Secretariat

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 acceptance of *TÜV SÜD Automotive GmbH* as an IECEx Test Laboratory (ExTL)

INTRODUCTION

This document contains the IECEx Assessment Report for the acceptance of *TÜV SÜD Automotive GmbH*- as an IECEx Test Laboratory (ExTL) within the IECEx Scheme.

Please consider this report, which is hereby issued for consideration during the ExMC meeting to be held in Shanghai in September 2006.

Chris Agius
IECEx Secretariat

Address: **IECEx Secretariat** **SAI 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**

Secretariat

IECEx INITIAL REPORT FOR TÜV SÜD Automotive GmbH, Munich, Germany

(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***

TÜV SÜD Automotive GmbH
Electronic Systems
Laboratory Explosion Protection
Ridlerstrasse 65
80339 Munich
Germany

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

Heinz S. Berger, Team Leader
Vijay Kumar Varma, Expert Assessor
William Dunn, Expert Assessor

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

80339 Munich, Ridlerstrasse 65

8th – 10th Mai, 2006

1.5 ***Assessment References***

Documents:

i) IECEx 02 Second Edition 06 2003
ii) IECEx Operational Document OD/003
iii) IECEx Operational Document OD/009
iv) ISO/IEC 17025:2005
v) IECEx Technical Guidance Documents (TGDs)
vi) ExTAG decision sheets (DS's)
vii) ExTL application documents dated May 16, 2005

1.6 *Scope of Application and Clearance*

Number	Title	Clearance
60079-0	Electrical apparatus for explosive gas atmospheres Part 0: General requirements	OK
60079-1	Electrical apparatus for explosive gas atmospheres Part 1: Construction and verification test of flameproof enclosures of electrical apparatus “d” **Limit in Scope:** No group I work and no Ex”d” motors greater than 4kW	OK with Conditions and Limits: see below
60079-2	Electrical apparatus for explosive gas atmospheres Part 2: Electrical apparatus, type of protection 'p' (Pressurization)	OK
60079-5	Electrical apparatus for explosive gas atmospheres Part 5: Powder filling "q"	OK with Conditions: see below
60079-6	Electrical apparatus for explosive gas atmospheres Part 6: Oil-immersion 'o'	OK with Conditions: see below
60079-7	Electrical apparatus for explosive gas atmospheres Part 7: Increased safety 'e' **Limit in Scope:** No rotating machines, luminaries and resistance heating devices	OK with Limits see below
60079-11	Electrical apparatus for explosive gas atmospheres Part 11: Intrinsic safety 'i'	OK
60079-15	Electrical apparatus for explosive gas atmospheres Part 15: Electrical apparatus with type of protection 'n' (Non-Sparking)	OK
60079-18	Electrical apparatus for explosive gas atmospheres Part 18: Encapsulation 'm'	OK
61241-0	Electrical apparatus for use in the presence of combustible dust Part 0: General requirements	OK
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	OK
61241-4	Electrical apparatus for use in the presence of combustible dust Part 4: Type of protection 'pD'	OK
61779-1	Electrical apparatus for the detection and measurement of flammable gases Part 1: General requirements and test methods	OK
61779-2	Electrical apparatus for the detection and measurement of flammable gases Part 2: Performance requirements for group I apparatus indicating a volume fraction up to 5% methane in air	OK
61779-3	Electrical apparatus for the detection and measurement of flammable gases Part 3: Performance requirements for group I apparatus indicating a volume fraction up to 100% methane in air	OK

61779-4	Electrical apparatus for the detection and measurement of flammable gases Part 4: Performance requirements for group II apparatus indicating up to 100% lower explosive limit	OK
61779-5	Electrical apparatus for the detection and measurement of flammable gases Part 5: Performance requirements for group II apparatus indicating a volume fraction up to 100% gas	OK

1.7 ***Candidate TL Persons Interviewed***

Thomas Lammel
Ulrich Jacobs
Stefan Link
Michael Thienel
Jürgen Blum
Andreas Bärwald
Matthias Ramold (entered the laboratory on April 1st, 2006)

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

TÜV SÜD Automotive GmbH

1.9 ***Associated ExCB***

TÜV SÜD Product Service GmbH, Ridlerstrasse 65, 80339 Munich

1.12 ***Financial Support***

There is no financial support. TÜV SÜD Product Service GmbH, are self funding and derive their income from Testing and Certification activities.

1.13 ***History***

1996 Foundation of “Institute of Vehicle Technology“ (Institut für Fahrzeugtechnik GmbH”)
Opening of the Noise Measurement Center in Munich
Opening of the Crash Facility in Mlada Boleslav
1997 Renaming to “TÜV SÜD Automotive GmbH”
1998 Opening of the Gear Test Facility in Garching
1999 Start-up in Japan
2000 Formation of Business Area Electronic Systems
2002 Start-up in USA
2003 Opening of the Engine- & Power Transmission Test Center in Garching
2004 Opening of the Airbag Testing Laboratory in Mlada Boleslav
2005 Opening of the Fuel Tank Test Centre in Garching
2006 10 years “TÜV SÜD Automotive GmbH”

2. ORGANISATION

2.1 Names, Titles and Experience of the Senior Executives

Name	Title	Experience
Dr. Eckhart von Westerholt	Managing Director	---
Martin Schmidt	Manager Electronic Systems	11 years
Jürgen Blum	Deputy Manager Electronic Systems	20 years

2.2 Name, Title and Experience of the Quality Management Representative

Name	Title	Experience
Dr. Reinhard Fresia	Quality Management Representative	10 years

2.3 Name and Title of Nominated Principal Contact

Name	Title	Experience
Thomas Lammel	Electrical engineer	4 years

2.4 Employees

Name	**Title**	**Experience**
Thomas Lammel	Electrical Engineer	4 years
Stefan Link	Electrical Engineer	4 years
Ulrich Jacobs	Electrical Engineer	14 years
Michael Thienel	Dipl. Ing. Electro	14 years
Jürgen Blum	Deputy Manager Electronic Systems	20 years
Andreas Bärwald	Dipl. Ing. (FH)	3 years
Matthias Ramold	Dipl. Ing. (FH)	½ year

2.5 Organizational Structure

See Annexes 1 to 3: Organizational structures of TÜV SÜD Group, TÜV SÜD Automotive – Electronic System and of the IECEx TL.

Several CV's of personnel involved in IECEx activities were checked and found to be acceptable. These personnel were subsequently interviewed and found to possess a thorough understanding of Ex protection concepts and the Standards.

3. RESOURCES

A total of 7 employees are involved in testing activities. 2 persons are listed as Technical Certifiers (technical decisions for certification). The laboratory has a pool of measuring equipment available for measurements under IECEx. Some of the test equipment is

borrowed from TÜV SÜD Product Service GmbH. The responsibility for the equipment is linked to the ownership. See also clause 6 “Calibration”.

4. TEST METHODS

Test methods are described in management handbook for laboratories, subchapter 4.4.1 and 4.4.2 and in a detailed manner in Procedure_IECEx_pkt_2_6.

5. TEST REPORTS AND RECORDS

5.1 Test Reports Issued

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

Product Category	Standard*	2002	2003	2004	2005	∑
General Requirements	IEC 60079-0					*-
Flameproof Enclosures “d”	IEC 60079-1			1	2	**3**
Pressurized Enclosures “p”	IEC 60079-2			1		**1**
Powder Filling “q”	IEC 60079-5					**0**
Oil Immersion “o”	IEC 60079-6					**0**
Increased Safety “e”	IEC 60079-7		5	1	4	**10**
Intrinsic Safety “i”	IEC 60079-11	8	4	6	4	**22**
Type “n” Protection	IEC 60079-15	1	5	5	1	**12**
Type “m” Protection (encapsulation)	IEC 60079-18		1		3	**4**
Apparatus for combustible dust atmospheres	IEC 61241-1-1					**12**
Combustible dust - General requirements	IEC 61241-0					**0**
Combustible dust – Type of protection “pD”	IEC 61241-4					**0**
Detection and measurement of flammable gas - General requirements and test methods	IEC 61779-1				2	**2**
Detection and measurement of flammable gas - Volume fraction of up to 5% methane in air	IEC 61779-2				0	**0**
Detection and measurement of flammable gas - Volume fraction of up to 100% methane in air	IEC 61779-3				0	**0**
Detection and measurement of flammable gas - Group II; up to 100% lower explosive limit	IEC 61779-4				2	**2**
Detection and measurement of flammable gas - Group II; a volume fraction up to 100% gas	IEC 61779-5					**0**

Mainly using equivalent EN-standard; * 60079-0 test reports are included in the listed numbers

Note: Some projects concerning combustible dust which were tested and certified according to EN 50281, “electrical apparatus for use in the presence of combustible dust”.

5.2 Test Records

The handling of test records is described in management handbook for laboratories, subchapter 4.4.1 and 4.4.3 and in a detailed manner in Procedure_IECEx_pkt_2_6. Test records were reviewed in detail and found to be acceptable.

6. CALIBRATION

TÜV SÜD Automotive GmbH is using for IECEx operation test equipment from three different legal entities:

TÜV SÜD Product Service GmbH
TÜV SÜD Automotive GmbH
TÜV SÜD Industry Service GmbH

There are three independent lists of equipment, all showing the necessary information concerning calibration status.

The equipment used during the initial assessment was checked by the assessors for marking and tagging as well as the relevant calibration certificates and was found to be acceptable.

7. DOCUMENTATION

7.1 *Quality Manual*

The Corporate Quality Manual of the TÜV SÜD Group is valid for all organizations within the group and describes the quality policy and the management system.

The second level quality manual concerns TÜV SÜD Automotive GmbH according to VDA 6.2:2004. It consists of process descriptions and management instructions. This manual was last revised in March 2005 and follows ISO 9001:2000.

Based on the above mentioned quality manuals a third level manual exists for the accredited testing laboratory following ISO/IEC 17025.

The quality manuals are available on the Intranet visible to personnel active under the IECEx Scheme.

7.2 *Document Change Control*

Document change control is defined in the quality manual of TÜV SÜD Automotive GmbH under procedure TA-VDA-4.2.3 and fully complies with the principles of document management controls.

8. CONFIDENTIALITY

In the Corporate Management Manual of TÜV SÜD Group is binding for each TÜV SÜD Group Member. It is outlined as management task to implement tools to assure confidentiality and conflict of interest. In addition, the employment contract deals with these issues and requires a written statement signed by the employees.

9. NATIONAL ACCREDITATION

TÜV SÜD Automotive GmbH holds an accreditation as a testing laboratory by ZLS (German Accreditation Services) for DIN EN 17025 (equivalent to ISO/IEC 17025) for the ATEX directive 94/9/EG. See Annex 4 for the accreditation document. The certificate is

valid until June 30th, 2008. There are further accreditations mentioned but they are not relevant concerning the Ex field.

10. RECOGNITION AND AGREEMENTS

There are no recognitions and agreements in the Ex field. However, several agreements are in force concerning other areas than Ex.

11. INTERNAL AUDIT AND PERIODIC MANAGEMENT REVIEW

The Internal Audit Plans for 2005 and 2006 were presented during the assessment as well as the last report concerning the IECEx TL under assessment, dated December 8, 2005. The documents were found to be acceptable.

The last Periodic Management Review was held on February 9, 2006. The minutes were presented during the assessment and found to be acceptable.

12. COMPLAINTS MECHANISM

The document “Complaint Procedure” was shown during the assessment and found to be acceptable.

13. SPECIAL FACTS TO BE NOTED

TÜV SÜD Group is a very large organization operating world wide in the area of technical product conformances. TÜV SÜD Automotive holds several accreditations.

14. COMMENTS

During the assessment, the audit team made observations leading to actions items. All the actions items were resolved by the applicant, satisfying the assessment team towards the recommendation for acceptance. See conditions and limitations below.

Number	Title	Clearance
60079-1	Electrical apparatus for explosive gas atmospheres Part 1: Construction and verification test of flameproof enclosures of electrical apparatus “d” **Conditions:** Work is subcontracted to IBExU, Freiberg, Germany. IBExU is a candidate ExTL in the IECEx Scheme and scheduled for initial assessment in October 2006. After technical clearance of IBExU concerning Ex “d” full clearance can be given to TÜV SÜD Automotive GmbH **Limits:** No group I work and no Ex”d” motors (greater than 4kW)	OK with Conditions and Limits
60079-5	Electrical apparatus for explosive gas atmospheres Part 5: Powder filling "q" **Conditions:** First projects to be provided to the assessment team leader for	OK with Conditions

	review prior to the issue of a CoC	
60079-6	Electrical apparatus for explosive gas atmospheres Part 6: Oil-immersion 'o' **Conditions:** First projects to be provided to the assessment team leader for review prior to the issue of a CoC	OK with Conditions
60079-7	Electrical apparatus for explosive gas atmospheres Part 7: Increased safety 'e' **Limits:** No rotating machines, luminaries and resistance heating devices	OK with Limits

15. RECOMMENDATION

Based on the initial assessment performed between May 8th and 10th, 2006, the assessment team recommends acceptance of TÜV SÜD Automotive GmbH as an IECEx Testing Laboratory for the scope listed in clause 1.6 (clearance column) of this report under the conditions and limitations as described in clause 14 of this report.

Heinz S. Berger Team Leader	William E. Dunn Expert Assessor	Vijay K. Varma Expert Assessor

27th August 2006

List of Annexes:

Annex 1: Overall Organization Chart of TÜV SÜD Group
Annex 2: Organization Chart of Region Germany
Annex 3: Organization Chart of the Ex Testing Laboratory
Annex 4: ZLS Accreditation Certificate TS Automotive GmbH

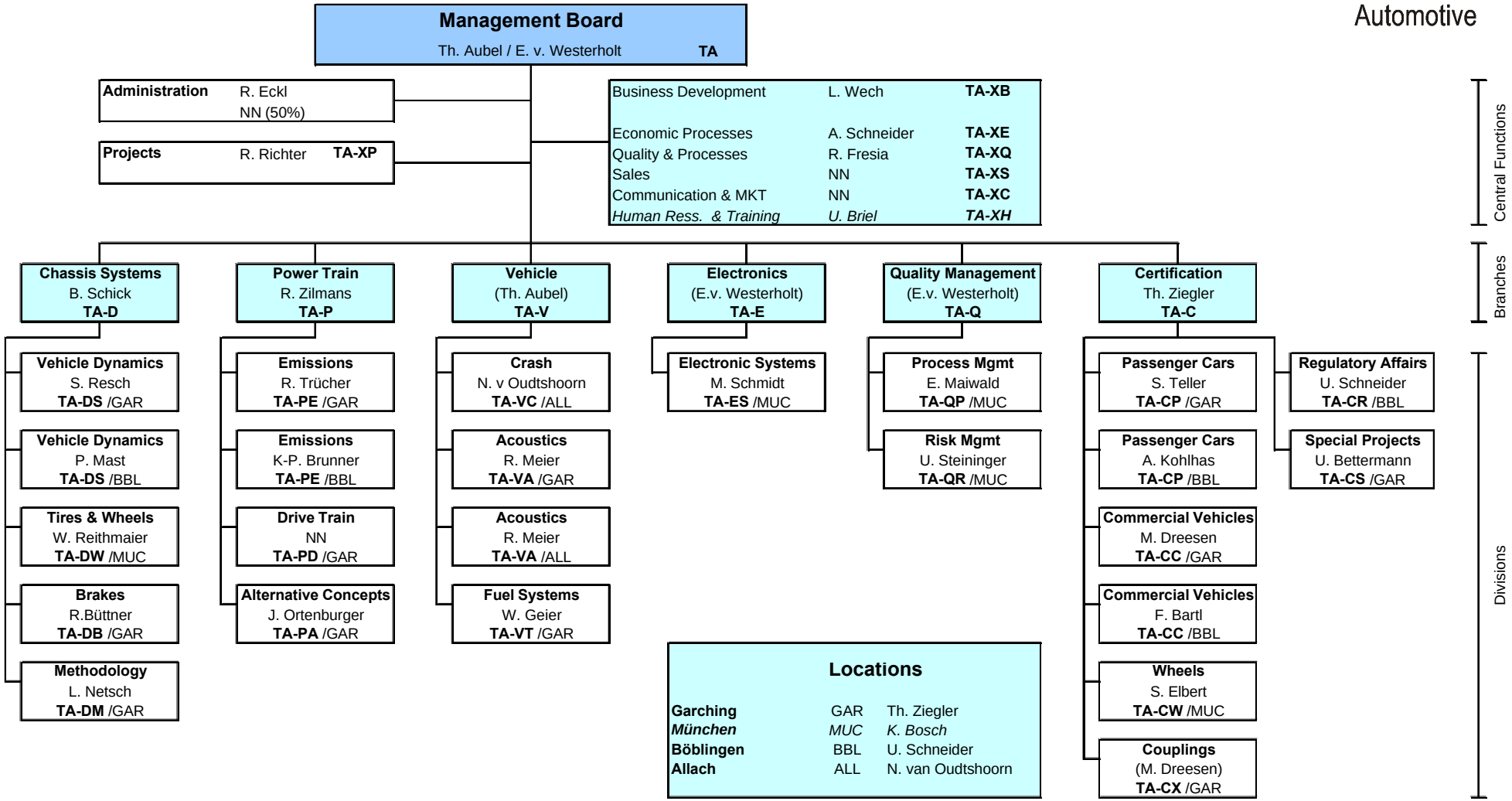
TÜV SÜD

Board of Management
Dr. Peter Hupfer (Chairman) Hermann Mund Dr. Axel Stepken

Business Segments / *Regions*	**INDUSTRY** Stepken (Mund)	**MOBILITY** Hupfer (Mund)	**PEOPLE** Stepken (Mund)	Corporate Business Development Hupfer	*Central Divisions* Finances & Controlling Mund	*Central Divisions* Planning & Corporate Management Hupfer
EUROPE	• TÜV SÜD Industry Service • TÜV SÜD Product Service • TÜV SÜD Chemical Service + subsidiaries	• TÜV SÜD Auto Service • TÜV SÜD Automotive • TÜV SÜD Rail + subsidiaries	• TÜV SÜD Management Service • TÜV SÜD Life Service • TÜV SÜD Akademie + subsidiaries	• New technologies • New industry sectors • New regions	• Controlling • Finances / Accounting • Investments • IT • Real estate	• Human resources • Legal, Accreditation, Quality management, Risk management • Corporate communications • Corporate development • Auditing
AMERICAS Hupfer (Mund)	TÜV America (CRO) + subsidiaries					
ASIA Stepken (Mund)	TÜV Asia (CRO) + subsidiaries					

TÜV Automotive GmbH - Organization

Automotive



Structure Lab for Explosion Protection

TÜV SÜD Automotive

Department Electronic Systems, Laboratory for Explosion Protection

Lab Manager: J. Blum (Deputy Manager Electronic Systems)

Product Testing / Certification
- EC type examination
- Confirmation of conformity
- Unit verification

QM surveillance
- QM product
- QM production

Deposit
- Completeness test
- Document deposit

Consulting
- Risk analysis
- Assessment of ignition hazards
- Product accompanying consulting
- Creation of Ex-protection documents

Training
- Generic seminars
- Customer specific training

Staff:

- Persons active in each area:
  Jürgen Blum, Thomas Lammel, Stefan Link, Ulrich Jacobs, Matthias Ramold
- Cooperating persons:
  Andreas Bärwald, Software
  Michael Thienel,TÜV Industrie Service, for gas measurement technics

AKKREDITIERUNG

Die Zentralstelle der Länder für Sicherheitstechnik (ZLS)

bestätigt hiermit, dass die

TÜV Automotive GmbH

Ridlerstrasse 65, D – 80339 München

die Anforderungen des § 9 Abs. 2 Gerätesicherheitsgesetz (GSG)
und der Norm DIN EN 17025 erfüllt sowie die Kompetenz besitzt,

Geräte zur bestimmungsgemäßen
Verwendung in explosionsgefährdeten Bereichen

im Geltungsbereich der EG-Richtlinie 94/9/EG
entsprechend den Bestimmungen
des Akkreditierungsbescheides Nr. 5.ZLS/3926-1/115/03
zu prüfen.

Die Akkreditierung ist gültig vom **01.07.2003** bis zum **30.06.2008**

Akkreditierungs-Nr.: **ZLS-P-477/03**

München, den 10.11.2003

Im Auftrag

Dipl.-Wirtsch.-Ing. (FH) Huber

Leiter der ZLS

ZLS im Bayerischen Staatsministerium für Umwelt, Gesundheit und Verbraucherschutz, 80792 München

ZLS

Anlage zum Akkreditierungsbescheid der Zentralstelle der Länder für Sicherheitstechnik Nr. 5.ZLS/3926-1/115/03 vom 10.11.2003

für

TÜV Automotive GmbH
Ridlerstr. 65, 80339 München

Beschreibung des Akkreditierungsumfanges

Prüfung der nachfolgend genannten Geräte im Geltungsbereich der Richtlinie 94/9/EG:

011	**Geräte zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen (hamonisierter Bereich)**
01102	**Gerätegruppe II, Gerätekategorien 1,2 und 3**
0110201	Elektrische Betriebsmittel in sämtlichen Zündschutzarten
011021	***Elektrische Betriebsmittel***
0110211	mit Messfunktion
011022	***Nicht elektrische Betriebsmittel***
0110221	Nicht elektrische Betriebsmittel mit den Zündquellen
01102213	Heiße Oberflächen
01102216	Elektromagnetische Wellen
0110222	Maschinen
01102226	Ventilatoren, Gebläse
01102227	Pumpen
01104	**Komponenten**
011041	Überfüllsicherungen
011043	Leckanzeigen
011044	Füllstandsonden
01105	**Sicherheits-, Kontroll- und Regelvorrichtungen**
011051	Vorrichtungen zum sicheren Betrieb als Bestandteile von Geräten
011053	Vorrichtungen zum sicheren Betrieb als Bestandteile von Komponenten, soweit nicht in 01104 enthalten

Dienstgebäude/Besucheradresse
Bayerstraße 32, 80335 München

Telefon
(089) 51 43 - 210

Telefax
(089) 51 43 – 209

E-Mail
zls@stmgev.bayern.de