**INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC) SYSTEM FOR CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT FOR USE IN EXPLOSIVE ATMOSPHERES (IECEx SYSTEM)**

**Title: Special Assessment for ExVeritas, North America LLC USA as an Additional Testing Facility (ATF) operating under** **ExVeritas ExTL Wrexham, UK.**

**Circulation to: ExMC – IECEx Management Committee**

**INTRODUCTION**

The IECEx Secretariat has received an application from ExVeritas ExTL, Wrexham, UK, under the IECEx Additional Testing Facilities (ATF) arrangements.

In accordance with IECEx 02 the IECEx Secretariat arranged for special assessment to be performed by an IECEx Expert Assessor. The special assessment is treated as an extension of scope for ExVeritas ExTL Wrexham, UK, to include the new ATF location, in the USA.

***This document is hereby submitted for ExMC approval via correspondence using the IECEx on-line voting system.  ExMC Members are requested to submit their vote via the IECEx On-line*** [***Ballot System***](https://www.iecex.com/ballot) ***by the closing date 2024 04 05***

***Please refer to OD 050 for guidance on the “IECEx On-line voting system.”***

**IECEx Secretariat**



IEC System for certification to standards relating to equipment for use in Explosive Atmospheres (IECEx System)

IECEx Assessment Report Form, F-003

IECEx assessment report form for use by IECEx assessment teams to report assessments conducted according to the relevant IECEx assessment procedures of:

Operational Document IECEx OD 003-2 for the Certified Equipment Scheme

Operational Document IECEx OD 316-\* for the Certified Service Facility Scheme

Operational Document IECEx OD 422 for the IECEx Conformity Mark Licensing Scheme

Operational Document IECEx OD 501 for the Personnel Competence Scheme

IECEx ATF assessment report for ExVeritas Limited

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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# Assessment information

## Type of body covered by this assessment:

|  |  |
| --- | --- |
| ExCB for IECEx Certified Equipment Scheme | [ ]  |
| ExTL for IECEx Certified Equipment Scheme | [ ]  |
| ATF for IECEx Certified Equipment Scheme | [x]  |
| ExCB for IECEx Certified Service Facilities Scheme | [ ]  |
| ExCB for IECEx Conformity Mark Licensing System | [ ]  |
| ExCB for IECEx Certification of Personnel Competency Scheme | [ ]  |

NOTE 1 ExCB - IECEx Certification Body

NOTE 2 ExTL - IECEx Testing Laboratory

 NOTE 3 ATF - Additional Testing Facility

## Type of assessment:

|  |  |
| --- | --- |
| Pre-assessment for candidate body | [ ]  |
| Initial assessment for candidate body | [x]  |
| Surveillance  | [ ]  |
| Re-assessment  | [ ]  |
| Scope extension | [ ]  |

## Details of body

### Country

IECEx Member Country United Kingdom (ATF geographic location in United States, operating under the ExVeritas ExTL Wrexham)

### Name of body

ExVeritas Group, with ExVeritas Ltd. UK as supervising ExTL and ExVeritas North America LLC USA as ATF.

### Name and title of nominated principal contact

|  |  |  |
| --- | --- | --- |
| Name | Title | E-mail address |
| Luke Ricks | Managing Director | l.ricks@exveritas.com |

## Assessment information

### Members of the assessment team

|  |  |
| --- | --- |
| Name  | Role  |
| Christian Roder | IECEx Expert Assessor |

### Place(s) of assessment

|  |  |
| --- | --- |
| ExVeritas North America LLC | 3000 Forest LnGarland, TX 75042United States of America |

### Assessment date(s)

27th and 28th of June 2023 onsite.

## Application information and background information on the assessment

The ExVeritas North America LLC, Garland, Texas, USA is assessed as ATF operating under ExVeritas Limited ExTL in Wrexham, United Kingdom.

## Scopes

### ExCB scope for equipment certification scheme

N/A

### ExTL scope

N/A

### ATF Scope

The scope for the ATF is shown in Annex A. The scope was changed compared to F-010 based on communication with the assessment team and the IECEx secretariat. The small component ignition test was removed and reference pressure and flame transmission testing were added to the scope.

### ExCB scope for Service Facilities Scheme

N/A

## ExCB scope for Conformity Mark Licensing Scheme

N/A

## ExCB scope for IECEx Personnel Competence Scheme

N/A

# Common information

## Legal entity of body

ExVeritas North America LLC (Applicant ATF) is an incorporated entity within the state of Texas, USA with operations carried out at 3000 Forest Ln. Suite 400 Garland, TX 75042.

ExVeritas North America LLC is a 51% owned subsidiary of ExVeritas Limited (Applicant ATF) who are a qualified IECEx ExCB as well as ExTL. The Applicant ATF wholly operates in accordance with the Supervising ExTL’s quality management system which holds ISO 17025 accreditation through UKAS in addition to being qualified by IECEx. The ISO/IEC 17025 accreditation through OSHA is requested, but not performed due to a corona backlog. All responsibilities for applying the rules of the ExTL quality system to the ATF including responsibility for testing is held by the Supervising ExTL.

## Financial support

The start-up costs for ExVeritas LLC were supported by the ExVeritas Group UK. The ExVeritas Group was formed by Sean Clarke and Stephen D’Henin in 2010 and is a UK Limited Company with a 50/50 shareholding. Since the business for ExVeritas LLC is growing, the ongoing revenue generated by partnership and clients ensure a self funding operation.

## History

ExVeritas Limited is a certification body and technical service provider in explosive atmosphere safety based in the UK (Wales). ExVeritas have been issuing certification since 2010 (13 years) and have been IECEx accredited for 8 years.

ExVeritas UK is an IECEx Certification Body and an IECEx Testing Laboratory with full UKAS Accreditation. ExVeritas UK has 15 Certification Engineers with an ‘average’ of over 15 years Ex Experience each. ExVeritas run bespoke ‘Certification management System’ (CMS) which was designed and owned by ExVeritas. It is cloud based and manages customers, applications, quotes, projects and certificates and is available with a customer view and a staff view.

ExVeritas Limited carry 10 Million (UK GBP) Product Liability and Employer Insurance and 2 Million (UK GBP) Professional Indemnity Insurance.

 Accreditation

* UKCA National certification Body 2585 (UKCA)
* UK IECEx Certification Body (Products and Service Centres) and IECEx Test Laboratory
* Four separate UKAS accreditation for Product Certification, Quality System Certification, Test Laboratory and Inspection Body (No. 8613)
* Ex Training (CompEx Licensed) Centres in the UK, Ireland, Malta and Dallas
* ExVeritas Limited is a U.S. Coast Guard accepted independent laboratory for testing electrical equipment for hazardous locations.

The ExVeritas LLC USA was founded in April 2018 as a subsidiary. The company acquired new costumers and the business grows. Hence a new facility was rented in 2020 with space for a laboratory. At the time of the assessment 5 people are working at the site.

ExVeritas also has Technical Associates in subsidiary businesses in Denmark (ExVeritas ApS), and Brazil (PTL).

## Documentation

### Quality manual

ExVeritas LLC USA carries out testing activities under the same quality management system of the supervising ExTL. The top level quality document is the General Quality Manual QM-001 and at the time of the assessment this was at Issue V5.0 dated 26/03/2021. It incorporates the quality policy, the customer service policy, and the health and safety policy. Sitting under it are the following manuals:

QM-001.1 – Laboratory Quality Manual (V9.0, 27/06/2022

The Quality Manual was found to meet the requirements of the IECEx and ISO/IEC 17025.

### Procedures

The above manuals are supported by detailed quality procedures, forms and work instructions.

For the ATF the same procedures apply as for the Accepted Ex Test Lab. The procedures are numbered from QP-001 through to QP-020.

The documentation was checked and found to meet the IECEx System requirements.

### Work instructions

The IECEx ATF follows work instructions created and maintained by ExVeritas as Supervising ExTL. At the time of the assessment 16 work instructions were relevant for the ATF. For testing there is a comprehensive range of test methods and test forms. The test forms cover all work done for Ex testing. They were reviewed and found to meet IECEx requirements.

### Records (including test records where relevant)

Control of records is addressed in Quality Procedure for Control of Records QP-004 Records, maintenance and retention, V1 dated 30/10/2012.

Test records are either created electronically or in hard copy. In case of generating a hard copy, the version is also scanned and retained in electronic form. The electronic copy is the official copy.

Electronic records are maintained on a SharePoint location and are backed up real time in two other locations. One of these backups is done through the use of a redundant RAID enabled network drive and are protected against unauthorized access and amendment through the use of a secure network and document passwords (as appropriate). The procedures state that the retention period is specified for each record on EIR-013. At present EIR-013 shows all records as being stored 'Permanently'.

The records storage system was found to meet the requirements of IECEx OD 207 Guidance on the Retention of Records.

### Document change control

Record EIR-013 – Records and Documents List contains all the records controlled through the total management system.

The ExCB procedure covering document change control is in Clause 7.3 of the Laboratory Quality Manual QM-001.1 V9 and for the control of DATA the procedure is QP-003 V2.

Both systems have the same approach to document change control.

The FO-006 addresses system change notification and makes provision for employees to propose changes to quality documents.

Only the electronic copy of the quality documents is the controlled copy and each document contains a statement that printed copies are not controlled documents.

All documents needed for the operation of ATF in the IECEx System Scheme 02 are managed by the supervising ExTL. The document change control system meets the requirements of IECEx.

## Confidentiality

Confidentiality for the ATF is addressed in the Laboratory Quality Manual also addresses confidentiality and conflict of interest in Section 7.

All employees commit to confidentiality when they sign their terms and conditions of employment. An example of such a signed agreement was viewed. In addition, all employees sign a ‘Project Acceptance Form’ on CMS detailing Confidentiality and Impartiality.

For the Governing Body refer to the IECEx CB and ExTL ExVeritas Ltd. UK.

The above was found to meet the requirements for IECEx.

## Communication with public and customers (Hard copy and Electronic)

ExVeritas have produced various materials to publicise the operation such as a wall chart with ATEX and IEC guidance. The website <https://www.exveritas.com>/ contains all necessary information.

## Recognitions and agreements

ExVeritas Ltd. in the UK is:

* an approval body for the UKCA Mark,
* accredited to ISO 17025 and 17065 by UKAS,
* a IECEx Certification Body & Test Laboratory.

The ExVeritas LLC in Dallas USA is working under the above scope of ExVeritas Ltd. Additional Ex Veritas LLC has an agreement with MET Labs in the USA for North American listing since 2018.

## Internal audit

Requirements for internal audit are addressed in the Laboratory Quality Manual Clause 7.6.7. Internal audits are in procedure QP-010 Internal Audit V4. The audit plan is addressed in EIR-008b - Technical Internal Audit Plan. The audit plan covers the requirements of the internal Quality Management and the ISO/IEC 17025 requirements.

The last internal audit at the ATF took place in 22nd of June 2023, the report was not finished until after the assessment, hence the last internal audit from September 2021 was reviewed. The audit covered IECEx OD 018 and ISO/IEC 17025 requirements. The audit didn’t raise any issues.

The internal audits report has been reviewed and found complying the requirements of IECEx.

## Management review

Requirements for management review are addressed in the Certification Body Quality Manual Clause 7.5.5 and in procedure QP-CB-015 – Management Review.

Meetings for management review of the ExCB are held separately to the meeting for the ExTL.

The last management meeting for the ExCB was held on 14th of March 2023 and for the ExTL was held on 11th of February 2023 the report was reviewed by the assessment team. The meeting was attended by the top three managers of ExVeritas.

The management review was found to meet the requirements for IECEx.

## Contracting, subcontracting and witness testing

### Contracting

Not applicable for ATF.

### Subcontracting

Not applicable for ATF.

### Off-site and Witness testing

Not applicable for ATF.

## Training and competence

Requirements for training and competence are addressed in the Laboratory Quality Manual QM-001.1 Clause 7.4.2 and procedure QP-014 – Competence Management. Personnel competence is shown in the record EIR-012. A newly recruited employee is supervised by qualified mentor until judged qualified to perform tests competently by themselves. All trainings will be managed in future through the new CMS web-based System, at the moment the records are stored in the QM-System.

A copy of the matrix is included in the site assessment report.

The system clearly indicates the competence of the ExTL and ATF staff, and their competency was verified by the assessment team as meeting the requirements of IECEx.

## Complaints and appeals (including appeals to IECEx)

ExVeritas Requirements for complaints are addressed in the Supervising Laboratory Quality Manual Clause 7.5.9 Complaints and appeals and in procedure QP-018 – Customers Complaints, Appeals and Feedback.

ExVeritas includes information about their customer's right of appeal to IECEx in their terms and conditions, and on their website.

The system was found to meet the requirements of IECEx.

## Impartiality

Requirements for Impartiality are addressed in the Laboratory Quality Manual Clause 7.1. Impartiality and in procedure QP-006 – Impartiality Management.

The system was found to meet the requirements of IECEx.

## Active involvement in development of ExTAG Decision Sheets

Not applicable to ATF.

ExVeritas contribute to the development of Decision Sheet.

## Special facts to be noted

None other than those listed throughout the report.

## Supporting documentation

Copies of additional supporting information for this assessment have been provided to the applicant and the IECEx Secretariat. These are included in a site assessment report or provided separately and include:

* Details of issues raised and how these have been resolved
* Checklist for ISO/IEC 17025
* Completed Technical Capability Document (TCD)
* Photos of the facilities/tests witnessed are included in the above TCD
* Information on competencies

## Recommendations

Based on the assessment performed on 27th and 28th of June 2023, ExVeritas Dallas is recommended for acceptance in the IECEx scheme as:

* An ATF in the IECEx Certification Equipment Scheme, 02, operating under ExVeritas ExTL Wrexham

This is according to the scope of the standards listed in this document.

|  |
| --- |
| Christian Roder |
| IECEx Lead Assessor |

Date: 2024-02-19

# ATF for IECEx Certified Equipment Scheme

## Assessment references

### General references

1. IECEx02 IECEx Certified Equipment Scheme covering equipment for use in explosive atmospheres – Rules of Procedure
2. IECEx OD003-2 Assessment, surveillance assessment and re-assessment of ExCBs and ExTLs operating in the IECEx 02, IECEx Certified Equipment Scheme
3. ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories
4. IECEx OD 018 Harmonised check list for testing and calibration laboratories ISO/IEC 17025
5. IECEx TCD 60079, ISO 80079 Series and ISO 16852 Technical Capability Document
6. ExTAG decision sheets (DSs)
7. IECEx OD 202 IECEx Certified Equipment Scheme – IECEx Proficiency Testing Program

NOTE The latest editions of the above documents were applied, unless otherwise specified.

### Additional references applied for this assessment

1. IECEx OD280 - Guide to Certification of Non-electrical Equipment and Protective Systems

## Candidate ATF persons interviewed

|  |  |
| --- | --- |
| **Name** | **Position** |
| Luke Ricks | Managing Director |
| Matthew Brock | Certification engineer |
| Larry Ricks | Laboratory Technician |
| John Bunyard | Certification engineer |

## Associated ExTL

ExVeritas Limited, Unit 16-18, Abenbury Way. Wrexham Industrial Estate, Wrexham, LL13 9UZ, UK

## Organisation

### Names, titles and experience of the senior executives

|  |  |  |
| --- | --- | --- |
| **Name** | **Title** | **Experience (years)** |
| Luke Ricks | Managing Director ExVeritas LLC | 12 |
| Sean Clarke | Group CEO | 25 |
| Stephen D’Henin | Group CTO | 25 |

### Name, title and experience of the quality management representative

|  |  |  |
| --- | --- | --- |
|  **Name** | **Title** | **Experience (years)** |
| Suart Muir | Group Quality Manager | 6 (2 Ex) |
| Josh Draper | Laboratory Manager ExTL | 4 |

### Other employees in ATF activity

|  |  |  |
| --- | --- | --- |
| **Name** | **Title/responsibility** | **Experience in Ex (years)** |
| John Bunyard | Certification engineer | 2 |
| Matthew Brock | Certification engineer | 16 |
| Larry Ricks | Laboratory Technician | 4 |
| The testing of explosion protected equipment is performed by the certification engineers and the laboratory technician. |

## Organizational structure

See Annex C.

## Resources

ExVeritas LLC has an adequate number of staff for the current level of business and the requested scope. The staff are experienced in testing explosion protected equipment resp. in working at a laboratory. The demonstrated level of competence in evaluation and testing of Ex equipment, shows sufficient resources for the applied scope of the ATF. The competence of the staff was verified by review of their CVs, interviews and verified during testing. The testing of explosion protected equipment is performed by the certification engineers and the laboratory technician. The job descriptions have been reviewed and found to be satisfactory. The laboratory technician is also in charge for general tasks of the laboratory i.e.building test rigs, managing calibrations, etc.

The laboratory and office are in industrial units which provide an adequate environment for the work. The testing equipment is suitable for the range of tests carried out in house. All testing equipment, where range significantly affects accuracy and the reliability of the test, is calibrated. The equipment is subject to ongoing monitoring for due calibration and control before each use. Standards and reference materials are subject to ongoing checking in accordance with established procedures. Laboratory maintains lists of equipment, which include, among others: name and type of device, identification number, place of use. In addition, each measuring and testing device has a sticker with information about the status of calibration or with information about unfitness for use.

## Test reports issued

Number of test reports issued in the preceding two years for each type of test covered by the standards listed in the Scope.

|  |  |
| --- | --- |
| Type of test | Number of tests (2023) |
| Ex d (Ref Pressure and Non-transmission) | 3 |
| Purge (Leakage, purge time, etc) | 5 |
| Increased Safety (IP testing) | 4 |
| Encapsulation (exclusion) | 1 |
| Intrinsic Safety (Loosely specified components ie battery, diode derating, fuses) | 9 |
| Dust tight (protection by enclosure) | 2 |
| Non-Electrical Assessment and Test | 2 |

NOTE 1 Above include reports to IEC 60079-0 unless otherwise shown

## National accreditation

The national accreditation according ISO/IEC 17025 is currently requested at OSHA. Due to a backlog at OSHA the assessment has not taken place and is planned to be done in end of 2023 or beginning of 2024. After the accreditation is achieved, the regular surveillance by OSHA will be performed. Until; Accreditation is achieved ExVeritas, US, will be subject to an annual surveillance by the IECEx. The quality management systems at the ATF site is yearly audited by the ExTL staff regarding ISO/IEC 17025 requirements. Additional internal audits will be performed based on the several internal procedures.

## Calibration

The system for calibration of test equipment is addressed in Testing Laboratory procedures which were reviewed during the assessment and found to comply with ISO/IEC 17025 and IECEx requirements.

The equipment are managed through the Certification Management System (CMS). Most of the test equipment is sent out for calibration by an external calibration facility. These calibration facilities are UKAS or OSHA accredited or equivalent, depeding on the calibration service provider.

The Certification Management System, a selection of calibration certificates as well as calibration tags on the equipment were reviewed during the assessment and found to meet the requirements of IECEx. All equipment used for witnessed testing was found to be in calibration.

##  Tests witnessed during the assessment visit

The following tests were witnessed during the assessment visit:

| **Standard and edition** | **Clause number** | **Test** | **Comments** |
| --- | --- | --- | --- |
| **IEC 60079-0: 2017 General Requirements** | Clause 26.4.2 | Resistance to impact | Testing performed competently. |
|  | Clause 26.4.5 | IP 64 testing  | Testing performed competently. |
|  | Clause 26.5.1 | Testing of service and surface temperature  | Testing performed competently. |
| **IEC 60079-1: 2014 Flameproof enclosures "d"** | Clause 5 | Compliance of prototype or sample with documents  | Testing performed competently. |
|  | Clause 15.3 | Test for non-transmission of an internal ignition  | Testing performed competently. |
|  | Clause B.1.2 | Sintered metal elements - bubble test pore size | Testing performed competently additional photo equipment would be beneficial. |
| **IEC 60079-2: 2014 Pressurized enclosure "p"** | Clause 16.3 | Leakage test  | Testing performed competently. |
|  | Clause 16.4.2 | Purging test for pressurized enclosures with no internal source of release and filling procedure test for static pressurization  | Testing performed competently. |
| **IEC 60079-5: 2015 Increased Safety "q"** | Clause 5.1.1 | Overpressure test for a containment system with a limited release  | Testing performed competently. |
| **IEC 60079-11: 2011 Intrinsic Safety "i"** | Clause 10.5 | Determination of surface temperature of a cell  | Testing performed competently. |
| **IEC 60079-15: 2017 Type of protection "n"** | Clause 11.2.3 | Leakage tests on sealed devices Method I or II  | Testing performed competently additional photo would be beneficial. |
| **IEC 60079-18: 2014 Encapsulation "m"** | Clause 8.1.1 | Water absorption test  | Testing performed competently. |
|  | Clause 8.2.2 | Determination of surface temperature according 6.2.2  | Testing performed competently. |
| **IEC 80079-36: 2016 Non-electrical equipment Basic method and requirements** | Clause 8.4.6 | Resistance to chemical substances for Group I equipment | Testing performed competently. |
|  | Clause 8.4.8 | Surface resistance test of non-conductive parts of the equipment relevant for explosion prevention and protection | Testing performed competently. |

All results provided evidence of staff competence in performing above testing.

## Participation in IECEx Proficiency Testing Programs

Program: PTB Ex PT Scheme

|  |  |  |
| --- | --- | --- |
| **Year(s) of participation** | **IECEx Proficiency Testing program** | **General information about results** |
| N/A | N/A | N/A |

At the time of the assessment the ATF did not participate in the Proficiency Testing Program, due to the closed registration for the program. After clarification with the IECEx Secretariat and the PTP, the ATF is participating in the current proficiency testing programs Program "Explosion Pressure" (Test Round 2023) and Program "Connection and Junction Boxes" (Test Round 2023). Additionally, the supervising ExTL will perform an internal proficiency testing with the former test samples for the old test rounds.

## Comments (including issues found during assessment)

ExVeritas LLC Dallas has the necessary staff and quality system in place for their scope as an ATF. Few minor issues were identified during the assessment which were noted as potentially influential to the performance of testing and assessment. All issues were revised to the satisfaction of the assessment team, which included upgrading of certain test equipment and the updating of Work Instructions and now meet the requirements of the IECEx. Details are contained in Site Assessment Report.

# Annexes

1. Scope for IECEx Certified Equipment Scheme
	1. Current standards

| Number  | Title  | Comments |
| --- | --- | --- |
| IEC 60079-0 Edition 7.0 | Explosive atmospheres - Part 0: Equipment - General requirements  | Tests of EnclosureThermal TestsTorque Test for BushingsTesting of non-metallic enclosure or non-metallic parts of enclosuresThermal Endurance to Heat Thermal Endurance to Heat Resistance to chemical agents for Group I equipmentEarth continuitySurface resistance test of parts of enclosures of non-metallic materialsVerification of ratings of ventilating fansAlternative qualification of elastomeric sealing O-rings~~Transferred charge test~~ |
| IEC 60079-1Edition 7.0 | Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures “d” | Overpressure testReference pressure testFlame transmission testSintered metal elements - bubble test pore sizeSintered metal elements – DensitySintered metal elements - Open porosity and/or fluid permeabilityCable glands - Sealing testType tests for Ex blanking elements - Torque test |
| IEC 60079-2 Edition 6.0 | Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure “p” | Determining the maximum overpressure ratingMaximum overpressure testLeakage testPurging test for pressurized enclosures with no internal source of release and filling procedure test for static pressurizationPurging and dilution tests for a pressurized enclosure with an internal source of releaseVerification of minimum overpressureOverpressure test for a containment system with a limited release |
| IEC 60079-5Edition 4.0 | Explosive atmospheres - Part 5: Equipment protection by powder filling “q” | Overpressure test for a containment system with a limited releaseVerification of the degree of protection of the enclosureFlammability of materialsDielectric strength test of the filling materialMaximum temperatures |
| IEC 60079-6Edition 4.1 | Explosive atmospheres - Part 6: Equipment protection by liquid immersion “o” | Overpressure test on sealed enclosuresReduced pressure test on sealed enclosuresOverpressure test on unsealed enclosuresMaximum temperatureSwitching Tests |
| IEC 60079-7Edition 5.1 | Explosive atmospheres - Part 7: Equipment protection by increased safety "e" | Dielectric strength Dielectric strength Determination of starting current ratio IA/ IN and the time tEMeasuring instruments and instrument transformersTransformers other than instrument transformersVerification and tests for cells and batteries of Level of Protection “eb”General purpose connection and junction boxesTerminal insulating material tests |
| IEC 60079-11Edition 6.0 | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety “i” | Temperature testsDielectric strength testsDetermination of parameters of loosely specified componentsTests for cells and batteriesMechanical testsTransformer tests |
| IEC 60079-15Edition 5.0 | Explosive atmospheres – Part 15: Equipment protection by type of protection "n" | Tests for sealed devicesType test requirements for restricted-breathing enclosures |
| IEC 60079-18Edition 4.1 | Explosive atmospheres – Part 18: Equipment protection by encapsulation “m” | Water absorption testDielectric strength testMaximum temperatureThermal endurance to heatThermal endurance to coldCable pull testPressure test for Group I and Group II electrical equipmentTest for resettable thermal protective deviceSealing test for built-in protective devices |
| IEC 60079-31Edition 2.0 | Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t" | Type tests for dust exclusion by enclosuresImpact test for supplementary enclosuresPressure testIP testThermal tests |
| IS0 80079-36Edition 1.0 | Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres – Basic method and requirements | Determination of the maximum surface temperatureHot Surface Ignition TestTest for resistance to impactDrop testAdditional tests of non-metallic parts of the equipment relevant for explosion protectionThermal endurance to heatThermal endurance to coldResistance to chemical substances for Group I equipmentMechanical resistance testsSurface resistance test of non-conductive parts of the equipment relevant for explosion prevention and protectionThermal shock test |
| ISO 80079-37Edition 1.0 | 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” | Type tests for equipment with Type of Protection constructional safety “c”Type tests for equipment with Type of Protection control of ignition source “b”Function and accuracy check of the ignition protection systemType tests for equipment with Type of Protection liquid immersion “k”Increased pressure test on enclosed equipment having a sealed enclosure that contains static, or flowing protective liquidOverpressure test on enclosed equipment having a vented enclosure |

* 1. Superseded standards

Superseded standards are not to be added to Scope of ATF.

1. Overall Organisation Chart





1. Organisation Chart of ATF

