079-6: Liquid (old: Oil) immersion “o”
- 60079-7: Increased safety “e”
- 60079-8: Classification acc. surface temperature (→ part 0)
- 60079-9: Marking of electrical equipment (→ part 0)
- 60079-10-1: Area classification for gas
- 60079-10-2: Area classification for dust
- 60079-11: Intrinsic safety “I”
- 60079-12: Classification of gases (→ part 20-1)
- 60079-13: Pressurized rooms “p”
- 60079-14: Electrical installations design, selection and installation of equipment including initial inspection
- 60079-15: Type of Protection “n”
- 60079-16: Artificial ventilation for the protection of analyzer
- 60079-17: Electrical installations inspection and maintenance
- 60079-18: Encapsulation “m”
- 60079-19: Equipment repair, overhaul and reclamation
- 60079-20: Characteristic of gases (→ part 20-1)
- 80079-20-1: Classification and characteristic of gases
- 80079-20-2: Classification of dusts
- 60079-21:
- 60079-22: planned for caplights (→ part 35)
- 60079-23:
- 60079-24: planned for gas sensors (→ part 29)
- 60079-25: Intrinsically safe systems
- 60079-26: Separation elements or combined LoP
- 60079-27: Intrinsically safe field bus (FISKO)
- 60079-28: Optical radiation “op”
- 60079-29-1 to -4: Requirements for gas sensors
- 60079-30-1 and -2: Requirements for trace heating

Ex standards - Overview & Numbering system (Part 2)

- 60079-31: Dust protection by enclosure “t”
- 60079-32-1 and -2: Electrostatics
- 60079-33: Special protection “s”
- 80079-34: Quality systems for equipment manufacture
- 60079-35-1 und -2: Caplights
- 80079-36: Basic requirements non-elec. equipment “h”
- 80079-37: Non-elec. Type of Protections (“c”, “b” und “k”)
- 80079-38: Requirements for mining equipment
- 60079-39: Intrinsic safety – Power-”I”
- 60079-40: Requirements for process sealing
- *80079-41: Reciprocating internal combustion engines*
- 60079-42: Safety devices - control of potential ignition source
- 60079-43: Equipment in adverse service conditions
- *60079-44: Personal competence (“IECEx OD504”)*
- *60079-45: Electrical ignition systems for internal combustion engines*
- 60079-46: Equipment assemblies
- 60079-47: 2-wire intrinsically safe ethernet (2-WISE)
- 60079-48: Portable electronic equipment
- 80079-49: Flame arresters
- 80079-50: Explosion venting devices

Further TC 31 standards

- 62990-1: Workplace atmospheres - Part 1: Gas detectors - Performance requirements of detectors for toxic gases
- 62990-2: Workplace atmospheres - Part 2: Gas detectors - Selection, installation, use and maintenance of detectors for toxic gases and vapours
- 62990-3: Workplace atmospheres – Part 3: Gas detectors - Electrical apparatus for the detection and measurement of oxygen - Performance requirements and test methods

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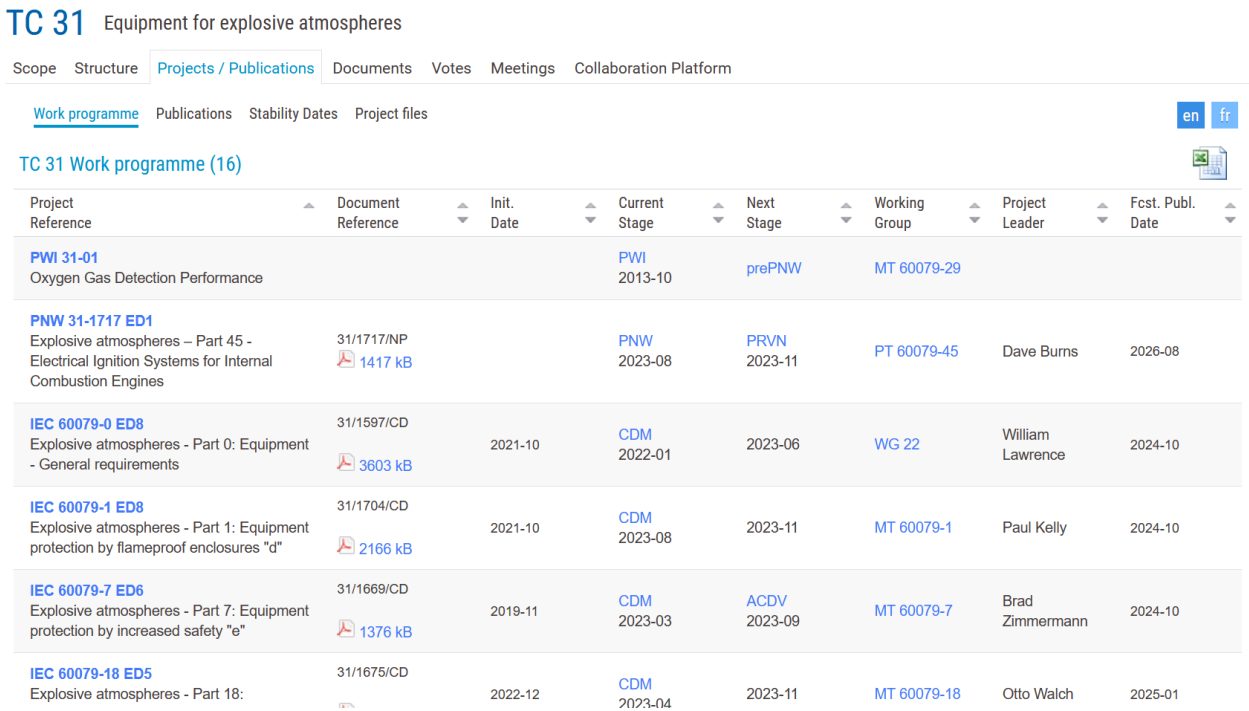
- IEC TC31 GWP - Good Working Practice
- IEC SC31J-SD-001:Ed1/2021-03 - Background to flameproof cable gland requirements in IEC 60079-14

Ex standards - Dashboard



TC 31 Equipment for explosive atmospheres

Scope | Structure | Projects / Publications | Documents | Votes | Meetings | Collaboration Platform

Work programme | Publications | Stability Dates | Project files

en | fr

TC 31 Work programme (16)

Project Reference	Document Reference	Init. Date	Current Stage	Next Stage	Working Group	Project Leader	Fcst. Publ. Date
PWI 31-01 Oxygen Gas Detection Performance			PWI 2013-10	prePNW	MT 60079-29		
PNW 31-1717 ED1 Explosive atmospheres – Part 45 - Electrical Ignition Systems for Internal Combustion Engines	31/1717/NP 1417 kB		PNW 2023-08	PRVN 2023-11	PT 60079-45	Dave Burns	2026-08
IEC 60079-0 ED8 Explosive atmospheres - Part 0: Equipment - General requirements	31/1597/CD 3603 kB	2021-10	CDM 2022-01	2023-06	WG 22	William Lawrence	2024-10
IEC 60079-1 ED8 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"	31/1704/CD 2166 kB	2021-10	CDM 2023-08	2023-11	MT 60079-1	Paul Kelly	2024-10
IEC 60079-7 ED6 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"	31/1669/CD 1376 kB	2019-11	CDM 2023-03	ACDV 2023-09	MT 60079-7	Brad Zimmermann	2024-10
IEC 60079-18 ED5 Explosive atmospheres - Part 18:	31/1675/CD	2022-12	CDM 2023-04	2023-11	MT 60079-18	Otto Walch	2025-01

- **http://www.iec.ch/tc31**
- **All website lists are dynamic information**

IEC TC 31 publications of the last 12 months

Number	Ed.	Date	Title
IEC 60079-25:2020/COR2:2022	3.0	2022-11-29	Corrigendum 2 - Explosive atmospheres - Part 25: Intrinsically safe electrical systems
IEC 60079-11:2023	7.0	2023-01-13	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-11:2023/COR1:2023	7.0	2023-06-27	Corrigendum 1 - Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

IEC TC 31 publications close to completion (CDV & FDIS)

Document Number	Date of circulation	Title
31M/173/CDV	2022-09	ISO/IEC 80079-49 ED1 Flame arresters — Performance requirements, test methods and limits for use
31/1636/CDV	2022-11	IEC 60079-2 ED7 Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure “p”
31/1716/DTS	2023-07	IEC TS 60079-44 ED1 Explosive atmospheres - Part 44 - Personal Competence
31J/335/CDV	2023-07	IEC 60079-14 ED6 Explosive atmospheres – Part 14: Electrical installation design, selection and installation of equipment, including initial inspection
31J/345/FDIS	2023-07	IEC 60079-17 ED6 Explosive atmospheres - Part 17: Electrical installations inspection and maintenance
31J/347/DTS	2023-07	IEC TS 60079-48 ED1 Explosive atmospheres - Part 48 - Portable or Personal Electronic Equipment – Guide for the use of equipment without a certificate for use in Hazardous Areas

In maintenance are:

- IEC 60079-0
- IEC 60079-1
- IEC 60079-7
- …

- “Specific Conditons of Use”
- “Basic Safety Publication” (WG54)

Hydrogen Technologies - Activities

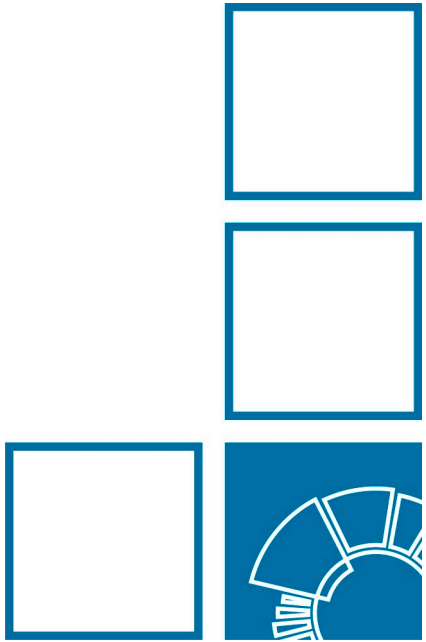
IECEx ExMC WG 19 - Application of IECEx to the Hydrogen Economy
Scope: […] integrating Standards (including ISO

ISO TC 197 - Hydrog Technologies
Scope: Standardization the field of systems an devices for the produc storage, transport, measurement and use hydrogen

IECEx certification schemes covering Equipment, Services and Competence of persons have, since commenced, covering these elements when associated with areas where Hydrogen is generated, stored, transported or used, along with other flammable gases and vapours. Therefore, IECEx is well equipped to issue International IECEx Certifications covering Equipment, services and competence according to the ISO and IEC series of standards.

IEC TC 31 AG 59 - rogen Advisory Group
e: To coordinate input TC 31 and its ommittees to other ant technical mittees on the topic of ogen

international standards regarding fuel cell (FC) technologies for all FC types and various associated applications […]



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