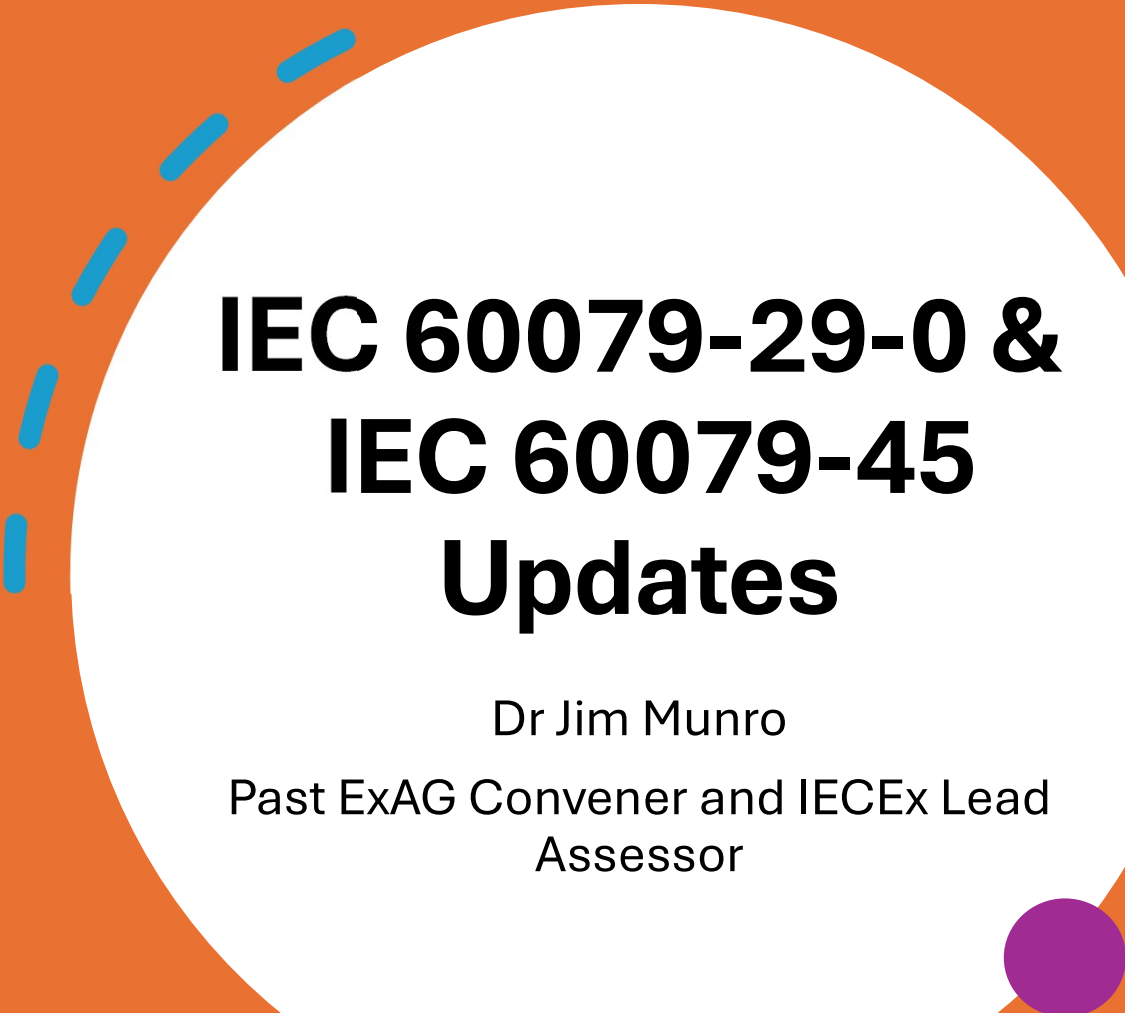




# **IEC 60079-29-0 & IEC 60079-45 Updates**

Dr Jim Munro

Past ExAG Convener and IECEx Lead  
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# Scope

The presentation will cover:

1. The new consolidated standard: IEC 60079-29-0 Explosive atmospheres - Part 29-0: Gas detection equipment - General requirements and test methods
2. The new standard: IEC 60079-45 Explosive atmospheres - Part 45: Electrical ignition systems for internal combustion engines
3. In time permits one or two other standards with significant changes

IEC 60079-29-0

New number

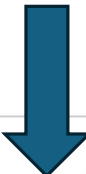


IEC 60079-29-0

Edition 1.0 2025-11

INTERNATIONAL  
STANDARD

“Gas detection equipment”  
replaces “Gas detectors”



Explosive atmospheres -  
Part 29-0: Gas detection equipment - General requirements and test methods

---

IEC 60079-29-0

## One standard now covers all types of explosive atmosphere gas detection

**FL**

### Flammable gases

---

Group I — mines susceptible to firedamp

Group II — locations other than firedamp mines

Open path — integrated concentration over a path

**O<sub>2</sub>**

### Oxygen

---

Deficiency or enrichment detection

Inertisation measuring function

Alarm or other protective output

**TX**

### Toxic gases

---

Safety monitoring

Open-path toxic detection

---

| Type                                               | Description                                                                                | Comments                            |
|----------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------|
| "FL" intended for the detection of flammable gases |                                                                                            |                                     |
| FL-Group I                                         | In mines susceptible to firedamp                                                           | Supersedes<br>IEC 60079-29-1        |
| FL-Group II                                        | In locations other than mines susceptible to firedamp                                      |                                     |
| FL-OP                                              | Open path gas detection equipment for flammable gases                                      | Supersedes<br>IEC 60079-29-4        |
| "O2" intended for the detection of oxygen          |                                                                                            |                                     |
| O2-DE                                              | Detection of oxygen deficiency or oxygen enrichment                                        | Comes from draft of new<br>standard |
| O2-IN                                              | Inertisation as measuring function for explosion protection                                |                                     |
| "TX" intended for the detection of toxic gases     |                                                                                            |                                     |
| TX-SM                                              | Detection in areas for safety monitoring applications and typically using alarm signalling | Supersedes part of<br>IEC 62990-1   |
| TX-OP                                              | Open path gas detection equipment for toxic gases                                          | New                                 |

# Similar table in TCD

| Type                                                      | Description                                                                                | In scope (Y/N) | Comments |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------|----------|
| <b>"FL" intended for the detection of flammable gases</b> |                                                                                            |                |          |
| FL-Group I                                                | In mines susceptible to firedamp                                                           |                |          |
| FL-Group II                                               | In locations other than mines susceptible to firedamp                                      |                |          |
| FL-OP                                                     | Open path gas detection equipment for flammable gases                                      |                |          |
| <b>"O2" intended for the detection of oxygen</b>          |                                                                                            |                |          |
| O2-DE                                                     | Detection of oxygen deficiency or oxygen enrichment                                        |                |          |
| O2-IN                                                     | Inertisation as measuring function for explosion protection                                |                |          |
| <b>"TX" intended for the detection of toxic gases</b>     |                                                                                            |                |          |
| TX-SM                                                     | Detection in areas for safety monitoring applications and typically using alarm signalling |                |          |
| TX-OP                                                     | Open path gas detection equipment for toxic gases                                          |                |          |

# IEC TC31-SD- 001:Ed1/2025- 11 Supporting document

- Similar to table of significance of changes in standards with a change of edition.
- Found in TC 31 dashboard
- Documents
- Supporting documents



## TC 31 Equipment for explosive atmospheres

[Scope](#) [Structure](#) [Projects / Publications](#) [Documents](#) [Votes](#) [Meetings](#) [Collaboration Platform](#)

Working Documents Documents of interest to [Supporting Documents](#)

[Mr Jim Munro \(au-ji-mu\)](#)

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*Documents available in this area are supporting documents provided by the committee. The IEC is not liable for the content of these documents.*

### TC 31 Supporting Documents

| Title, description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Downloads                                                                                    | Created    | Publication reference |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|------------|-----------------------|
| <b>Good Working Practice Table 2</b><br>Blank table (referred to in Annex A) which will be useful to Project Leaders in preparing drafts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  14 kB    | 2019-02-14 |                       |
| <b>Good Working Practice Table 1</b><br>Blank table (referred to in 1.5) which will be useful to Project Leaders in preparing drafts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  15 kB    | 2019-02-14 |                       |
| <b>Supporting files for IEC 60079-29-0</b><br>This is a supporting document to provide guidance for testing and certification of gas detection equipment performance to IEC 60079-29-0:2025. The document provides information for manufacturers and certification bodies in order to consider the significance of changes to the previously published gas detection equipment performance standards. The comparison tables provide a means to demonstrate potential compliance of existing certified gas detection equipment. The guidance addresses the likely need for re-assessment and testing against each of the requirements of IEC 60079-29-0:2025 |  190 kB | 2025-11-19 |                       |



## **IEC TC31-SD-001:Ed1/2025-11**

### **Significance of changes between IEC 60079-29-0 and previously published gas detection equipment performance standards**

#### **1 Introduction**

This is a supporting document to provide guidance for testing and certification of gas detection equipment performance to IEC 60079-29-0:2025. The document provides information for manufacturers and certification bodies in order to consider the significance of changes to the previously published gas detection equipment performance standards. The comparison tables provide a means to demonstrate potential compliance of existing certified gas detection equipment. The guidance addresses the likely need for re-assessment and testing against each of the requirements of IEC 60079-29-0:2025.



# Extracts

## 2 Comparison Tables

### 2.1 The significance of changes between IEC 60079-29-0, Edition 1 (2025) and IEC 60079-29-1, Edition 2.1 (2020):

| Chapter of IEC 60079-29-0 | Chapter of IEC 60079-29-1 Ed. 2.1 | Title                | Verdict for IEC 60079-29-0                                                                                                                   |
|---------------------------|-----------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 4                         | 4                                 | General requirements | Requirement differences are deemed insignificant with exception of Clauses 4.3 (Marking) and 4.4 (Instructions) which require re-assessment. |
| 5.4.2                     | 5.4.2                             | Unpowered storage    | Re-assessment is required as preconditioning for 5.4.4 - 5.4.36 testing.                                                                     |
| 5.4.3                     | 5.4.12                            | Vibration            | Re-assessment is required as preconditioning for 5.4.4 - 5.4.36 testing excluding 5.4.21.                                                    |
| 5.4.4                     | 5.4.13                            | Drop test            | No re-assessment is required due to minor or editorial changes.                                                                              |
| 5.4.5                     | 5.4.22                            | Calibration kit      | No re-assessment is required due to minor or editorial changes.                                                                              |

### 2.2 The significance of changes between IEC 60079-29-0, Edition 1 (2025) and IEC 60079-29-4 Edition 1 (2010):

| Chapter of IEC 60079-29-0 | Chapter of IEC 60079-29-4 Ed. 1 | Title                | Verdict for IEC 60079-29-0                                                                                                                   |
|---------------------------|---------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 4                         | 4                               | General requirements | Requirement differences are deemed insignificant with exception of Clauses 4.3 (Marking) and 4.4 (Instructions) which require re-assessment. |
| 5.4.2                     | 5.4.2                           | Unpowered storage    | Re-assessment is required as preconditioning for 5.4.4 - 5.4.36 testing.                                                                     |
| 5.4.3                     | 5.4.8                           | Vibration            | Re-assessment is required as preconditioning for 5.4.4 - 5.4.36 testing excluding 5.4.21.                                                    |
| 5.4.4                     | 5.4.9                           | Drop test            | No re-assessment is required due to minor or editorial changes.                                                                              |
| 5.4.5                     | n/a                             | Calibration kit      | Re-assessment is required for verification of acceptance criteria.                                                                           |

NOTE: Re-assessment may not require re-testing to demonstrate compliance.

IEC 60079-45



IEC 60079-45

Edition 1.0 2025-08

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Explosive atmospheres -**

**Part 45: Electrical ignition systems for internal combustion engines**

**Atmosphères explosives -**

**Partie 45: Systèmes d'allumage électrique pour les moteurs à combustion interne**

IEC 60079-45

# A snapshot

EPL

**Gc**

SECONDARY VOLTAGE

**≤ 60 kV**

GAS GROUPS

**IIA • IIB • IIB+H<sub>2</sub>**

APPLIES TO

**Electrical ignition systems or their components on spark-ignited reciprocating internal-combustion engines.**

**Representative applications**

- 01 Gas compressors**
- 02 Electric generators**
- 03 Forklift trucks**
- 04 Pumps**

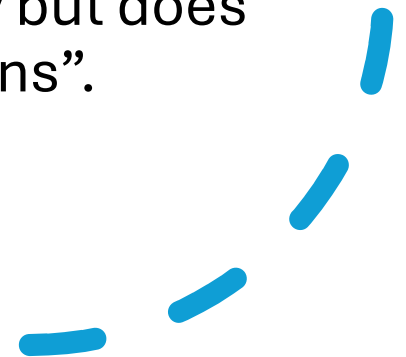
Stationary in operation or mobile machinery where the engine can be an ignition source.

# Key points

Standard also requires compliance with

- IEC 60079-0 *General Requirements*
- ISO/IEC 60079-41 *Reciprocating internal combustion engines*– not yet published (at FDIS)

Standard is primarily mandatory but does contain a few “shoulds” and “cans”.



# Tests

|                                                                                                             |    |
|-------------------------------------------------------------------------------------------------------------|----|
| 12 Test procedures.....                                                                                     | 22 |
| 12.1 General .....                                                                                          | 22 |
| 12.2 Abrasion test for flexible secondary leads .....                                                       | 23 |
| 12.2.1 General.....                                                                                         | 23 |
| 12.2.2 Abrasive wheel test .....                                                                            | 23 |
| 12.2.3 Emery cloth abrasion test .....                                                                      | 24 |
| 12.3 Ignition coils, extensions or non-flexible secondary leads elevated<br>temperature exposure test ..... | 25 |
| 12.4 Chemical compatibility .....                                                                           | 25 |
| 12.4.1 General.....                                                                                         | 25 |
| 12.4.2 Chemical compatibility for non-flexible leads and equipment.....                                     | 26 |
| 12.4.3 Chemical compatibility for flexible leads .....                                                      | 26 |
| 12.5 Vibration test .....                                                                                   | 27 |

# Tests (continued)

|                                                                                  |    |
|----------------------------------------------------------------------------------|----|
| 12.6 Shielded secondary system tests .....                                       | 28 |
| 12.6.1 General.....                                                              | 28 |
| 12.6.2 Explosion test exemption for metallic flexible leads .....                | 29 |
| 12.7 Spark plug gas tightness test .....                                         | 29 |
| 12.7.1 Spark plug gas tightness test (primary test) .....                        | 29 |
| 12.7.2 Spark plug gas tightness test (alternate test) .....                      | 30 |
| 12.8 Flashover tests .....                                                       | 30 |
| 12.8.1 General.....                                                              | 30 |
| 12.8.2 Rigid secondary lead test configuration .....                             | 31 |
| 12.8.3 Flexible lead test configurations .....                                   | 32 |
| 12.9 Flexible Secondary lead bending and dielectric voltage withstand tests..... | 33 |
| 12.10 Spark prevention test .....                                                | 34 |
| 12.11 Primary and secondary lead terminations pull test .....                    | 35 |
| 12.12 Flexible secondary lead insulation cut test.....                           | 35 |
| 12.13 Flexible secondary lead insulation pull test. ....                         | 36 |

# Two other standards with significant changes

## IEC 60079-0 Edition 8.0

### General requirements

- Table of significance of changes covers nearly 7 pages
- All equipment now to be marked with the temperature range

## IEC 60079-28 Edition 3.0

### Optical radiation

- Ignition tests removed
- Will impact on how we define scope