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

**TITLE: Reassessment and scope extension report for** **TÜV Rheinland Industrie Service GmbH an Accepted Ex Certification Body (ExCB) an Accepted Ex Testing Laboratory (ExTL) in the Equipment Scheme 02, and an Accepted ExCB in the** **IECEx Personnel Competence Scheme to include \*IEC/TS 60079-42, for ExTL only, within their scope.**

**Circulation to: Members of the IECEx Management Committee, ExMC**

**INTRODUCTION**

This document contains the Reassessment and scope extension report for, TÜV Rheinland Industrie Service GmbH an Accepted Ex Certification Body (ExCB) an Accepted Ex Testing Laboratory (ExTL) in the Equipment Scheme 02, and an Accepted ExCB in the IECEx Personnel Competence Scheme to include the following Standard within their ExTL scope.

|  |  |
| --- | --- |
| Number  | Title |
| IEC/TS 60079-42 Ed.1 | Explosive atmospheres- Electrical safety devices for the control of potential ignition sources for Ex-Equipment*\* This TS may be used for testing purposes but not for issuing an IECEx Certificate of Conformity* |

The report is hereby submitted for voting by the ExMC.

***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 2023 12 18***

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

**IECEx Secretariat**

|  |  |
| --- | --- |
| **IECEx Secretariat****Australia Square****Level 33,** **264 George Street****Sydney, NSW 2000****Australia** |  **Tel: +61 2 4628 4690** **Fax: +61 2 4625 3480**  **Email:** **info@iecex.com** |

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 ExCB/ExTL assessment report for

TÜV Rheinland Industrie Service GmbH

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

CONTENTS

[1 Assessment information 6](#_Toc109584278)

[1.1 Type of body covered by this assessment: 6](#_Toc109584279)

[1.2 Type of assessment: 6](#_Toc109584280)

[1.3 Details of body 6](#_Toc109584281)

[1.3.1 Country 6](#_Toc109584282)

[1.3.2 Name of body 6](#_Toc109584283)

[1.3.3 Name and title of nominated principal contact 6](#_Toc109584284)

[1.4 Assessment information 6](#_Toc109584285)

[1.4.1 Members of the assessment team 6](#_Toc109584286)

[1.4.2 Place(s) of assessment 6](#_Toc109584287)

[1.4.3 Assessment date(s) 6](#_Toc109584288)

[1.5 Application information and background information on the assessment 7](#_Toc109584289)

[1.6 Scopes 7](#_Toc109584290)

[1.6.1 ExCB scope for equipment certification scheme 7](#_Toc109584291)

[1.6.2 ExTL scope 7](#_Toc109584292)

[1.7 ExCB scope for IECEx Personnel Competence Scheme 7](#_Toc109584293)

[2 Common information 9](#_Toc109584294)

[2.1 Legal entity of body 9](#_Toc109584295)

[2.2 Financial support 9](#_Toc109584296)

[2.3 History 9](#_Toc109584297)

[2.4 Documentation 9](#_Toc109584298)

[2.4.1 Quality manual 9](#_Toc109584299)

[2.4.2 Procedures 9](#_Toc109584300)

[2.4.3 Work instructions 9](#_Toc109584301)

[2.4.4 Records (including test records where relevant) 10](#_Toc109584302)

[2.4.5 Document change control 10](#_Toc109584303)

[2.5 Confidentiality 10](#_Toc109584304)

[2.6 Communication with public and customers (Hard copy and Electronic) 10](#_Toc109584305)

[2.7 Recognitions and agreements 11](#_Toc109584306)

[2.8 Internal audit 11](#_Toc109584307)

[2.9 Management review 11](#_Toc109584308)

[2.10 Contracting, subcontracting and witness testing 11](#_Toc109584309)

[2.10.1 Contracting 11](#_Toc109584310)

[2.10.2 Subcontracting 11](#_Toc109584311)

[2.10.3 Off-site and Witness testing 12](#_Toc109584312)

[2.11 Training and competence 12](#_Toc109584313)

[2.12 Complaints and appeals (including appeals to IECEx) 12](#_Toc109584314)

[2.13 Impartiality 12](#_Toc109584315)

[2.14 Active involvement in development of Decision Sheets 13](#_Toc109584316)

[2.15 Special facts to be noted 13](#_Toc109584317)

[2.16 Supporting documentation 13](#_Toc109584318)

[2.17 Recommendations 13](#_Toc109584319)

[3 ExCB for IECEx Certified Equipment Scheme 14](#_Toc109584320)

[3.1 Assessment references 14](#_Toc109584321)

[3.1.1 General references 14](#_Toc109584322)

[3.1.2 Additional references applied for this assessment 14](#_Toc109584323)

[3.2 ExCB persons interviewed 14](#_Toc109584324)

[3.3 Associated ExTL 14](#_Toc109584325)

[3.4 Associated certification functions 15](#_Toc109584326)

[3.5 National marks and certificates 15](#_Toc109584327)

[3.6 Standards accepted 15](#_Toc109584328)

[3.7 National differences to IEC standards 15](#_Toc109584329)

[3.8 Organisation 15](#_Toc109584330)

[3.8.1 Names, titles and experience of the senior executives 15](#_Toc109584331)

[3.8.2 Name, title and experience of the quality management representative 15](#_Toc109584332)

[3.8.3 Name and title of signatories for certification 15](#_Toc109584333)

[3.8.4 Other employees in ExCB activity 15](#_Toc109584334)

[3.9 Organizational structure 16](#_Toc109584335)

[3.10 Indemnity insurance 16](#_Toc109584336)

[3.11 Resources 16](#_Toc109584337)

[3.12 Committees (such as governing or advisory boards) 16](#_Toc109584338)

[3.13 Certification operations 17](#_Toc109584339)

[3.13.1 National approval/certification methods 17](#_Toc109584340)

[3.13.2 Certification policy 17](#_Toc109584341)

[3.13.3 Application for certification 17](#_Toc109584342)

[3.13.4 Certification decision 17](#_Toc109584343)

[3.13.5 Suspension and cancellation of certificates 17](#_Toc109584344)

[3.14 Certificates issued 17](#_Toc109584345)

[3.15 National accreditation 19](#_Toc109584346)

[3.16 Assessment of manufacturers and issue of QARs 19](#_Toc109584347)

[3.17 Comments (including issues found during assessment) 20](#_Toc109584348)

[4 ExTL for IECEx Certified Equipment Scheme 20](#_Toc109584349)

[4.1 Assessment references 20](#_Toc109584350)

[4.1.1 General references 20](#_Toc109584351)

[4.1.2 Additional references applied for this assessment 20](#_Toc109584352)

[4.2 Candidate ExTL persons interviewed 20](#_Toc109584353)

[4.3 Associated ExCB 20](#_Toc109584354)

[4.4 Organisation 21](#_Toc109584355)

[4.4.1 Names, titles and experience of the senior executives 21](#_Toc109584356)

[4.4.2 Name, title and experience of the quality management representative 21](#_Toc109584357)

[4.4.3 Other employees in ExTL activity 21](#_Toc109584358)

[4.5 Organizational structure 22](#_Toc109584359)

[4.6 Resources 22](#_Toc109584360)

[4.7 Test reports issued 22](#_Toc109584361)

[4.8 National accreditation 24](#_Toc109584362)

[4.9 Calibration 24](#_Toc109584363)

[4.10 Tests witnessed during the assessment visit 25](#_Toc109584364)

[4.11 Participation in IECEx Proficiency Testing Programs 25](#_Toc109584365)

[4.12 Comments (including issues found during assessment) 25](#_Toc109584366)

[5 ATF for IECEx Certified Equipment Scheme 26](#_Toc109584367)

[6 ExCB for Certified Service Facilities Scheme 26](#_Toc109584368)

[7 IECEx Conformity Mark Licensing Scheme 26](#_Toc109584369)

[8 ExCB for IECEx Personnel Competence Scheme 26](#_Toc109584370)

[8.1 Assessment references 26](#_Toc109584371)

[8.3 Candidate ExCB persons interviewed 26](#_Toc109584372)

[8.4 National certificates 26](#_Toc109584373)

[8.5 Organisation 27](#_Toc109584374)

[8.5.1 Names, titles and experience of the senior executives 27](#_Toc109584375)

[8.5.2 Name, title and experience of the quality management representative 27](#_Toc109584376)

[8.5.3 Name and title of signatories for certification 27](#_Toc109584377)

[8.5.4 Other employees in ExCB activity 27](#_Toc109584378)

[8.6 Organizational Structure 27](#_Toc109584379)

[8.7 Indemnity insurance 27](#_Toc109584380)

[8.8 Resources 27](#_Toc109584381)

[8.9 Committees (such as governing or advisory boards) 28](#_Toc109584382)

[8.10 Certification operations 28](#_Toc109584383)

[8.10.1 National approval/certification Methods 28](#_Toc109584384)

[8.10.2 Certification policy 28](#_Toc109584385)

[8.10.3 Certification application, assessment and examination processes 28](#_Toc109584386)

[8.10.4 Issuing of IECEx Personnel Competence Assessment Report (PCAR) 28](#_Toc109584387)

[8.10.5 Decision on Certification 28](#_Toc109584388)

[8.10.6 Suspension and cancellation of certificates 28](#_Toc109584389)

[8.11 Statistics 29](#_Toc109584390)

[8.12 Question bank 29](#_Toc109584391)

[8.13 National accreditation 29](#_Toc109584392)

[8.14 Comments (including issues found during assessment) 29](#_Toc109584393)

[9 Annexes 30](#_Toc109584394)

[Annex A Scope for IECEx Certified Equipment Scheme 31](#_Toc109584395)

[A.1 Current standards 31](#_Toc109584396)

[A.2 Superseded standards 33](#_Toc109584397)

[Annex B Overall organisation Chart with ExCB and ExTL 34](#_Toc109584398)

[Annex C Accreditation Certificate for ISO/IEC 17065 35](#_Toc109584399)

[Annex D Accreditation Certificate for ISO/IEC 17025 36](#_Toc109584400)

# Assessment information

## Type of body covered by this assessment:

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

## Type of assessment:

|  |  |
| --- | --- |
| Pre-assessment for candidate body | [ ]  |
| Initial assessment for candidate body | [ ]  |
| Surveillance/Midterm for Scheme 05 ExCB | [x]  |
| Re-assessment for Scheme 02 ExCB/ExTL | [x]  |
| Scope extension | [ ]  |

## Details of body

### Country

Germany

### Name of body

TÜV Rheinland Industrie Service GmbH

### Name and title of nominated principal contact

|  |  |  |
| --- | --- | --- |
| Name | Title | E-mail address |
| Klauspeter Graffi | Head of Certification Body | graffik@de.tuv.com |

## Assessment information

### Members of the assessment team

|  |  |
| --- | --- |
| Name  | Role  |
| Marino Kelava | IECEx Lead Assessor |

### Place(s) of assessment

|  |  |
| --- | --- |
| TÜV Rheinland Industrie Service GmbH | Am Grauen Stein, 51105 Köln,GermanyandAlboinstraße 56, 12103 Berlin, Germany |

Due to the COVID-19 pandemic related restrictions, the assessment is remotely carried out by using Microsoft Teams, IECEx OD-060 is applied for this assessment.

### Assessment date(s)

Remote assessment sessions on 10th to 14th, 18th and 25th January 2022

## Application information and background information on the assessment

This is the Re-assessment of Scheme 02 ExCB and ExTL plus Mid-term assessment of Scheme 05 ExCB. In addition, scope extension requirements to include IEC TS 60079-42:2019 was requested.

Due to problems with travelling caused by the COVID-19 pandemic, it was decided to do a remote assessment in accordance with OD-060, as provided for by OD 060 and confirmed with the IECEx Secretariat. The platform Microsoft Teams was used with the combined use of shared folder organised by TÜV Rheinland Industrie Service GmbH and e-mails. Witness of testing was also performed remotely as requested by IECEx Lead Assessor.

The assessment team was allocated and the team agreed to address the increased scope as part of this assessment visit.

IEC TS 60079-42:2019 “Explosive atmospheres - Part 42: Electrical safety devices for the control of potential ignition sources for Ex-Equipment” may be used for testing purposes but not for issuing an IECEx Certificate of Conformity.

## Scopes

### ExCB scope for equipment certification scheme

The scope for the ExCB is shown in Annex A.

**Additional Standards for ExCB scope for equipment certification scheme**

| Number  | Title  | Comments, eg if scope change |
| --- | --- | --- |
| IEC TS 60079-42:2019 | Explosive atmospheres - Part 42: Electrical Safety Devices for the control of potential ignition sources from Ex-Equipment | Scope Extension |

NOTE 1 Unless otherwise indicated, earlier editions of standards (even if with a different number) are considered to be covered in the above scope for the purposes of the assessment.

### ExTL scope

The ExTL scope is the same as for the ExCB. This assessment also checked the ExCB/ExTL ability to apply requirements IEC TS 60079-42:2019 (extension of scope), noting that IEC TS 60079-42:2019 may be used for testing purposes but not for issuing an IECEx Certificate of Conformity.

ExCB/ExTL was found to have required resources to extend the scope to include IEC TS 60079-42:2019.

## ExCB scope for IECEx Personnel Competence Scheme

The scope for the IECEx Personnel Competence Scheme is shown below.

| Unit  | Comments |
| --- | --- |
| Unit Ex 000 – Basic knowledge and awareness  | [x]  | Included in scope |
| Unit Ex 001 – Apply basic principles of protection in explosive atmospheres | [x]  | Included in scope |
| Unit Ex 002 – Perform classification of hazardous areas | [x]  | Included in scope |
| Unit Ex 003 – Install explosion-protected equipment and wiring systems | [x]  | Included in scope |
| Unit Ex 004 – Maintain equipment in explosive atmospheres | [x]  | Included in scope |
| Unit Ex 005 – Overhaul and repair of explosion-protected equipment | [x]  | Included in scope |
| Unit Ex 006 – Test electrical installations in or associated with explosive atmospheres | [x]  | Included in scope |
| Unit Ex 007 – Perform visual & close inspection of electrical installations in or associated with explosive atmospheres | [x]  | Included in scope |
| Unit Ex 008 – Perform detailed inspection of electrical installations in or associated with explosive atmospheres | [x]  | Included in scope |
| Unit Ex 009 – Design electrical installations in or associated with explosive atmospheres | [x]  | Included in scope |
| Unit Ex 010 – Perform audit inspection of electrical installations in or associated with explosive atmospheres | [x]  | Included in scope |

# Common information

## Legal entity of body

TÜV Rheinland Industrie Service GmbH is a private company with limited liability and share. TÜV Rheinland is registered by the "Handelsregisteramt B des Amtsgerichts Köln" under the HRB26876 number.

The document was checked during the assessment and found to meet the requirements of the IECEx.

## Financial support

Under the TÜV Rheinland financial policies, the testing and certification activities of TÜV Rheinland are required to be run on a self-financing basis from the fees charged for their services.

## History

1872 Industrialists set up DÜV on their own initiative to safeguard their production facilities

1904 Automobile inspections and driving tests

1926 First laboratory for testing materials

1969 Product testing and certifications

1970 First subsidiary outside Germany

1970 TÜV Academy trains qualified personnel

1991 System certifications to international standards

2000 Security and quality in local and global data and communication networks

2002 ATEX Notified Body (NB)

2003 Fusion with TÜV Pfalz e. V. to TÜV Rheinland-Berlin Brandenburg Pfalz e. V.

2006 IECEx ExCB and ExTL

 Ultimately becoming the TÜV Rheinland Group

## Documentation

### Quality manual

TÜV Rheinland has a comprehensive quality manual supported by other procedural documents, which refer to ISO 9001, ISO/IEC 17024, ISO/IEC 17025 and ISO/IEC 17065 standards.

The quality manual MS-0000001\_de is for the complete TÜV Rheinland Group and the QME 32 for the Certification Body for product according to IECEx 02 and personnel competence according to IECEx 05.

The Quality manual as well related documents from different levels were reviewed during the assessment and found to meet the requirements of the IECEx.

### Procedures

TÜV Rheinland has a comprehensive range of procedures covering all aspects of certification and the testing operations. Where applicable, each procedure related to ExTL has with it an associated test sheet for completion by the staff.

Procedures most relevant for the operation under IECEx were reviewed during the assessment and found to meet the requirements of the IECEx.

### Work instructions

TÜV Rheinland has a comprehensive range of work instructions to define mainly the test methods that are used for testing Ex product. A number were reviewed during the assessment and found to meet the requirements of applicable Ex standards and the IECEx.

### Records (including test records where relevant)

A procedure for records is in place (QM document MS-0001373, Clause 10) to comply with relevant accreditation schemes and government requirements. All records are uniquely identified, secured and stored in a way to ensure the reliability of the certification process and to maintain the confidentiality of information. A record retention period has been established. After it expires, the records are archived. The procedure addresses the retention period for IECEx as well, which was found to be in compliance with IECEx OD-207.

In practice it was advised critical records are stored indefinitely and so no destruction process for these records is in place.

The system was found to meet the requirements of the IECEx.

### Document change control

TÜV Rheinland has a defined procedure, MS-0020017 – Standard Operating Procedure which follows the IECEx requirements.

## Confidentiality

(For staff, contractors and members of advisory bodies)

All employees and members of Steering Committee sign confidentiality agreements when they start to work for TÜV Rheinland. Examples of these were sighted by the team and found to meet the requirements of the IECEx. Confidentiality is appropriately addressed in contractual agreements with external service providers.

There is a system of security control at the Archive entrance gate and entrance to buildings is controlled by key. In addition, records stored electronically are protected by Windows access and password.

Confidentiality is also ensured through:

* limited access to customer documentation from the moment of submission to certification up to the archiving stage,
* records of documentation created in the certification and supervision process (contracts, protocols from inspection, test reports),
* archiving evidence of conformity assessment and any customer documentation provided during the certification process.

The system meets the requirements of ISO/IEC 17065 and IECEx.

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

IECEx scheme rules for TÜV Rheinland Ex certification and application form are available on request and it is sent by email.

TÜV Rheinland provides information to their customers via the internet at http://www.tuv.com/world/en/atex-directive.html. TÜV Rheinland does not have hard copy publications.

TÜV Rheinland maintains and publishes information on:

* auditing processes,
* processes for granting, refusing, maintaining, extending, suspending, renewing, or withdrawing certification or extending or reducing the scope of certification,
* types of management systems and certification programs in which it operates,
* use of the name of the certification body and the certification mark or logo,
* processes for processing requests for information, complaints and appeals,
* general service request web form applicable for product and persons certification as well,
* impartiality policy.

Other information is available on request.

## Recognitions and agreements

TÜV Rheinland has recognition by DAKKS which are the German Accreditation Bodies regarding ISO/IEC 17025 and ISO/IEC 17065.

## Internal audit

There is an overall audit system for TÜV Rheinland MS-0003098, including at technical level with the Ex operations. TÜV Rheinland does have in place a method of regularly investigating existing certification and testing activities.

Internal audits are done once a year for each type of operation. The internal audit for IECEx to ISO/IEC 17024, ISO/IEC 17025 and ISO/IEC 17065 carried out on 9th November 2021 was reviewed. Findings raised and the corrective actions were viewed and found to be satisfactory.

The audit took place over a complete day with single auditor. No nonconformities were found.

## Management review

Management review is described in the Quality Manual and is conducted annually.

The report from the management review meeting that took place in April 2021 was reviewed. It covered the operation of IECEx Certification Body and of the Testing Laboratory, including internal audits, corrective actions, accreditation audits, customer satisfaction and complaints data (including IECEx). The matters covered by the meeting also addressed the relevant requirements for ISO/IEC 17065, ISO/IEC 17024 and ISO/IEC 17025.

The system meets the requirements of those standards and IECEx.

## Contracting, subcontracting and witness testing

### Contracting

 TÜV Rheinland ExCB and ExTL do not use contracting.

### Subcontracting

TÜV Rheinland has a procedure for subcontracting.

More details, including bodies to whom tests will be subcontracted, details of accreditation of those bodies and details of how the subcontracted bodies are checked, are included in the site

assessment report.

The following tests are, or may be, subcontracted by the body:

|  |  |  |
| --- | --- | --- |
| Standard | Clause  | Test |
| IEC 60079-0 | 26.16 | Qualification of o-rings |
| IEC 60079-28 | 5.2.4 and 6 | Ignition tests |

More details, including bodies to whom tests will be subcontracted, details of accreditation of those bodies and details of how the subcontracted bodies are checked, are included in the site assessment report.

### Off-site and Witness testing

TÜV Rheinland has a procedure WI\_MS-0001378 – Performance of conformity tests by the test laboratory of explosion protection, which refers to IECEx OD 024 and includes information for the updating of the current information in the IECEx OD 024 Testing Register – Offsite and Witness Testing Agreements.

## Training and competence

All staff employed are selected for qualifications and/or experience relevant to their responsibilities. Each member of staff has a full job description, which comprehensively defines their responsibilities, job function, qualification requirements and their position within the organisation.

On regular basis there is training of people in the ExCB and ExTL on the operations, outcome of audits, revised standards and procedures related to IECEx. An example of a comprehensive training session presentation was shown and was found to meet the requirements of the IECEx.

TÜV Rheinland has a very strong qualification process for ensuring competent staff. There is a competency matrix for ExCB and ExTL. This was found to be satisfactory, meeting the requirements of the IECEx.

Details of staff competencies are included in the site assessment report.

## Complaints and appeals (including appeals to IECEx)

There is a general process in TÜV Rheinland for internal complaints, internal and external audits, and external complaints. This covers the complaints mechanism requirements of the ExCB and ExTL.

In the Procedures MS-0034557 Complaints Management BS I GER, there are special clauses to ensure that complaints regarding certified products, service, presentation of results, methods or any other subject are effectively dealt with. Also to ensure that appeals and disputes in respect of certification activity are dealt with fairly and transparently. The procedures address the provision of appeals to IECEx and the applicants are advised of this facility. The latest appeals process to IEC via IECEx in accordance with CAv01 and IECEx 01-S is included. The applicant is advised of their right of appeal to IEC if they are not satisfied with the outcome of the ExCB appeal process.

## Impartiality

Impartiality and confidentiality are addressed in QM document MS-0003098 RL KBS. TÜV Rheinland is an independent, privately own body that does not design or produce any products that it tests, inspects or audits. Staff are not involved with or influenced by any customers/stakeholders.

To ensure there are no conflicts of interest, TÜV Rheinland requires all their employees, both internal and external, to report any former and/or present connections with the organizations, the certification of which they will be assigned to. If there are any such connections, TÜV Rheinland assesses the risk in terms of threats to impartiality, and either resigns from involving this staff into the certification process or proves that there is no conflict of interests.

All staff have signed regarding impartiality, honesty and confidentiality of their work. During the assessment, the list and several signed documents were checked.

The process meets the requirements for ISO/IEC 17065, ISO/IEC 17024, ISO/IEC 17025 and IECEx.

## Active inv 2022olvement in development of Decision Sheets

Draft decision sheets are discussed internally during ExCB/ExTL team meetings which are held regularly and comments are prepared by nominated expert to provide feedback to the IECEx secretariat.

## Special facts to be noted

None other than those .

## 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
* Completed Technical Capability Document (TCD)
* Photos of the facilities/tests witnessed are included in the above TCD
* Information on competencies
* Information on contracting/subcontracting
* Assessors’ notes
* Other

## Recommendations

Based on the assessment performed on January 10th to 14th 2022, TÜV Rheinland Industrie Service GmbH is recommended for continued acceptance in the IECEx scheme as:

* An ExCB in the IECEx Certified Equipment Scheme
* An ExTL in the IECEx Certified Equipment Scheme
* An ExCB in the IECEx Certification of Personnel Competency Scheme

This is according to the scope of the standards listed in this document (including the extension of scope).

|  |
| --- |
| Marino Kelava |
| IECEx Lead Assessor |

Date: July 21sr 2022

# ExCB for IECEx Certified Equipment Scheme

## Assessment references

### General references

1. IECEx 02 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 80079-34 Explosive atmospheres – Part 34: Application of quality systems for equipment manufacture
4. IECEx OD 009 Issuing of CoCs, ExTRs and QARs
5. IECEx OD 025 Guidelines on the Management of Assessment and Surveillance programs for the assessment of Manufacturer’s Quality Systems in accordance with the IECEx Scheme
6. IECEx OD 026 IECEx Certified Equipment Scheme – Guidelines for the qualification of Lead Auditor and Auditors, in accordance with the IECEx System
7. ISO/IEC 17065 General requirements for bodies operating product certification systems Conformity assessment — Requirements for bodies certifying products, processes and services
8. IECEx OD 107 Harmonised check list for certification bodies ISO/IEC 17065
9. IECEx OD 060 IECEx Guide for Business Continuity – Management of Extraordinary Circumstances or Events Affecting IECEx Certification Schemes and Activities
10. IECEx Technical Capability Document (TCD)
11. ExTAG decision sheets (DSs)

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

### Additional references applied for this assessment

1. IECEx OD 233 IECEx Certified Equipment Scheme - Assessment of Ex “s” Equipment Ed. 2.0
2. IECEx OD 280 IECEx Certified Equipment Scheme – Guide to Certification of Non-electrical Equipment and Protective Systems

## ExCB persons interviewed

|  |  |
| --- | --- |
| Name | Position |
| Klauspeter Graffi  | Head of ExCB, Assigned Certifier |
| Christian Mehrhoff | Head of Business Unit, Assigned Certifier |
| Andreas Maschke | Deputy Head of ExCB, Assigned Certifier |

## Associated ExTL

The ExTL is integral with the ExCB.

The main laboratory for IECEx testing is located at TÜV Rheinland Industrie Service GmbH, Am Grauen Stein, 51105 Cologne, Germany which is also the address of the ExCB for IECEx Schemes 02 and 05. The engineering department is located about 70 km north from the main laboratory in TÜV Rheinland Industrie Service GmbH, Alfredstraße 81 - 45130 Essen, Germany and is the integral part of IECEx ExCB/ExTL. No tests are performed at location at Essen, only design analyses and verifications.

## Associated certification functions

TÜV Rheinland provides certification under EU Scheme for electrical and non-electrical Ex products in accordance with ATEX Directive 2014/34/EU and their operations are accredited to IEC/ISO 17065 by the National Accreditation body DAKKS.

TÜV Rheinland Industrie Service GmbH is European Notified Body No. 0035 for the ATEX Furthermore, the Notified Body is active as a national surveillance/inspection body according to directive 1999/92/EC (Ex installation requirements).

## National marks and certificates

TÜV Rheinland ATEX certificates are accepted by the European commission and by EU Member state’s regulators.

## Standards accepted

The scope for the ExCB for IECEx Certified Equipment Scheme is shown in Annex A.

## National differences to IEC standards

National differences to IEC standards are those for the European Union differences listed in the latest version of the IECEx System Bulletin.

## Organisation

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

|  |  |  |
| --- | --- | --- |
| Name | Title | Experience (years) |
| Klauspeter Graffi  | Head of ExCB  | > 17 years  |

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

|  |  |  |
| --- | --- | --- |
| Name | Title | Experience (years) |
| Alberto Arenas | Quality Manager | > 10 years |

### Name and title of signatories for certification

|  |  |  |
| --- | --- | --- |
| Name | Title | Comments |
| Klauspeter Graffi  | Head of ExCB  | > 17 years  |
| Christian Mehrhoff | Assigned Certifier Head of Business Unit | > 4 year |
| Andreas Maschke | Deputy Head of ExCB | > 17 years |

### Other employees in ExCB activity

| Name | Title | Experience in Ex (years) |
| --- | --- | --- |
| Mr Ralf Biegalla  | Auditor  | > 22 years  |
| Mr Peter Grote  | Auditor  | > 17 years  |
| Mr Gianluca Marradi (Italy)  | Auditor  | > 7 years  |
| Mr Hubbig (USA)  | Auditor  | > 9 years  |
| Mr Holger Wegener  | Auditor  | > 17 years  |
| Ms Anke Weichert  | Auditor  | > 15 years  |
| Mr Zhang, Xiaolong (China)  | Auditor  | > 9 years  |
| Mr Guruprasad BR (India)  | Auditor  | > 5 years  |
| Ron Huo | Auditor  | > 5 years  |
| Thiemo Charnetzki | Auditor  | > 5 years  |
| Yang Wang | Auditor  | > 10 years  |
| He Mei | Auditor  | > 10 years  |
| Jumpol Thojun | Auditor  | > 5 years  |
| Gianluca Marradi | Auditor  | > 10 years  |
| James Qian | Auditor  | > 5 years  |
| Allessandro Minardi | Auditor  | > 5 years  |
| Joe Shu | Auditor  | > 5 years  |
| Kazuya Matsushita | Auditor  | > 5 years  |
| Yutaka Ishida | Auditor  | > 5 years  |

## Organizational structure

See Annex B to this report.

## Indemnity insurance

TÜV Rheinland holds professional indemnity and public liability insurance. These are covered in one policy from Allianz Global Corporate & Speciality SE which was reviewed and found to be valid to 1st January 2023. The policy is worldwide with appropriate insured amount.

## Resources

TÜV Rheinland has the necessary resources of facilities, equipment, competent staff and appropriate procedures to operate as a certification body. They also use external contractors for their certification activities. Operation of external contractors is monitored in the same manner as of employees in certification.

The organization of work of employees and external contractors in ExCB was found meeting the requirements of ISO/IEC 17065 and IECEx.

## Committees (such as governing or advisory boards)

Certification Steering Committee has been established as documented in Quality Management Declaration QME 32 and Certification Body Quality Management Document MS-3098, which includes representatives of users and governmental interests (14 members at the time of this Assessment) with no single interest predominating, to advise TÜV Rheinland on policy and act as the appeals committee.

The committee meets once a year. Their last meeting took place remotely on March 5th, 2021. The minutes were viewed, and the topics covered found to meet the requirements of ISO/IEC 17065 and TÜV Rheinland quality management system.

The system was found meeting the requirements of ISO/IEC 17065 and the IECEx requirements.

## Certification operations

### National approval/certification methods

TÜV Rheinland is recognised under the national accreditation systems and schemes (EU Notified Body for ATEX Directive). TÜV Rheinland holds national accreditation for product certification against ISO/IEC 17065. It has procedures for compliance with IECEx Rules and Operational Documents.

### Certification policy

The Quality Manual is available on the Intranet and in printed form. It contains a Quality Policy that makes reference to product certification. Further aspects related to certification policy are covered in the general quality policy and in QME 32 and were seen to be in conformity with the requirements of ISO/IEC 17065 and IECEx 02.

The system was found meeting the requirements of ISO/IEC 17065 and the IECEx requirements.

### Application for certification

The complete certification process for delivering certificates is contained in MS-0001380. General online form for the request of TÜV Rheinland services is available to customers on the corporation website. Application form for Ex related certification services MS-0001380\_TÜV\_ExCB\_Application-Form is provided upon request by e-mail.

### Certification decision

The certification decision is done at TÜV Rheinland as described in QME 32 and Certification procedure QMA 3.103.01 and provides the necessary independence between Testing and Certification decision The objective is to assure that the personnel that review the information and the results related to the assessment, and the personnel who make the certification decision are different to those that carry out the audits, inspections, verifications and/or testing.

Persons who are allowed to make certification decision are indicated in the Competency Matrix. Checklist\_Approval Ex-Product is used for the process.

The system was found meeting the requirements of ISO/IEC 17065 and the IECEx requirements.

### Suspension and cancellation of certificates

Suspension and cancellation of certificates is addressed in Certification procedure QMA 3.103.01 Annex 2. The process meets IECEx requirements.

## Certificates issued

Number of certificates issued under for the preceding two years for each type of protection.

| Standard numbers | Type of protection or other identifying information | Number of issued certificates (for last 2 years) | Total |
| --- | --- | --- | --- |
| 2020 | 2021 |
| IEC 60079-1  | Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures “d” | 34 | 25 | 59 |
| IEC 60079-2  | Explosive atmospheres - Part 2: Equipment protection by pressurized enclosures “p” | 3 | 13 | 16 |
| IEC 60079-5 | Explosive atmospheres - Part 5: Equipment protection by powder filling “q” | 0 | 1 | 1 |
| IEC 60079-6  | Explosive atmospheres - Part 6: Equipment protection by oil immersion “o” | 0 | 0 | 0 |
| IEC 60079-7  | Explosive atmospheres - Part 7: Equipment protection by increased safety “e” | 34 | 46 | 80 |
| IEC 60079-11  | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety “i” | 26 | 38 | 64 |
| IEC 60079-13 | Construction and use of rooms or buildings protected by pressurizationPart 13 | 1 | 0 | 1 |
| IEC 60079-15  | Explosive atmospheres - Part 15: Equipment protection by type of protection “n”  | 6 | 10 | 16 |
| IEC 60079-18  | Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation “m” electrical apparatus | 5 | 3 | 8 |
| IEC 60079-25  | Explosive atmospheres - Part 25: Intrinsically safe systems | 0 | 0 | 0 |
| IEC 60079-26  | Explosive atmospheres - Part 26: Equipment with Separation Elements or combined Levels of Protection | 3 | 2 | 5 |
| IEC 60079-27  | Explosive atmospheres - Part 27: Fieldbus intrinsically safe concept (FISCO) | 0 | 0 | 0 |
| IEC 60079-28 | Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation | 1 | 6 | 7 |
| IEC 60079-29-1 | Explosive atmospheres - Part 29-1: Gas detectors – Performance requirements of detectors for flammable gases | 2 | 1 | 3 |
| IEC 60079-30-1 | Explosive atmospheres - Part 30-1: Electrical resistance trace heating – General and testing requirements | 2IEEE 1 | 1 | 4 |
| IEC 60079-31 | Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure “t” | 38 | 39 | 77 |
| IEC 60079-33 | Explosive atmospheres - Part 33: Equipment protection by special protection “s” | 0 | 0 | 0 |
| IEC 60079-35-1 | Explosive atmospheres - Part 35-1: Caplights for use in mines susceptible to firedamp – General requirements – Construction and testing in relation to the risk of explosion | 0 | 0 | 0 |
| IEC TS 60079-42(extension of scope – certificates under ATEX shown - EN 50495:2010) | Explosive atmospheres - Part 42: Electrical safety devices for the control of potential ignition sources from Ex-Equipment(may be used for testing purposes but not for issuing an IECEx Certificate of Conformity) | 2In 20193, more in past | 1 | 3 |
| IEC TS 60079-46 | Explosive atmospheres – Part 46 - Equipment assemblies | 0 | 0 | 0 |
| IEC TS 60079-47 | Explosive atmospheres – Part 47 - Equipment protection by 2-wire intrinsically safe Ethernet concept (2-WISE) | 0 | 0 | 0 |
| IEC 80079-36 | Explosive atmospheres – Part 36 - Non-electrical equipment for explosive atmospheres - Basic methods and requirements | 3 | 5 | 8 |
| IEC 80079-37 | 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" | 1 | 4 | 5 |

NOTE Above include certificates to IEC 60079-0 unless otherwise shown

## National accreditation

The national accreditation certificate for ISO/IEC 17065 is shown in Annex C.

TÜV Rheinland is accredited by DAKKS for product certification against ISO/IEC 17065, see Annex D. The scope of accreditation of the product certification includes EU Directive 2014/34/EU (ATEX) harmonised standards. The certificate is valid until May 2023.

Assessment of ExCB capability to operate in accordance with IEC standards for the applied scope of IECEx related Ex equipment certification requested was part of this Assessment.

Secretariat note: while the ANNEX shows out of date sec has confirmed that accreditation is still current and an updated certificate will be issued in due course.

## Assessment of manufacturers and issue of QARs

The assessment of manufacturers and issuance of QARs is covered in Procedure PZQS-Ex-Rev14. The Report form includes all requirements from the IECEx Scheme 02 together with ATEX requirements.

The above procedure addresses the initial issue of QARs or the review of other ExCB QARs for the purpose of issuing certificates, as well as the maintenance process in accordance with OD 025 and the need to ensure that all certificates on the website are linked to current QARs.

ExCB applied the provisions of OD-060 into their QMS, to deal with the current Pandemic.

The system complies with IECEx requirements.

## Comments (including issues found during assessment)

TÜV Rheinland has the necessary staff and quality system in place for their scope as an ExCB. There were some issues related to the QMS and implementation of recent updates and new IECEx OD’s and handling of CoCs linked to other ExCBs QARs that are out of date. All issues were resolved to the satisfaction of the assessment team and now meet the requirements of the IECEx.

#  ExTL 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. IECEx OD009 Issuing of CoCs, ExTRs and QARs
4. ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories
5. IECEx OD 018 Harmonised check list for testing and calibration laboratories ISO/IEC 17025
6. IECEx TCD 60079, ISO 80079 Series and ISO 16852 Technical Capability Document
7. ExTAG decision sheets (DSs)
8. 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 OD 280 - Guide to Certification of Non-electrical Equipment and Protective Systems
2. IECEx OD 233 IECEx Certified Equipment Scheme – Assessment of Ex “s” Equipment
3. IECEx OD 060 IECEx Guide for Business Continuity – Management of Extraordinary Circumstances or Events Affecting IECEx Certification Schemes and Activities

## Candidate ExTL persons interviewed

|  |  |
| --- | --- |
| Name | Position |
| Christian Lechtenböhmer | Head of ExTL |
| Klauspeter Graffi | Project Leader |
| Stefanie Schwarz | Project Leader |
| Steffen Kruse | Project Leader |
| Thomas Rieser | Test engineer  earth continuity test |
| Andre Weber | Test engineer  IP test |
| Ronny Grund | Test engineer  surface resistance test |
| Tobias Gutknecht | Test engineer  IEC 60079-28 tests |

## Associated ExCB

The ExCB is integral with the ExTL.

The main laboratory for IECEx testing is located at TÜV Rheinland Industrie Service GmbH, Am Grauen Stein, 51105 Cologne, Germany which is the address for ExCB for IECEx Schemes 02 and 05. Integral part of the ExTL is the engineering department which is located about 70 km north from the main laboratory in TÜV Rheinland Industrie Service GmbH, Alfredstraße 81 - 45130 Essen, Germany. This location in Essen does not perform any tests, only design analyses and verifications. Personnel from different locations was interviewed with other resources observed during this assessment and found meeting the IECEx requirements.

## Organisation

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

|  |  |  |
| --- | --- | --- |
| Name | Title | Experience (years) |
| Christian Lechtenböhmer  | Head of ExTL | > 22 years |
| Klauspeter Graffi | Project Leader | > 17 years |

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

|  |  |  |
| --- | --- | --- |
| Name | Title | Experience (years) |
| Christian Lechtenböhmer  | Head of ExTL | > 22 years |

### Other employees in ExTL activity

| Name | Title/responsibility | Experience in Ex (years) |
| --- | --- | --- |
| Thiemo Czarnetzki | Project Leader | > 7 years |
| Holger Wegener | Project Leader | > 17 years |
| Volker Rödl | Project Leader | > 22 years INAKTIV |
| Stefanie Schwarz | Project Leader | > 12 years |
| Jan Brandwijk | Project Leader | > 25 years INAKTIV |
| Marc Krugmann | Tester | > 10 years |
| Dawid Willems | Project Leader | > 18 years INAKTIV |
| Gerd Drygala | Tester | > 40 years |
| Klaus Steymans | Tester | > 22 years |
| Dr. Angela Lilienthal | Project Leader | > 7 years |
| Manuel Steffen | Project Leader | > 7 years |
| Anke Weichert | Project Leader | > 15 years |
| Christoph Keminer | Project Leader | > 20 years |
| Steffen Kruse | Project Leader | > 5 years |
| Georg Kanty | Project Leader | > 20 years |
| Wolf Rückwart | Project Leader | > 20 years |
| Dirk Wilczek | Test engineer  | > 7 years |
| Karsten Bahrenberg | Project Leader | INAKTIV |
| AJ Maira / Australia | Project Leader | > 20 years |
| Alessandro Minardi / Italy | Project Leader | > 8 years |
| Xiaolong Zhang / Beijing | Project Leader | > 14 years |
| He Mei / Shanghai | Project Leader | > 11 years |
| Yang Wang / Beijing | Project Leader | > 12 years |
| Shawn Lu / Shanghai | Project Leader | > 7 years |
| Ron Huo / Shanghai | Project Leader | > 7 years |
| James Qian / Shanghai | Project Leader | > 7 years |
| Jumpol Thojun / Singapore | Project Leader | HAS LEFT THE COMPANY, Now freelancer for TÜV |
| Dave Styrcula / Austin | Project Leader | > 35 years |

## Organizational structure

See Annex B.

## Resources

TÜV Rheinland Industrie Service GmbH ExTL has adequate number of staff for the current level of business. The staff are experienced and have demonstrated required level of competence in evaluation and testing of Ex equipment. The laboratory and office are located 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.

While some ExCB staff may also be involved in Ex testing, during the assessment a detailed review of the process to deal with independence and separation between testing and certification decisions was undertaken noting that Staff involved in testing of a project cannot be involved in the certification decision.

## Test reports issued

Number of test reports (ExTRs) issued under for the preceding two years for each type of protection.

| Standard numbers | Type of protection or other identifying information | Number of issued reports (ExTRs) (for last 2 years) | Total |
| --- | --- | --- | --- |
| 2020 | 2021 |
| IEC 60079-1  | Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures “d” | 34 | 25 | 59 |
| IEC 60079-2  | Explosive atmospheres - Part 2: Equipment protection by pressurized enclosures “p” | 3 | 13 | 16 |
| IEC 60079-5 | Explosive atmospheres - Part 5: Equipment protection by powder filling “q” | 0 | 1 | 1 |
| IEC 60079-6  | Explosive atmospheres - Part 6: Equipment protection by oil immersion “o” | 0 | 0 | 0 |
| IEC 60079-7  | Explosive atmospheres - Part 7: Equipment protection by increased safety “e” | 35 | 46 | 81 |
| IEC 60079-11  | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety “i” | 26 | 38 | 64 |
| IEC 60079-13 | Construction and use of rooms or buildings protected by pressurizationPart 13 | 1 | 0 | 1 |
| IEC 60079-15  | Explosive atmospheres - Part 15: Equipment protection by type of protection “n”  | 9 | 10 | 19 |
| IEC 60079-18  | Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation “m” electrical apparatus | 5 | 3 | 8 |
| IEC 60079-25  | Explosive atmospheres - Part 25: Intrinsically safe systems | 0 | 0 | 0 |
| IEC 60079-26  | Explosive atmospheres - Part 26: Equipment with Separation Elements or combined Levels of Protection | 3 | 2 | 5 |
| IEC 60079-27  | Explosive atmospheres - Part 27: Fieldbus intrinsically safe concept (FISCO) | 0 | 0 | 0 |
| IEC 60079-28 | Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation | 1 | 6 | 7 |
| IEC 60079-29-1 | Explosive atmospheres - Part 29-1: Gas detectors – Performance requirements of detectors for flammable gases | 2 | 1 | 3 |
| IEC 60079-30-1 | Explosive atmospheres - Part 30-1: Electrical resistance trace heating – General and testing requirements | 2IEE 1 | 1 | 4 |
| IEC 60079-31 | Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure “t” | 38 | 39 | 77 |
| IEC 60079-33 | Explosive atmospheres - Part 33: Equipment protection by special protection “s” | 0 | 0 | 0 |
| IEC 60079-35-1 | Explosive atmospheres - Part 35-1: Caplights for use in mines susceptible to firedamp – General requirements – Construction and testing in relation to the risk of explosion | 0 | 0 | 0 |
| IEC TS 60079-42(extension of scope – reports under ATEX shown - EN 50495:2010) | Explosive atmospheres - Part 42: Electrical safety devices for the control of potential ignition sources from Ex-Equipment(may be used for testing purposes but not for issuing an IECEx Certificate of Conformity) | 2In 20193, more in past | 1 | 3 |
| IEC TS 60079-46 | Explosive atmospheres – Part 46 - Equipment assemblies | 0 | 0 | 0 |
| IEC TS 60079-47 | Explosive atmospheres – Part 47 - Equipment protection by 2-wire intrinsically safe Ethernet concept (2-WISE) | 0 | 0 | 0 |
| IEC 80079-36 | Explosive atmospheres – Part 36 - Non-electrical equipment for explosive atmospheres - Basic methods and requirements | 3 | 5 | 8 |
| IEC 80079-37 | 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" | 1 | 4 | 5 |

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

## National accreditation

TÜV Rheinland has national accreditation certificate from DAKKS: Accreditation D-PL-11052-02-00 to DIN EN ISO/IEC 17025:2018. A copy of the accreditation certificate is attached at Annex D. Accreditation is valid until May 2023.

Secretariat note: while the ANNEX shows out of date sec has confirmed that accreditation is still current and an updated certificate will be issued in due course.

## 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.

All equipment requiring calibration is calibrated by external accredited calibration service providers. The calibration schedule for equipment is maintained controlled via the data base GETEM. Calibration is then organised for all equipment that is about to fall due for calibration.

The status of confirmation of metrological control of a given equipment is recorded in the equipment digital card and confirmed by a yellow sticker on the equipment. Yellow sticker means that the equipment is calibrated, checked, good and approved for use. Blue sticker is used for equipment which is calibrated, but not in the full range. Red sticker is put on the equipment which shall not be used.

All equipment used for witnessed testing was found to be in calibration.

## Tests witnessed during the assessment visit

|  |  |  |  |
| --- | --- | --- | --- |
| Standard and edition | Clause number | Test | Comments |
| IEC 60079-0 Ed.7 | cl. 26.4.2 | Resistance to impact | Testing performed competently. |
| IEC 60079-0 Ed.7 | cl. 26.4.5 | IP66 test to IEC 60529 | Testing performed competently. |
| IEC 60079-0 | cl. 26.12 | Earth continuity test | Testing performed competently. |
| IEC 60079-0 Ed.7 | cl. 26.13 | Surface resistance test of parts of enclosures of non-metallic materials | Testing performed competently. |
| IEC 60079-1 Ed.7 | cl. 15.2.2 | Determination of explosion pressure (reference pressure) | Testing performed competently. |
| IEC 60079-1 Ed.7 | cl. 15.2.3.2 | Overpressure test (static) | Testing performed competently. |
| IEC 60079-1 Ed.7 | cl. 15.2.2 | Thermal tests - breathing and draining devices | Testing performed competently. |
| IEC 60079-7 Ed.5.1 | cl. 6.10 | Terminal insulating material test | Testing performed competently. |
| IEC 60079-11 Ed.6 | cl. 10.5.3 | Temperature rise test on batteries | Testing performed competently. |
| IEC 60079-15 Ed.5 | cl. 11.3 | Restricted-breathing testing | Testing performed competently. |
| IEC 60079-28 Ed.2 | cl.5.2.2.2 | Measurement of optical power | Testing performed competently. |
| IEC 60079-28 Ed.2 | cl.5.2.2.3 | Measurement of optical irradiance | 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 |
| 2019/2020 | Battery Testing-Test Round 2019 | Satisfactory (exact information contained in the report) |
| 2019/2020 | Tests of enclosures-Test Round 2019 | Satisfactory (exact information contained in the report) |

## Comments (including issues found during assessment)

TÜV Rheinland Ex Testing Laboratory has the necessary staff and quality system in place for their scope as an ExTL. Few 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 and now meet the requirements of the IECEx. Details are contained in Site Assessment Report.

# ATF for IECEx Certified Equipment Scheme

Not relevant for this assessment.

# ExCB for Certified Service Facilities Scheme

Not relevant for this assessment.

# IECEx Conformity Mark Licensing Scheme

Not relevant for this assessment.

# ExCB for IECEx Personnel Competence Scheme

## Assessment references

1. IECEx 05 IEC System for Certification to Standards relating to Equipment for use in Explosive Atmospheres (IECEx System) IECEx Scheme for Certification of Personnel Competence for Explosive Atmospheres – Rules of Procedure
2. IECEx OD 501 IECEx Scheme for Certification of Personnel Competence for Explosive Atmospheres – Assessment procedures for IECEx acceptance of Certification Bodies (ExCBs) for the purpose of issuing and maintaining IECEx Certificates of Personnel
3. IECEx OD 503 IECEx Scheme for Certification of Personnel Competence for Explosive Atmospheres - ExCB Procedures for issuing and maintaining IECEx Certificates of Personnel Competencies
4. IECEx OD 504 IECEx Scheme for Certification of Personnel Competence for Explosive Atmospheres – Specification for Units of Competence Assessment Outcomes
5. IECEx OD 505 Site Re-Assessment Report for Assessment of IECEx Candidate and Accepted Ex Certification Bodies (ExCBs) for the IECEx 05 Certificate of Personal Competencies Scheme (CoPC)
6. IECEx OD 506 - Guidance on the use of the IECEx Certificates of Personnel Competence Scheme’s Assessment Question Bank by ExCBs IECEx OD 060 IECEx Guide for Business Continuity – Management of Extraordinary Circumstances or Events Affecting IECEx Certification Schemes and Activities
7. ISO/IEC 17024 Conformity assessment — General requirements for bodies operating certification of persons
8. IECEx OD 507 Check list for assessment to ISO/IEC 17024
9. ExPCC Decision Sheets

Additional references applied for this assessment

None, IECEx OD 060 has not been used for this scheme.

## Candidate ExCB persons interviewed

|  |  |
| --- | --- |
| Name | Position |
| Klauspeter Graffi | Head of ExCB, Examiner |
| Christian Lechtenböhmer | Examiner |

## National certificates

No national certificates.

## Organisation

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

|  |  |  |
| --- | --- | --- |
| Name | Title | Experience (years) |
| Klauspeter Graffi | Head of ExCB, Examiner | > 15 years |
| Christian Lechtenböhmer | Examiner | > 20 years |
| Holger Wegener | Examiner | > 15 years |

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

|  |  |  |
| --- | --- | --- |
| Name | Title | Experience (years) |
| Klauspeter Graffi | Head of ExCB | > 15 years |

### Name and title of signatories for certification

|  |  |  |
| --- | --- | --- |
| Name | Title | Comments |
| Klauspeter Graffi | Head of ExCB | > 15 years |

### Other employees in ExCB activity

|  |  |  |
| --- | --- | --- |
| Name | Title/responsibility | Experience in Ex (years) |
| Marc Krugmann | Examiner | > 8 years |
| He Mei Shanghai | Examiner | > 9 years |
| Xiaolong Zhang Beijing | Examiner | > 12 years |
| Jumpol Thojun Thailand | Examiner | > 8 years |

## Organizational Structure

See Annex B to this report.

## Indemnity insurance

TÜV Rheinland holds professional indemnity and public liability insurance. These are covered in one policy from Allianz Global Corporate & Speciality SE which was reviewed and found to be valid to 1st January 2023. The policy is worldwide with appropriate insured amount.

## Resources

TÜV Rheinland has the necessary resources of facilities, examination setups and equipment, competent staff and appropriate procedures to operate as a certification body for personnel competences. They also use external contractors for their certification activities. Operation of external contractors is monitored in the same manner as of employees in certification.

The organization of work of employees and external contractors in ExCB was found meeting the requirements of ISO/IEC 17024 and IECEx.

The site assessment revealed the availability of competent technical staff, support staff, facilities and procedures/work instructions to undertake the IECEx 05 Certification activities. In addition to the TÜV Rheinland facility in Cologne, they use portable setups and examination offices at rented facilities in Singapore and in Shanghai, for theoretical and practical examinations. When needed, it is also possible to transport portable examination material and setup examination booth at any suitable location.

## Committees (such as governing or advisory boards)

Certification Steering Committee has been established as documented in in Quality Management Declaration QME 32 and Certification Body Quality Management Document MS-3098, which includes representatives of users and governmental interests (14 members at the time of this Assessment) with no single interest predominating, to advise TÜV Rheinland on policy and act as the appeals committee.

The committee meets once a year. Their last meeting took place remotely on March 5th, 2021. The minutes were viewed, and the topics covered found to meet the requirements of ISO/IEC 17024 and TÜV Rheinland quality management system.

The system was found meeting the requirements of ISO/IEC 17024 and the IECEx requirements.

## Certification operations

### National approval/certification Methods

No national approval/certification methods.

### Certification policy

The Quality Manual is available on the Intranet and in printed form. It contains a Quality Policy that makes reference to certification of personnel competence. Further aspects related to certification policy are covered in the general quality policy and in QME 32 and were seen to be in conformity with the requirements of ISO/IEC 17024 and IECEx 05.

### Certification application, assessment and examination processes

The application, assessment and examination process is detailed in the manual and instructions described in MS-0003313\_Rev 05\_PB 3.105 (03 Qualification of Personnel in Explosion Protection) and WI MS-0003314\_Rev 4\_QMA 3.105.01 (04 Services for Qualification of Personnel in Explosion Protection) for all units within TÜV Rheinland’s scope. Documents were viewed as part of the reassessment and in compliance with the requirements of the IECEx.

The facilities for testing practical skills are transportable and were viewed as part of the reassessment and in compliance with the requirements of the IECEx. IECEx OD 060 is not applied to Scheme 05.

### Issuing of IECEx Personnel Competence Assessment Report (PCAR)

The issuance of PCARs is described in the manual and instructions described in MS-0003313\_Rev 05\_PB 3.105 (03 Qualification of Personnel in Explosion Protection) and WI MS-0003314\_Rev 4\_QMA 3.105.01 (04 Services for Qualification of Personnel in Explosion Protection) for all units within TÜV Rheinland’s scope and recorded in TÜV Rheinland’s PCAR template, which includes any scope limitations.

### Decision on Certification

The decision on certification is taken by Klauspeter Graffi and Andreas Maschke, who are not involved in training or examination of the candidate and is described in the MS-0003313\_Rev 05\_PB 3.105 (03 Qualification of Personnel in Explosion Protection).

### Suspension and cancellation of certificates

The suspension and cancellation of certificates is described in in QME 32.

## Statistics

Detail experience in certification of personal competence for past two years.

|  |  |
| --- | --- |
| Unit  | Experience (number of certificates issued) |
| Unit Ex 000 – Basic knowledge and awareness  | 0 |
| Unit Ex 001 – Apply basic principles of protection in explosive atmospheres | 47 |
| Unit Ex 002 – Perform classification of hazardous areas | 17 |
| Unit Ex 003 – Install explosion-protected equipment and wiring systems | 12 |
| Unit Ex 004 – Maintain equipment in explosive atmospheres | 0 |
| Unit Ex 005 – Overhaul and repair of explosion-protected equipment | 0 |
| Unit Ex 006 – Test electrical installations in or associated with explosive atmospheres | 11 |
| Unit Ex 007 – Perform visual & close inspection of electrical installations in or associated with explosive atmospheres | 1 |
| Unit Ex 008 – Perform detailed inspection of electrical installations in or associated with explosive atmospheres | 1 |
| Unit Ex 009 – Design electrical installations in or associated with explosive atmospheres | 8 |
| Unit Ex 010 – Perform audit inspection of electrical installations in or associated with explosive atmospheres | 0 |

## Question bank

The incorporation of the central IECEx question bank is described in QMS document WI MS-0003314\_Rev 4\_QMA 3.105.01\_EN, chapter 4.3.1.

## National accreditation

No national accreditation that covers IECEx 05.

## Comments (including issues found during assessment)

TÜV Rheinland ExCB for Scheme 05 has the necessary staff and quality system in place for their scope. Ony minor issues were identified during the assessment which were noted as potentially influential to the performance of certification of personnel competences. Those related to the need to update some quality documents to reflect recent changes in current editions of Scheme 05 ODs and to inform examiners on time on new revisions of QMS documents so they can start using them immediately. All issues were resolved to the satisfaction of the assessment team and system now meets 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  | Already in the scope |
| IEC 60079-1Edition 7.0 | Explosive atmospheres – Part 1: Equipment protection by flameproofenclosures “d” | Already in the scope |
| IEC 60079-2 Edition 6.0 | Explosive atmospheres – Part 2: Equipment protection by pressurizedenclosure “p’ | Already in the scope |
| IEC 60079-5Edition 4.0 | Explosive atmospheres – Part 5: Equipment protection by powder filling “q” | Already in the scope |
| IEC 60079-6Edition 4.1 | Explosive atmospheres – Part 6: Equipment protection by oil immersion “o” | All tests (previous edition already in the scope)  |
| IEC 60079-7Edition 5.1 | Explosive atmospheres – Part 7: Equipment protection by increasedsafety “e” | Already in the scope |
| IEC 60079-11Edition 6.0 | Explosive atmospheres – Part 11: Equipment protection by intrinsic safety “i” | Already in the scope |
| IEC 60079-13Edition 2.0 | Explosive atmospheres – Part 13: Equipment protection by pressurized room “p” and artificially ventilated room “v” | Already in the scope |
| IEC 60079-15Edition 5.0 | Explosive atmospheres – Part 15: Equipment protection by type of protection “n” | All tests (previous edition already in the scope)  |
| IEC 60079-18Edition 4.1 | Explosive atmospheres – Part 18: Equipment protection by encapsulation “m” | All tests (previous edition already in the scope)  |
| IEC 60079-25Edition 3.0 | Explosive atmospheres – Part 25: Intrinsically safe electrical systems | All tests (previous edition already in the scope)  |
| IEC 60079-26Edition 3.0 | Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga | All tests (previous edition already in the scope)  |
| IEC 60079-28Edition 2.0 | Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation  | Already in the scope |
| IEC 60079-29-1Edition 2.1 | Explosive atmospheres - Part 29-1: Gas detectors – Performance requirements of detectors for flammable gases | Already in the scope |
| IEC 60079-29-4Edition 1.0 | Explosive Atmospheres – Part 29-4: Gas detectors - Performance requirements of open path detectors for flammable gases | NOT IN THE SCOPE |
| IEC/IEEE 60079-30-1Edition 1.0 | Explosive atmospheres – Part 30-1: Electrical resistance trace heating – General and testing requirements | All tests (IEC edition already in the scope)  |
| IEC 60079-31Edition 2.0 | Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t" | Already in the scope |
| IEC TS 60079-32-1Edition 1.1 | Explosive atmospheres - Part 32-1: Electrostatic hazards, guidance(may be used for testing purposes but not for issuing an IECEx Certificate of Conformity) | NOT IN THE SCOPE |
| IEC 60079-32-2Edition 1.0 | Explosive atmospheres - Part 32-2: Electrostatics hazards - Tests(may be used for testing purposes but not for issuing an IECEx Certificate of Conformity) | NOT IN THE SCOPE |
| IEC 60079-33Edition 1.0 | Explosive atmospheres – Part 33: Equipment protection by special protection “s” | Already in the scope |
| IEC 60079-35-1Edition 1.0 | Explosive atmospheres – Part 35-1: Caplights for use in mines susceptible to firedamp – General requirements – Construction and testing in relation to the risk of explosion | Already in the scope |
| IEC 60079-35-2Edition 1.0 | Explosive atmospheres – Part 35-2: Caplights for use in mines susceptible to firedamp – Performance and other safety-related matters | NOT IN THE SCOPE |
| IS0 80079-36Edition 1.0 | Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres – Basic method and requirements | Already in the scope |
| 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” | Already in the scope |
| IEC TS 60079-39Edition 1.0 | Explosive atmospheres - Part 39: Intrinsically safe systems with electronically controlled spark duration limitation  | NOT IN THE SCOPE |
| IEC TS 60079-40Edition 1.0 | Explosive atmospheres - Part 40: Requirements for process sealing between flammable process fluids and electrical systems | NOT IN THE SCOPE |
| IEC TS 60079-42Edition 1.0 | Explosive atmospheres - Part 42: Electrical safety devices for the control of potential ignition sources from Ex-Equipment(may be used for testing purposes but not for issuing an IECEx Certificate of Conformity) | All tests (scope extension) |
| IEC TS 60079-46Edition 1.0 | Explosive atmospheres – Part 46 - Equipment assemblies | Already in the scope |
| IEC 62784Edition 1.1 | Vacuum cleaners and dust extractors providing equipment protection level Dc for the collection of combustible dusts - Particular requirements | NOT IN THE SCOPE |
| ISO 16852Edition 2 | Flame arrestors - Performance requirements., test methods and limits for use | NOT IN THE SCOPE |

* 1. Superseded standards

The following superseded standards may form part of a body’s scope, generally for historical reasons.

| Number  | Title  | Comments |
| --- | --- | --- |
| IEC 60079-27Edition 2.0 | Explosive atmospheres – Part 27: Fieldbus intrinsically safe concept (FISCO) | Already in the scope |
| IEC 61241-0Edition 1.0  | Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements | Already in the scope |
| IEC 61241-1 Edition 1.0 | Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosure “tD” | Already in the scope |
| IEC 61241-4 Edition 1.0 | Electrical apparatus for use in the presence of combustible dust - Part 4: Protection by pressurization "pD"  | Already in the scope |
| IEC 61241-11Edition 1.0 | Electrical apparatus for use in the presence of combustible dust – Part 11: Protection by intrinsic safety 'iD' | Already in the scope |
| IEC 61241-18Edition 1.0  | Electrical apparatus for use in the presence of combustible dust - Part 18: Protection by encapsulation "mD" | Already in the scope |
| IEC 62013-1 Edition 2.0 | Caplights for use in mines susceptible to firedamp - Part 1: General requirements - Construction and testing in relation to the risk of explosion | NOT IN THE SCOPE |
| IEC 62013-2 Edition 2.0 | Caplights for use in mines susceptible to firedamp - Part 2: Performance and other safety-related matters | NOT IN THE SCOPE |
| IECEx DS2015/001A2015 10 09 | Equipment assemblies | Already in the scope |

1. Overall organisation Chart with ExCB and ExTL



1. Accreditation Certificate for ISO/IEC 17065



1. Accreditation Certificate for ISO/IEC 17025

