

Secretariat

INTERNATIONAL ELECTROTECHNICAL COMMISSION

IEC SCHEME FOR CERTIFICATION TO STANDARDS FOR SAFETY OF ELECTRICAL EQUIPMENT FOR EXPLOSIVE ATMOSPHERES (IECEX SCHEME)

Ex Management Committee, ExMC

Introduction

The IECEX Assessment Team has conducted a full and complete assessment on TÜV-Nord in accordance with the IECEX Scheme Rules.

In line with the recommendations of the IECEX Assessment Team, the Secretariat hereby submits the TÜV-Nord voting form for consideration and return by ExMC Members.

INTRODUCTION

The following Assessment Report consists of:

- An initial Report
- A Supplementary Report
- Annexure

The supplementary report included is due to a follow-up visit by Mr Hanko to verify correction points raised under item 14.

TÜV Nord

No. I do not agree with the acceptance of TÜV Nord as an Ex Test Laboratory in the IECEx Scheme for the following reasons

[illegible]

Date: _____

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IECEx ASSESSMENT REPORT

(TEST LABORATORY-TL)

1. OBJECT AND FIELD OF APPLICATION

1.1 *Country:*

Germany

1.2 *Name of Candidate ACB*

TÜV-Nord Anlagentechnik GmbH
(Technischer ÜberwachungsVerein)
Hannover, Germany

1.3 *Members Of The Assessment Team*

*Janos Hanko, BKL, Hungary
*John Bossert, Hazloc Inc., Canada
Trond Sollie, NEMKO, Norway (Lead Assessor)

*Site visit performed by two Assessors only due to Accreditation status of applicant TL.

1.4 *Place And Date Of Assessment*

Hannover, December 6 and 7, 1999

1.5 *Assessment References*

Documents:

- i) IECEx 04 First Edition 1995-03
- ii) ExCC/05/INF - 1999
- iii) EN 45001 and ISO/IEC Guide 25 : 1990
- iv) TÜV Nord Application documents dated 31.03.1999

1.6 *Scope Of Application*

Product Category	Standard
General Requirements	IEC 79-0
Pressurized Enclosures	IEC 79-2
Sand-Filled Apparatus	IEC 79-5
Oil-Emersed Apparatus	IEC 79-6
Increased Safety	IEC 79-7
Intrinsic Safety	IEC 79-11
Type "n" Protection	IEC 79-15
Type "m" Protection (encapsulation)	IEC 79-18

Note: Group I equipment and Increased Safety motors are excluded

1.7 ***Candidate TL Persons Interviewed***

Position
Head of TL

Name
Karl-Heinz Schwedt

1.8 ***Legal Entity Of The Candidate TL***

The TL is a part of TÜV-Nord Group, a not-for-profit company.

1.9 ***Associated ACB's***

The associated ACB is part of the same organization as the TL within TÜV-Nord Group.

1.10 ***Financial Support***

Based on fees for testing only.

1.11 ***History***

TÜV-Nord has a history back to 1873 as a conformity assessment body in different fields. The testing service for of electrical equipment in explosive atmospheres was established in 1975.

1.12 ***Relevant Standards***

See 1.6 above.

2. **ORGANISATION**

See attached organization charts. (Annex 1)

2.1 ***Names, Titles And Experience Of The Senior Executives***

Name	Title	Experience
Karl-Heinz Schwedt	Head of Testing Laboratory.	Electrical Engineer since 1974 With TUV since 1979

2.2 ***Name, Title And Experience Of The Quality Management Representative***

Name	Title	Experience
A. Meyer	Quality Manager.	Electrical Engineer since 1989 with TUV since 1990

2.3 ***Name And Title Of Nominated Principal Contact***

Name	Title	Experience
Karl-Heinz Schwedt	Head of Testing Laboratory.	(see 2.1 above)

2.4 Employees

See attached “competence matrix” in Annex 2

2.5 Organisational Structure

See attached organization charts (Annex 1)

3. RESOURCES

The CTI test and the spark test for Groups IIA and IIB are subcontracted to PTB – an IECEx accepted TL. All other test equipment is available in the laboratory.

4. TEST METHODS

The test methods are found to be relevant to the applicable standards.

4.1 Procedures

Documented procedures are available for each test**4.2 Staff Work Instructions**

Appropriate work instructions for the staff are included in the Quality Manual.

5. TEST REPORTS AND RECORDS

5.1 Test Reports Issued

Intrinsic Safety “i”	160
Increased Safety “e”	15
Oil Immersed “o”	0
Powder Filled “q”	10
Encapsulated “m”	10
Type “n”	24
Pressurized “p”	94

5.2 Test Records

Appropriate procedures are documented and operated accordingly.

6. CALIBRATION

The calibration system of test equipment and instruments and is found satisfactory, except that some improvement in calibration of the spark test apparatus is required. These improvements have been agreed by the laboratory. The required drawings showing the improvements will be provided to the assessment team within 90 days.

7. DOCUMENTATION

7.1 *Quality Manual*

The Quality Manual of the laboratory was found appropriate for the operations.

7.2 *Document Change Control*

Appropriate procedures for document- and change control is in place and is under the responsibility of K.-H. Schwedt

8. CONFIDENTIALITY

All test records and information provided by the clients are kept strictly confidential according to documented procedures.

9. NATIONAL ACCREDITATION

The candidate laboratory is accredited by the German accreditation body ZLS to both EN 45001. ZLS is affiliated with the DAR accreditation board in Germany, which in turn is associated with European EA and international IAF.

Also, the quality system of the TÜV-Nord Group is certified to ISO 9001:1994 by Lloyds Register QA. See attached copies of the certificates. (Annex 3)

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10. RECOGNITION AND AGREEMENTS

Nominated as a European Notified Body to the Directive 94/9/EEC.
Mutual recognition agreement with PTB.

11. INTERNAL AUDIT AND PERIODIC REVIEW

A complete internal audit is conducted every year according to a documented procedure.

12. COMPLAINTS MECHANISM

A complaint procedure is documented in the Quality Manual.

13. SPECIAL FACTS TO BE NOTED

The available "IECEx Guidance Documents" for Ex type "d", "e" and "i" were used as check lists and completed during the assessment, while for Ex type "p", "q", "o" and "m" equivalent check lists prepared by LCIE were used.

14. COMMENTS

As noted under item 6., improvement in calibration of the spark test apparatus is agreed to be demonstrated to the satisfaction of the assessment team within 3 months from the time of the visit

15 . RECOMMENDATION

Based on the findings from the document review and from the site visit, and subject to clarification of the point mentioned in Item 14. above, the assessment team recommends full acceptance of the candidate certification body as IECEx TL for the product standards applied for as shown in Item 1.6 of this report.


Janos Hanko


John Bossert


Trond Sollie
(Lead Assessor)

Supplementary Report

Subject: Acceptance of Testing Laboratory of TÜV Nord Anlagetechnik GmbH. Second assessment and control check of IEC 79-3 Spark Test Apparatus in the framework of IECEx Scheme TÜV Nord Anlagetechnik D-30 519 Hannover, 31st May 2000

Preamble: During the first assessment of TÜV Nord Anlagetechnik GmbH performed on 6th and 7th December 1999 with the participation on the part of IECEx Scheme Mr. John Bossert and Mr. János Hankó (Lead assessor Mr. Trond Sollie), the operation of the IEC 79-3 Spark Test Apparatus failed to meet the requirements. The calibrating circuit did not ignite the H₂ + air mixture.

According to the co-ordination made with TÜV Nord during the local discussion, the apparatus was modified as follows:

- a) Both the combustible gas (H₂) and the air enter the mixing system at a value exceeding atmospheric pressure and get onto the inlet of the Wösthoff pump through the fine pressure regulator.
- b) Air humidity is extracted from the air (in a tank containing silica gel).
- c) A buffer tank has been used at the outlet of the Wösthoff pump in order to eliminate pulsation.
- d) The calibrating circuit has been constructed in a single unit of linear construction.

Control Test

1. Control of the calibrating circuit

L	Specified	Measured
	95 mH	95.3 mH

Applied instrument: HAMEG HM 8018
Calibrated by: TÜV 02-19/34-92-001
Calibration valid till: 12th January 2002

U I	Specified	Measured
	24 V	24.02 V
	30 mA	30.41 mA

Applied instrument: Voltkraft M-3860 M
Calibrated by: TÜV QS Nr. 3044-2029
Calibration valid till: April 2002

- 2. Applied combustible gas: H₂
Produced by: Linde 933, GA320
Accuracy: 5.0 (5 times 9)

3. Spark test using the calibrating circuit (30 cycles)

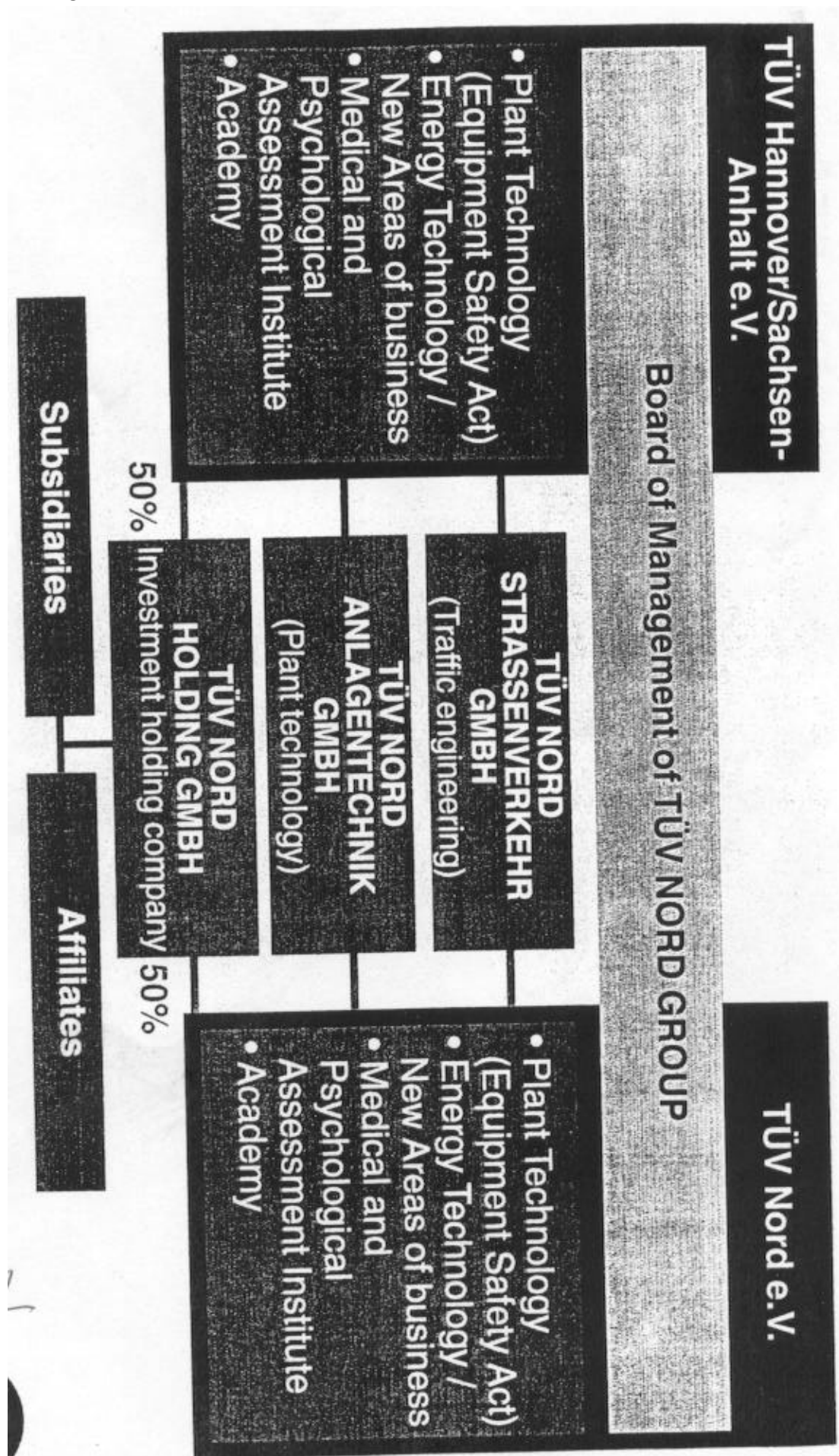
No.	Ignition occurred at the following spark numbers	The result is acceptable	The result is not acceptable
1	194	Y	
2	22	Y	
3	415	Y	
4	4	Y	
5	366	Y	
6	18	Y	
7	249	Y	
8	175	Y	
9	74	Y	
10	99	Y	
11	99	Y	
12	3	Y	
13	95	Y	
14	45	Y	
15	59	Y	
16	93	Y	
17	99	Y	
18	99	Y	
19	79	Y	
20	3	Y	
21	95	Y	
22	99	Y	
23	199	Y	
24	11	Y	
25	87	Y	
26	11	Y	
27	87	Y	
28	50	Y	
29	48	Y	
30	24	Y	

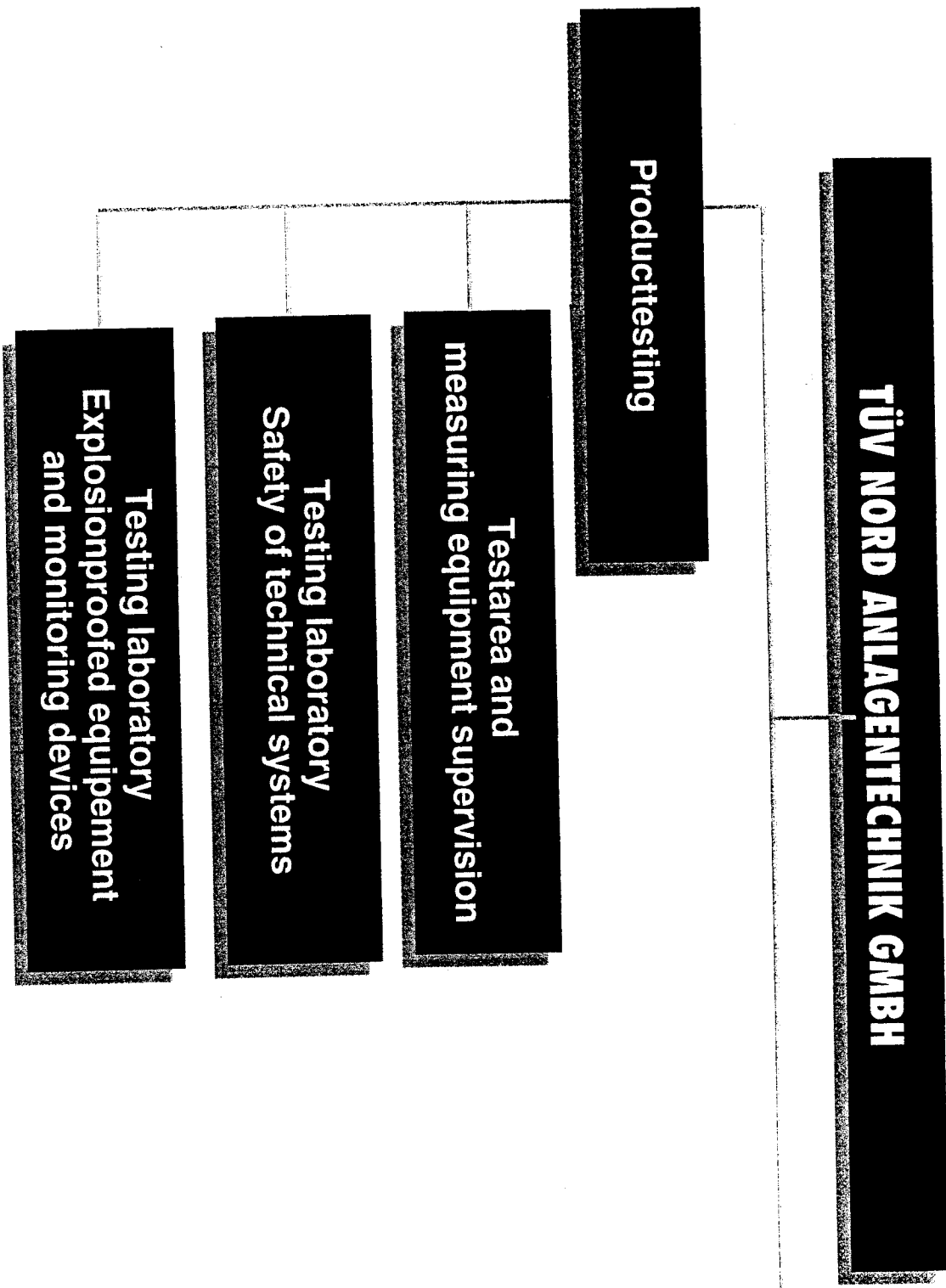
4. Conclusion

Each control test performed on the apparatus was successful. Accordingly its reliability is 100 %.

I am proposing the full acceptance of the laboratory.

János Hankó
6th June 2000
Budapest







Functions and activities in the field of the IECEx Scheme testing and certification procedure

Accepted Certification Body Head of the ACB: Herbert Stürwold Deputy: Oskar Rosin
Certification for type of protection e, i, n, m, p

Testing Laboratory Head of the TL: Karl-Heinz Schwedt Deputy: Andreas Meyer					
Testing-engineers and their activities¹					
Type of protection:	e	i	n	m	p
Name:					
Klaus Hoferichter	X	X	X	X	X
Andreas Meyer	X	X		X	
Jens Scheffler	X	X			X
Heinz Richter	X	X	X	X	X
Karl-Heinz Schwedt	X	X		X	X
Testarea and measuring equipment supervision Head of the workshop: Bernd Roffka					
Technicians and their activities²					
Type of protection	e	i	n	m	p
Name					
Hans-Wilhelm Lenz	X	X	X	X	X

¹ All testing-engineers are collaborators of the TL and have the education and experience to carry out tests for the respective type of protection.

² Calibrating-services for the measuring equipment.

Tests of components e. g. IP rate and part-test e. g. temperature-tests will be carried out according to instructions of the testing-engineers.

AKKREDITIERUNG



Die Zentralstelle der Länder für Sicherheitstechnik (ZLS)
- vertreten im Deutschen Akkreditierungsrat -
bestätigt hiermit, daß der

TÜV Hannover / Sachsen-Anhalt e.V.
Am TÜV 1, D - 30519 Hannover

die Anforderungen des § 9 Abs. 2 Gerätesicherheitsgesetz (GSG)
sowie die Norm DIN EN 45 001 erfüllt und die Kompetenz besitzt,

**Geräte und Schutzsysteme zur bestimmungsgemäßen
Verwendung in explosionsgefährdeten Bereichen**
im Sinne der Richtlinie 94/9/EG entsprechend den Bestimmungen
des Akkreditierungsvertrages Nr. IIZLS/3302/569/95

zu prüfen.

Die Akkreditierung ist gültig bis zum 31.07.2001
DAR-Reg.-Nr.: ZLS-P-105/96

München, den 12.07.1996

Im Auftrag

Feitenhansl
Leiter der Zentralstelle



CERTIFICATE OF APPROVAL

This is to certify that the Quality Management System of:

**TÜV NORD GRUPPE
TÜV Hannover/Sachsen-Anhalt e.V.
Hannover, Germany**

*has been approved by Lloyd's Register Quality Assurance Limited
to the following Quality Management System Standards:*

DIN EN ISO 9001:1994

The Quality Management System is applicable to:

**Tests and assessments for
steam boiler, pressure vessels and tank plants; electrical engineering,
machinery and mining; product testing and materials technology;
energy and systems technology; environmental protection;
management systems consulting as well as design
of these and new services.**

**Approval
Certificate No: 203620/A**

Original Approval:	4th November 1996
Current Certificate:	30th November 1998
Certificate Expiry:	31st October 1999

H. Schneider
on behalf of LRQA



LLOYD'S REGISTER QUALITY ASSURANCE