Secretariat

ExMC/370/DV
May 2007

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

Ex Management Committee, ExMC

TITLE: IECEx Assessment Report for the acceptance of *IBExU Institut für Sicherheitstechnik GmbH* as an IECEx Test Laboratory (ExTL)

INTRODUCTION

This document contains the IECEx Assessment Report for the acceptance of *IBExU Institut für Sicherheitstechnik Gmb* as an IECEx Test Laboratory (ExTL) within the IECEx Scheme.

The report is hereby submitted for voting.

Please consider the assessment report which is issued for final vote by 2007 07 21.

Chris Agius
IECEx Secretariat

Address:
IECEx Secretariat
SA Building
286 Sussex Street
Sydney 2000
Australia

Tel: +61 2 8206 6940
Fax: +61 2 8206 6272
Email: chris.agius@iecex.com
Internet: www.iecex.com

IECEx ASSESSMENT REPORT FOR IBExU Institut für Sicherheitstechnik GmbH, Freiberg (Saxony), Germany IECEx TEST LABORATORY (ExTL)

Type of Assessment:

Initial assessment for Candidate ExTL X

1. OBJECT AND FIELD OF APPLICATION

1.1 ***Country:***

Germany

1.2 ***Name of Candidate TL***

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7
09599 Freiberg (Saxony), Germany

1.3 ***Members of the Assessment Team***

Heinz S. Berger, Team Leader
Vijay Kumar Varma, Expert Assessor
Ron Webb, Expert Assessor

1.4 ***Place and Date of Assessment***

Fuchsmühlenweg 7
09599 Freiberg (Saxony), Germany

16th – 18th October, 2006

1.5 ***Assessment References***

Documents:

- IECEx 02 Second Edition 06 2003
- IECEx Operational Document OD/003
- IECEx Operational Document OD/009
- ISO/IEC 17025:2005
- IECEx Technical Guidance Documents (TGDs)
- ExTAG decision sheets (DS's)
- ExTL application documents dated June 17th, 2005 and June 4th, 2006

1.6. Scope of Application

Number	Title	Clearance
60079-0	Electrical apparatus for explosive gas atmospheres Part 0: General requirements	YES
60079-1	Electrical apparatus for explosive gas atmospheres Part 1: Construction and verification test of flameproof enclosures of electrical apparatus	YES
60079-2	Electrical apparatus for explosive gas atmospheres Part 2: Electrical apparatus, type of protection 'p' (Pressurization)	YES
60079-5	Electrical apparatus for explosive gas atmospheres Part 5: Powder filling "q"	YES
60079-6	Electrical apparatus for explosive gas atmospheres Part 6: Oil-immersion 'o'	YES
60079-7	Electrical apparatus for explosive gas atmospheres Part 7: Increased safety 'e'	YES
60079-11	Electrical apparatus for explosive gas atmospheres Part 11: Intrinsic safety 'i'	YES
60079-15	Electrical apparatus for explosive gas atmospheres Part 15: Electrical apparatus with type of protection 'n' (Non-Sparking)	YES
60079-18	Electrical apparatus for explosive gas atmospheres Part 18: Encapsulation 'm'	YES
60079-25	Electrical apparatus for explosive gas atmospheres Part 25: Intrinsically safe systems	YES
60079-26	Electrical apparatus for explosive gas atmospheres Part 26: Construction, test and marking of Group II Zone 0 electrical apparatus	YES
60079-27	Electrical apparatus for explosive gas atmospheres Part 27: Field bus intrinsically safe concept (FISCO)	YES
61241-0	Electrical apparatus for use in the presence of combustible dust Part 0: General requirements	YES
61241-1	Electrical apparatus for use in the presence of combustible dust Part 1: Electrical apparatus protected by enclosures	YES
61241-1-1	Electrical apparatus for use in the presence of combustible dust Part 1: Electrical apparatus protected by enclosures Section 1: Specification for apparatus	YES
61241-4	Electrical apparatus for use in the presence of combustible dust Part 4: Type of protection 'pD'	YES
61241-11	Electrical apparatus for use in the presence of combustible dust Part 11: Intrinsic safety “iD”	YES
61241-18	Electrical apparatus for use in the presence of combustible dust Part 18: Protection by encapsulation 'mD'	YES
62086-1	Electrical apparatus for explosive gas atmospheres: Electrical resistance for trace heating: General and testing requirements	YES

1.7 *Candidate TL Persons Interviewed*

Burkhard Hille	Dipl.-Ing, (FH), Head of ExTL
Alexander Henker	Dipl.-Ing. (FH), Deputy Head of ExTL

1.8 *Legal Entity Of The Candidate TL*

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7
09599 Freiberg (Saxony), Germany

1.9 *Associated ExCB*

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7
09599 Freiberg (Saxony), Germany

1.10 *Financial Support*

IBExU GmbH is a 100% private owned company. IBExU is self funded relying on revenues based on certificate fees, auditing fees and testing activities.

1.11 *History*

Almost 75 year-old tradition in Freiberg

The foundation of the “Sächsischen Versuchsstrecke an der Bergakademie Freiberg” in 1928 (to 1991: “Institut für Bergbausicherheit (IfB)”, department: fires and explosions) was the beginning of the development of a scientific and testing technical centre for the special subjects of fire and explosion prevention in Central Germany.

From 1949 until 1991 the “Institut für Bergbausicherheit (IfB, Versuchsstrecke Freiberg)” was the “Staatshoheitrechtliche Institut der DDR” for the blasting essence, fire and explosion protection for mining and industry.

With the reunification, the “IfB” was annulled formally in 1991. In December 1990 was the foundation of **IBExU** Institut für Sicherheitstechnik GmbH with support of the “Bundesministerium für Wirtschaft” with the objective to proceed the scientific know how of the “IfB” and the work of the “Versuchsstrecke Freiberg” for the protection of human beings, real values as well as the environment against the hazards generated by accidents”.

IBExU developed into a European recognized institution for research, technical engineering services and safety tests in the special fields of plant- and processing engineering safety and accident prevention as well as protection against fire, explosions and emission.

The work of **IBExU** guarantees complete solutions in the mentioned subjects, even for very complex problems. The scientific and technical engineering staff of various special subjects has special professional experiences since many years.

IBExU has resources at an unique fund of scientific-technical knowledge and experiences on account of the management of the materials stored since the foundation of the “Versuchsstrecke Freiberg”, such as R & D reports, expert´s opinions and results of determinations of safety characteristics, certificates including all examination certificates issued in the former GDR.

Appropriate equipment in the laboratories and large-scale trial plants, such as explosion

tanks or detonation pipes, in the open-air area are available for examinations and tests conforming to standards and quality.

2. ORGANISATION

2.1 Names, Titles and Experience of the Senior Executives

Name	Title	Experience in Ex	Overall
Tammo Redecker	Prof. Dr.	35 years	36 years
Burkhard Hille	Dipl.-Ing. (FH)	25	25

2.2 Name, Title and Experience of the Quality Management Representative

Name	Title	Experience in Ex	Overall
Jens Neuhäuser	Dr.	4	14

2.3 Name and Title of Nominated Principal Contact

Name	Title
Reimund Götze	Dipl.-Ing.

2.4 Employees

Name	Title	Experience in Ex	Overall
Burkhard Hille	Dipl. Ing. FH	25 years	25 years
Alexander Henker	Dipl. Ing. FH	7	25
Reimund Götze	Dipl. Ing.	12	32
Rene Dietrich	Technician	4	9
Jens Sändig	Technician	9	14
Gerald Linke	Technical Worker	3	28
Timo Göhler	Technical Worker	17	21
Jörg Schmidt	Technical Worker	38	45
Volker Wagner	Technical Worker	3	20

2.5 Organizational Structure

See **Annexes 1 and 2** for the organizational structure of the IBExU ExTL.

The CV's of personnel involved in IECEx activities were checked and found to be acceptable.

3. RESOURCES

In the testing laboratory nine (9) persons are active in the field of Ex testing. Up to date records of training and skills are well maintained.

4. TEST METHODS

IBExU has developed procedures covering all the tests required in the standards sought in the scope. All of these procedures were reviewed during the assessment process, including checking against actual testing practice.

5. TEST REPORTS AND RECORDS

5.1 Test Reports Issued

Number of test reports issued under the ATEX directive / IEC / national in the preceding four years for each type of protection:

Standards	Number of issued reports				
Gas atmosphere	**2003**	**2004**	**2005**	**2006**	
IEC 60079-0 / EN 50014	117	90	76	50	**333**
IEC 60079-1 / EN 50018	36	32	29	14	**111**
IEC 60079-2 / EN 50016	3	1	5	1	**10**
IEC 60079-5 / EN 50017	3	4	7	0	**14**
IEC 60079-6 / EN 50015	0	1	1	0	**2**
IEC 60079-7 / EN 50019	53	36	28	15	**132**
IEC 60079-11 / EN 50020	62	50	53	49	**214**
IEC 60079-15 / EN 50021	12	22	21	25	**80**
IEC 60079-18 / EN 50028	13	8	4	7	**32**
IEC 60079-25 / EN 50039	6	4	3	1	**14**
EN 60079-26 / EN 50284	4	3	11	9	**27**
Combustible dust					
61241-0	31	33	27	13	**104**
61241-1	28	30	24	12	**94**
61241-1-1/ EN 50281-1-1	28	31	24	11	**94**
61241-4	0	0	0	0	**0**
61241-11	3	3	3	1	**10**
61241-18	0	0	1	0	**1**
62086-1	---	---	Tests included in clause 6.8 of 60079-7	Tests included in clause 6.8 of 60079-7	**0**

5.2 Test Records

The procedure is described in AA 05 7002, revision 1, dated 2006/04/18. Test records are found to be acceptable.

6. CALIBRATION

The calibration concept is described in quality management procedure VA 11 5 001, revision 6, dated 2006/06/09, which fulfills the requirement. The list of equipment is available to all employees on the IBExU Intranet.

During the assessment in the laboratory the calibration certificates and the tagging was checked and found acceptable.

7. DOCUMENTATION

7.1 ***Quality Manual***

IBExU has a quality manual following ISO 9001:2000 and holds certification from SGS, issued on September 21, 2006 and valid until September 20, 2009, See **Annex 3** for the certificate.

The quality manual consists of three levels: the general part, the procedures and the work instructions. It is available on the Intranet of IBExU.

The quality manual is complete and covers all aspects required.

7.2 ***Document Change Control***

Document and change control of documentation is described in procedure QH 015, revision 1, dated 2003/06/20.

8. CONFIDENTIALITY

Paragraph 4 of the employment contract describes the issue of confidentiality. The assessment Team confirmed that this is in place.

9. NATIONAL ACCREDITATION

IBExU holds an accreditation for DIN EN 45001 (equivalent to ISO/IEC 17025) from the German Accreditation Service ZLS, for the ATEX Directive 94/9/EG. See **Annex 4** for the certificate.

10. RECOGNITION AND AGREEMENTS

IBExU has an agreement with TÜV SÜD Automotive GmbH, Munich, Germany. It is a subcontracting agreement for certain clauses of IEC 60079-1 Ex “d” on behalf of TÜV SÜD.

11. INTERNAL AUDIT AND PERIODIC REVIEW

Internal audits are described in procedure VA 17 5 001, Revision 6, dated 2006/05/31. The internal audit plan for 2006 was presented, a sample of the audit reports were checked and found to be acceptable. The audit plan for 2007 is under preparation.

12. COMPLAINTS MECHANISM

Complaints are handled according to certification policy procedure QH – Part 3, Revision 1, clause 11. Complaint registration and handling is according to procedure AA 13 5 001, Revision 5, dated 2006/04/21. The ExCB deals with complaints with the support of the ExTL.

13. SPECIAL FACTS TO BE NOTED

13.1 General Comments

IBExU is a laboratory with a wide range of activities having long experience:

- Development of a scientific and testing technical centre for the special subjects of fire and explosion prevention;
- Fire and explosion protection for mining and industry;
  Test range ("Versuchsstrecke Freiberg") for the protection of human beings, real values as well as the environment against the hazards generated by accidents;
- Technical engineering services and safety tests in the special fields of plant and processing engineering safety and accident prevention as well as protection against fire, explosions and emission.

13.2 Subcontracting

IBExU subcontract the following clauses to the specified Laboratories. These arrangements were reviewed by the assessment team and found to comply with IECEx Scheme requirements, including confidentiality and conflict of interest preservation. Both of the laboratories hold current accreditation to ISO/IEC 17025, in this field, with TÜV SÜD Automotive GmbH an accepted ExTL within the IECEx Scheme.

FILK Forschungsinstitut für Leder und Kunststoffbahnen GmbH
Meißner Ring 1-5, 09599 Freiberg, Germany
IEC 60079-0 clause 26.10
IEC 61241-0 clause 23.4.7.5

TÜV SÜD Automotive GmbH
Ridlerstrasse 65, 80339 Munich, Germany
IEC 60079-15, 3rd edition Clause 33.10, 33.11, 33.12

14. COMMENTS

During the assessment, the audit team made observations leading to action items. It concerned the application of IECEx rules and procedures, the quality handbook, staff work instructions, test report form application and calibration issues. All the action items were resolved, to the satisfaction of the assessment team and in accordance with the IECEx Scheme Rules. The assessment team recommends acceptance of IBExU as an ExTL. Copies of additional supporting information for this assessment have been provided to the applicant and the IECEx Secretariat.

The standards mentioned below are proposed for acceptance on the basis that the first ExTR generated is to be reviewed by the Team in order to check proper application of the IECEx processes and documentation by the assessment team.

Number	Title	Clearance
60079-11	Electrical apparatus for explosive gas atmospheres Part 11: Intrinsic safety 'i' **Comment:** To provide first project in IECEx format to the assessment team prior to operation as an ExTL	YES

60079-25	Electrical apparatus for explosive gas atmospheres Part 25: Intrinsically safe systems **Comment:** To provide first project in IECEx format to the assessment team prior to operation as an ExTL	YES
60079-27	Electrical apparatus for explosive gas atmospheres Part 27: Fieldbus intrinsically safe concept (FISCO) **Comment:** To provide first project in IECEx format to the assessment team prior to operation as an ExTL	YES
61241-11	Electrical apparatus for use in the presence of combustible dust Part 11: Intrinsic safety "iD" **Comment:** To provide first project in IECEx format to the assessment team prior to operation as an ExTL	YES

15. RECOMMENDATION

Based on the initial assessment performed between October 16th and 18th, 2006, the assessment team recommends acceptance of IBExU GmbH, Freiberg, as an IECEx Testing Laboratory for the scope listed in clause 1.6 of this report.

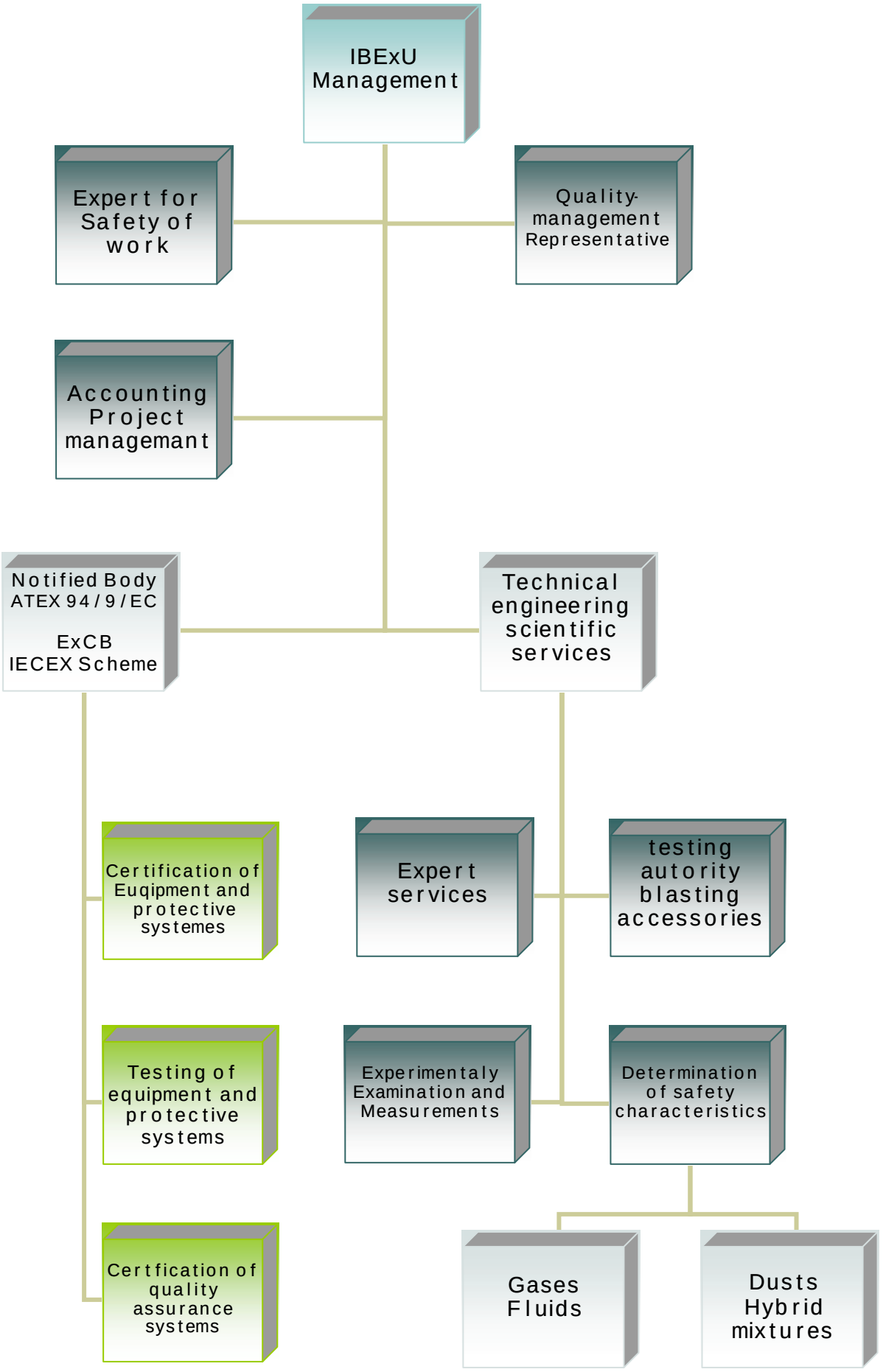
Heinz S. Berger Team Leader	Vijay K. Varma Expert Assessor	Ron J. Webb Expert Assessor

Date: April 11th, 2007

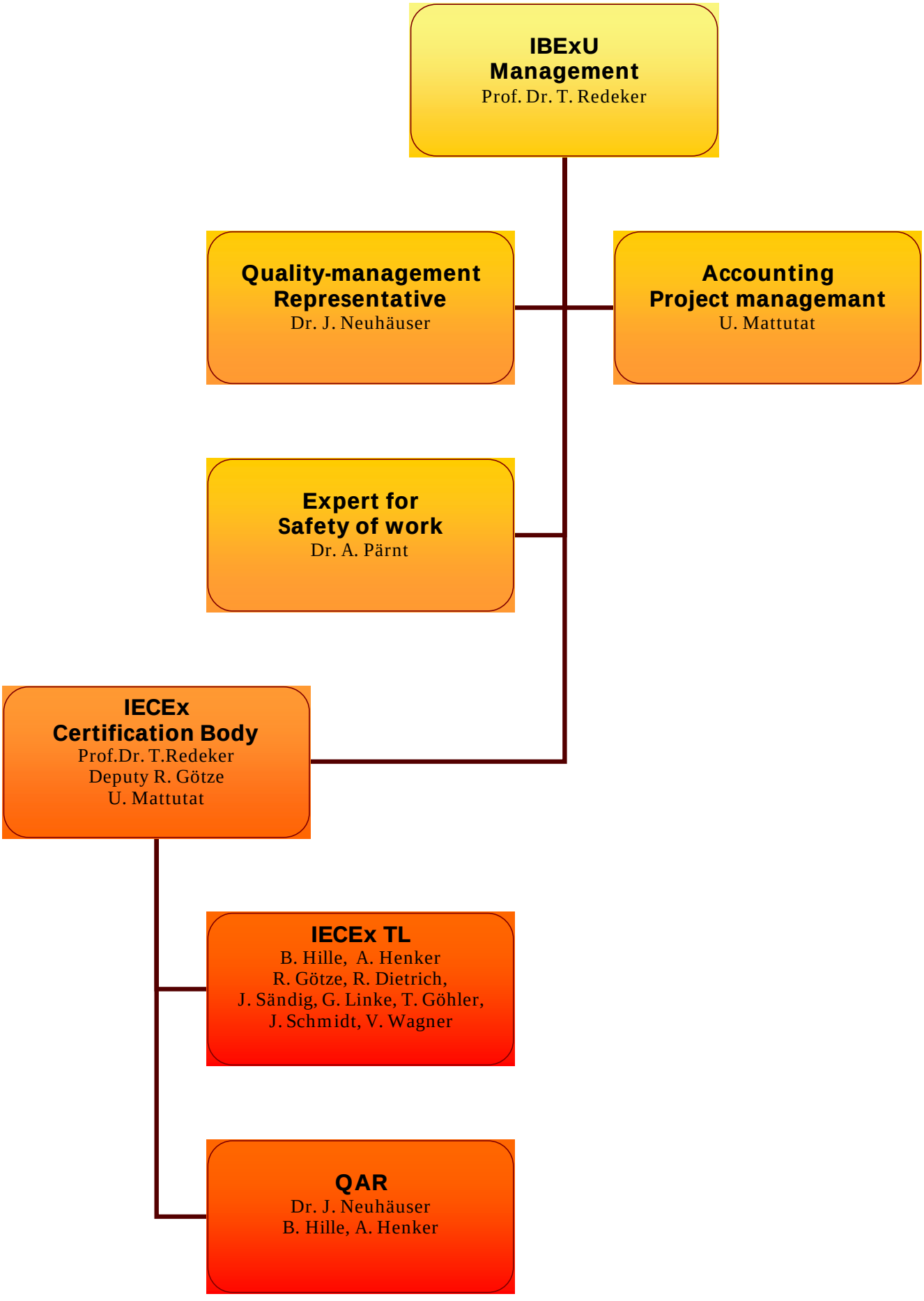
List of Annexes:

Annex 1: Overall Organization Chart of IBExU
Annex 2: Organization Chart for IECEx TL
Annex 3: ISO 9001 Certificate SGS
Annex 4: Accreditation Certificate for ISO/IEC 17025

Organisation Chart of IBExU (annex 1)



Organisation Chart of IECEx TL Operation (annex 2)



Certificate DE06/3282

The management system of

IBExU Institut für Sicherheitstechnik GmbH

Fuchsmühlenweg 7
DE-09599 Freiberg
Germany

has been assessed and certified as meeting the requirements of

ISO 9001:2000

For the following activities

Safety tests and engineering services especially for explosion protection

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2000 requirements may be obtained by consulting the organization

This certificate is valid from 21/09/2006 until 20/09/2009
Issue 4. Certified since 25/03/1997

Authorised by

Deutscher Akkreditierungs Rat
DAR
TGA-ZM-17-93-00

SGS-ICS Gesellschaft für Zertifizierungen m.b.H. und Umweltgutachter
Raboisen 28 D-20095 Hamburg (Germany)
t +49 (0)40 30.101.361 f +49 (0)40 33.04.098 www.de.sgs.com

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AKKREDITIERUNG

Die Zentralstelle der Länder für Sicherheitstechnik (ZLS)

bestätigt hiermit, dass das

Prüflaboratorium
der
IBExU Institut für Sicherheitstechnik GmbH Institut an der Technischen Universität Bergakademie Freiberg
Fuchsmühlenweg 7, 09599 Freiberg

die Anforderungen des § 11 Abs. 1 des Geräte- und Produktsicherheitsgesetzes und der Norm DIN EN ISO/IEC 17025 erfüllt und die Kompetenz besitzt,
Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen
im Geltungsbereich des GPSG und der EG-Richtlinie 94/9/EG
entsprechend den Bestimmungen des Akkreditierungsbescheides
Nr. ZLS-G3926.1-2006/9
zu prüfen.

Die Akkreditierung ist gültig bis zum **31.12.2011.**
Reg.-Nr.: **ZLS-P-694/06**

München, den 15.12.2006

Dipl.-Wirtsch.-Ing. (FH) Huber
Leiter der ZLS

ZLS im Bayerischen Staatsministerium für Umwelt, Gesundheit und Verbraucherschutz,
Postfach 81 01 40, 81901 München