



INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Title: IECEx Assessment Report for the acceptance of *FM Approvals, USA* as an Accepted Ex Test Laboratory (ExTL) within the IECEx Scheme

This document contains the IECEx Assessment Report for *FM Approvals*

Following assessment, including a site assessment, the Assessment team recommends acceptance of *FM Approvals* as an Ex Test Laboratory (ExTL) within the IECEx Scheme.

This report has been issued for voting via correspondence with a request that the voting form be completed and returned to the IECEx Secretariat by the closing date:

30 September 2004

You may return your completed voting form (available in Word format) via fax or e-mail. Details below.

Address: IECEx Secretariat 286 Sussex Street Sydney NSW 2140 Australia	Tel: +61 2 8206 6940 Fax: +61 2 8206 6272 Email: chris.agius@iecex.com Internet: www.iecex.com
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Voting Form

IECEX Assessment Report for acceptance of the following candidate as an
Ex Testing Laboratory

FM Approvals

Yes. I agree with the acceptance of **FM Approvals** as an
Ex Testing Laboratory

No. I do not agree with the acceptance of **FM Approvals** as an
Ex Testing Laboratory within the IECEx Scheme, for the following reasons

Signature: _____

Name: _____

Member Body: _____

Date: _____

Please complete and return by **2004 09 30** to:

Mr Chris Agius
IECEX Secretariat

Contact Details:

E-mail: chris.agius@iecex.com

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IECEX ASSESSMENT REPORT FORM (TEST LABORATORY – ExTL)

Type of Assessment:

Initial Assessment for Candidate ExTL

Surveillance Assessment for existing ExTL

1. OBJECT AND FIELD OF APPLICATION

1.1 *Country:* USA

1.2 *Name of Candidate TL*

FM Approvals

1.3 *Members Of The Assessment Team*

Mr C. Agius (IECEX Secretary) Team Leader

Dr W. Dill (DE)

Mr W. Dunn (AU)

1.4 *Place And Date Of Assessment*

151 Boston-Providence Turnpike

Norwood, MA 02062

USA

Hazards Lab and Research Centre

743 Reynolds Road

West Gloucester, RI 02814

USA

Site Assessors:

Mr C. Agius Lead Assessor

Dr W. Dill

Mr W, Dunn

Following a review of all documentation submitted, a site assessment was conducted on 10, 11 + 12 February 2004. This site assessment was conducted by all three assessment team members. The conclusion of the site visit was that compliance with the technical and procedural requirements of the IECEx Scheme. The site visit also included a review and successful completion of the IECEx Technical Guidance Documents (TGDs), now retained on file by the IECEx Secretariat.



1.5 *Assessment References*

Document:

- i) IECEx 02 Second Edition
- ii) IECEx Operational Document OD/003 (ExMC/100/CD)
- iii) ISO/IEC 17025
- iv) IECEx Technical Guidance Documents (successfully completed and retained on the IECEx Secretariat file)
- v) IECEx Operational Document OD 009 and other ODs as referenced
- iv) ExTL application documents

1.6 *Scope Of Application*

During the on-site visit the scope of application was confirmed to align with the scope of application as follows:

Product Category	Standard
General Requirements	IEC 60079-0
Flameproof Enclosures	IEC 60079-1
Intrinsic safety	IEC 60079-11
Increased Safety	IEC 60079-7
Encapsulation	IEC 60079-18
Non Sparking	IEC 60079-15
Gas Detectors	IEC 61779 Parts 1-5

1.7 *Candidate ExTL Persons Interviewed*

During the course of the 3 day site visit to both the Norwood and West Gloucester sites most of the Hazloc and related personnel, including administration and Factory Inspection staff were interviewed. The following are examples of some of the management and staff interviewed during the assessment:

Name	Position
Mr Paris Stavrianidis	Vice President FM Approvals
Mr Bob Martell	Ass. Vice President, Group Manager
Mr John Hill	Group Manager, Technical Auditing Services
Mr Glen Jutras	Quality Assurance Manager
Mr David Styracula	Technical Team Manager
Andrew Lozinski	Technical Team Manager
Patrick Byrne	Gas Detector Division
Nick Ludlam	Intrinsic Safety Division
Many Others	

1.8 *Legal Entity Of The Candidate ExTL*

FM Approvals is an enterprise of FM Global Technologies LLC that provides industrial and commercial test and certification services. A copy of the Articles of Association Filed 12 October 2001 retained on file by the IECEx Secretariat.



FM Global Technologies LLC is an affiliate of FM Global of Johnston, Rhode Island, USA. FM Global Technologies is headquartered in Norwood, Massachusetts with a focus on research and testing activities for the industrial and commercial property loss control.

A full and detailed description of FM Global's beginnings are retained on file at the IECEx Secretariat Offices.

1.9 Associated ExCB

Names of ExCB	Address
FM Approvals has an integral ExCB	Operating at both locations

While the ExTL is integral with the Certification Body, the assessment team are satisfied that the quality management system and operational procedures provide sufficient separation of the testing and certification functions.

1.12 Financial Support Self Funding

1.13 History

FM Global Technologies had its beginnings in the 19th Century in the mill industry with the first significant fire testing being conducted in 1884. In 1886, the Laboratories Section of Factory Mutual Inspection Department was formed. The first organisation formed devoted to the special study of fire protection devices.

1916 FM Laboratories established a separate research facility. While in 1941, Factory Mutual Research Corporation was established as a corporate entity.

In 2001 work commenced on construction of a new fire test building in West Gloucester, Rhode Island. The Assessment Team visited this new facility as part of their site assessment of the FM Approvals facilities.

In March 2002, Factory Mutual Research Corporation was renamed FM Global Technologies LLC and its operating units, the Research and Approvals Division were renamed FM Global Technologies and FM Approvals respectively. FM Global Technologies is an affiliate of FM Global.

1.14 Relevant Standards IEC 60079 and IEC 61779 series



2. ORGANISATION

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

Name	Title	Experience
Mr Bob Martell	Ass. Vice President, Group Manager	More than 20 years experience in Standards and Certification
Mr David Styracula	Technical Team Manager	More than 20 Years experience
Andrew Lozinski	Technical Team Manager	More than 20 years experience
Mr John Hill	Group Manager, Technical Auditing Services	25+ years

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

Name	Title	Experience
Mr Glen Jutras	Quality Assurance Manager	More than 20 years experience

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

Name	Title
Mr Bob Martell	Ass. Vice President, Group Manager

2.4 **Employees**

A total of 29 employees are involved in the Ex Testing operations, including Vice President, Group Manager and Quality Manager. FM Approvals quality management system ensure that there is a clear separation between the activities of Testing and Certification .

Staff involved in Ex testing were assessed during the completion of IECEx Technical Guidance Documents and found to demonstrate a high level of competence in the areas of Ex testing as well as an excellent working knowledge of the use of IEC Standards. Completed Technical Guidance Documents are retained by the IECEx Secretariat for record keeping purposes.

2.5 **Organisational Structure**

See Annex A of ExMC/189/DV

3. RESOURCES

Total number of FM Approvals Staff involved in the Hazloc Group is 29.

During the on-site assessment the team confirmed the availability of equipment and facilities, as defined by the IECEx Technical Guidance Documents, to conduct testing and assessment for the scope of work recommended for acceptance by the Assessment Team. This assessment included verification of the necessary test facilities and equipment as well as test and calibration procedures.

4. TEST METHODS

4.1 Procedures

The on-site assessment confirmed availability of suitable and well defined test procedures and work instructions for testing. These were reviewed while compiling the TGDs

4.2 Staff Work Instructions

Same result as for 4.1 above

5. TEST REPORTS AND RECORDS

5.1 Test Reports Issued

A review of the FM Approvals Guide 2003, Chapter 2 and 10, revealed a sufficient number of Approvals for which involved product testing and assessment for each of the areas within the scope of this application to demonstrate a thorough understanding of the Ex Technology, Standards and Test methods and procedures. A full copy of the FM Approvals Guide 2003 is retained by the IECEx Secretariat for record keeping purposes.

5.2 Test Records

The FM Approvals Quality management System requires retention of records, indefinitely. Records are a combination of paper copies and electronic media, however the FM Approvals record retention system ensures identification of records and protection of records in appropriate and secure environment.

6. CALIBRATION

As part of the Quality Management System, a sound and robust system of calibration is maintained. Calibration is conducted, internally for some instruments and externally by accredited calibration facilities. FM Approvals testing procedures also provide for a system of clear traceability of measurements between test apparatus and job.

7. DOCUMENTATION

7.1 *Quality Manual*

The FM Approvals Quality Manual has been reviewed during the site assessment and found to fully comply with IECEx requirements. The FM Approvals Documented Management System provides a clear differentiation between the operating procedures for testing and certification, under the requirements of IECEx and that conducted as part of national accreditation.



7.2 Document Change Control

A well controlled system of document changes as part of the Quality Management System.

8. CONFIDENTIALLY

All FM Approvals staff are subjected to the strict confidentiality requirements with the assessment team verifying the availability of signed confidentiality agreements on FM Approvals records.

Access to all areas by non-FM Approvals staff is strictly regulated.

9. NATIONAL ACCREDITATION

FM Approvals is recognised under the Occupational Safety and Health Administration's "Nationally Recognised Testing Laboratory Program".

FM Approvals are also in the final stages of achieving accreditation of their Ex Testing facilities by the Standards Council of Canada to ISO/IEC 17025. A copy of the accreditation certificate is to be provided to the IECEx Secretariat for retention on file.

10. RECOGNITION AND AGREEMENTS

- IECEE CB Scheme – accepted as a CTL
- Pending Accreditation by SCC
- Occupational Safety and Health Administration NRTL Program
- Agreements with numerous Bodies Worldwide

11. INTERNAL AUDIT AND PERIODIC REVIEW

As part of the Quality System, FM Approvals conduct regular internal audits in addition to a review of the management system and compliance with ISO/IEC 17025.

12. COMPLAINTS MECHANISM

Should complaints be received by FM Approvals, the procedures demonstrated that they are dealt with as part of the Quality Management System and include the recording of complaints, and reviewing the timely nature and effectiveness in their dealing by FM Approvals staff. Complaints of a verbal nature are also covered.

13. SPECIAL FACTS TO BE NOTED

Over 100 years experience in the field of Fire testing. As part of the new Gloucester site, FM Approvals have recently commissioned a new \$80M Hazards Lab and Research Centre with state of the art facilities and equipment. These new facilities were also assessed as part of the site assessment and found to fully comply with IECEx requirements.



14. COMMENTS

In accordance with the IECEx Assessment procedures, IECEx Technical Guidance Documents were satisfactorily compiled.

There were no issues raised requiring any corrective action of the ExTL application by FM Approvals

15. RECOMMENDATION

In similar fashion to the ExCB application, the Assessment Team recommends acceptance of FM Approvals as an IECEx Test Laboratory (ExTL) for the following Ex areas:-

- General Requirements
- Ex i
- Ex m
- Ex n
- Ex e
- Ex d
- Gas Detectors

LIST OF APPENDICES

A – Example of Photos

Also refer to Appendix A of ExMC/189/DV for Organisation Chart.

Mr C Agius
Team Leader

Dr W Dill

Mr W Dunn

Appendix A

Example of Photos taken during site Assessment Visit



Part of the New FM Approvals Site at West Gloucester

Examples of on-site Test equipment and Facilities



Examples of on-site Test Equipment

Examples of on-site Test Equipment