



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

**TITLE: IECEx Assessment Report for the acceptance of Mining And Surface
Certification CC (MASC), South Africa, to participate as an Accepted IECEx
Certification Body, ExCB, in the IECEx System, Equipment Scheme, 02,**

Circulation to: ExMC – IECEx Management Committee

INTRODUCTION

This document contains the IECEx Assessment Report for the acceptance of Mining And Surface Certification CC (MASC) South Africa, to become an Accepted IECEx Certification Body (ExCB) within the IECEx Equipment Scheme, 02.

The report is hereby submitted for voting by the ExMC.

Please consider the assessment report and return the completed voting form to the Secretariat by **2014 08 06**.

Your speedy response to the voting process will be very much appreciated.

Chris Agius

IECEx Secretariat

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IECEX ASSESSMENT REPORT FOR Mining And Surface Certification CC (MASC), Centurion 0157, South Africa (IECEX Certification Body, ExCB)

Type of Assessment:

Initial Assessment for Candidate ExCB X

Re-Assessment of ExCB

Scope Extension of ExCB

Surveillance Assessment of ExCB

1. OBJECT AND FIELD OF APPLICATION

1.1. Country:

South Africa

1.2. Name of Candidate ExCB

Mining And Surface Certification CC (MASC)
Unit #5, Lelyta Park, 45 Jurg Avenue, Hennopspark Ext 87
Centurion, 0157
South Africa

1.3. Members of the Assessment Team

Heinz Berger – IECEx Officer - IECEx Lead Assessor
Vijay Varma – IECEx Expert Assessor

1.4. Place and Date of Assessments

Unit #5, Lelyta Park, 45 Jurg Avenue, Hennopspark Ext 87
Centurion, 0157
South Africa
March 4th – 7th, 2014 (3.5 days)

1.5. Assessment References

- i) IECEx 02 Equipment Scheme Rules (current version)
- ii) IECEx OD 003 Assessment Procedures (current version)
- iii) IECEx OD 005-1, -2 and -3; Manufacturer Assessment (current version)
- iv) IECEx OD 009 Equipment Scheme Procedures(current version)



- v) IECEx OD 007 Checklist Guide 65 (current version)
- vi) IECEx OD 017 Drawings and Documentation(current version)
- vii) IECEx OD 024 Witness Testing/manufacturers and users Facility
- viii) IECEx OD 025 Guidelines Manufacturer Assessments(current version)
- ix) ISO/IEC 80079-34 Application of Quality Systems for Manufacture
- x) IECEx Document F-001 (QAR Form)
- xi) ISO/IEC 17065:2012
- xii) ExCB application documents dated 13.12.2013

1.6. Scope of Application

Number	Title	Acceptance
60079-0 Edition(s) - 2011 Ed 6 - 2007 Ed 5	Explosive atmospheres - Part 0: Equipment - General requirements	YES
60079-1 Edition(s) - 2007 Ed 6 - 2003 Ed 5	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures 'd'	YES
60079-5 Edition(s) - 2007 Ed 3 - 1997 Ed 2	Explosive atmospheres - Part 5: Equipment protection by powder filling 'q'	YES
60079-7 Edition(s) - 2006 Ed 4 - 2001 Ed 3	Explosive atmospheres - Part 7: Equipment protection by increased safety 'e'	YES
60079-11 Edition(s) - 2011 Ed 6 - 2006 Ed 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety 'i'	YES
60079-15 Edition(s) - 2010 Ed 4 - 2005 Ed 3	Explosive atmospheres - Part 15: Equipment protection by type of protection 'n'	YES
60079-18 Edition(s) - 2009 Ed 3 - 2004 Ed 2	Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation 'm' electrical apparatus	YES
60079-25 Edition(s) - 2010 Ed 2 - 2003 Ed 1	Explosive atmospheres - Part 25: Intrinsically safe systems	YES
60079-26 Edition(s) - 2006 Ed 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga	YES



Number	Title	Acceptance
- 2004 Ed 1		
60079-31 Edition(s) - 2013 Ed 2 - 2008 Ed 1	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"	YES
61241-0 Edition(s) - 2004 Ed 1	Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements	YES
61241-1 Edition 1 2004	Electrical apparatus for use in the presence of combustible dust Part 1: Protection by enclosures 'tD'	YES
61241-11 Edition(s) - 2005 Ed 1	Electrical apparatus for use in the presence of combustible dust - Part 11: Protection by intrinsic safety 'iD'	YES
61241-18 Edition(s) - 2004 Ed 1	Electrical apparatus for use in the presence of combustible dust - Part 18: Protection by encapsulation 'mD'	YES

1.7. Candidate ExCB Persons Interviewed

Name	Position
Roelof Viljoen	Managing Member / Certification Authority
Terine Orsmond	Document Controller / Administrator
Francoius du Toit	Member

1.8. Legal Entity of the Candidate ExCB

Mining and Surface Certification CC (MASC) is a registered Corporation by the "Companies and Intellectual Property Commission" of South Africa. The Register No. is 2008/202081/23.

MASC holds South African Department of Mineral Resources (DMR) and Department of Labour (DOL) approvals for the issuing of certificates and product certification.

All above mentioned documents were presented during the assessment and found to meet the requirements of the IECEx.

1.9. Associated Testing Laboratories

The ExTL is integral with the ExCB.

1.10. Associated Certification Functions



MASC also does performance testing (e.g. gas detecting devices), training, inspections on a national basis as well as corresponding certification.

1.11. National Marks and Certificates

There is a MASC Permit Scheme (Mark), approved by the Department of Mineral resources (DMR) and the Department of Labour (DOL).

Markscheme activities are conducted in accordance with the requirements of the DMR / DOL using ISO/IEC 80079-34 as basis.

1.12. Financial Support

The individual applicants' fees fund MASC. This facility has been in existence since the year 2008 and intends to support the certification activities with funds from certification applicants and research and development. These funds will be adequate for covering all required activities to meet the procedures defined in the MASC Quality Manual.

1.13. History

Mining and Surface Certification (MASC) was founded more than 5 years ago as an Ex (Hazardous Locations) certification body, approved testing laboratory (ATL) and training provider specializing in Ex (explosion protection) equipment / installation certification and other hazardous locations services and support.

To date MASC has obtained SANAS Accreditation (T0444) (South African National Accreditation System) for the testing laboratory, as well as Department of Labour (DOL) and DMR (Department of Mineral Resources) approval for the Certification and Testing.

The primary standards applicable to Ex Equipment / Hazardous locations / Ex certification in South Africa are:

- SANS 10108: "The classification of hazardous locations and the selection of equipment for use in such locations."
- ARP 0108: "Regulatory requirements for explosion-protected equipment."

The members and personnel of MASC commit to professional conduct, effective and efficient test and assessment results, as well as a high level of quality in all activities.

Numerous projects are conducted / supported for the international markets, including ANZEx, ATEX and MSHA.

MASC has a BBBEE (Broad Based Black Economic Empowerment) level 4 rating.



1.14. *Standards Accepted*

See clause 1.6 of this report.

1.15. *National Differences to IEC Standards*

National differences to IEC standards are those for the South African group differences listed in the latest version of the IECEx Scheme Bulletin. However, the South African Flameproof Association was asked to review the present situation concerning ZA national differences as described in the matrix of the current IECEx Bulletin. It has to been noted, that IP 65 is required by ZA for all dust standards.

2. ORGANISATION

2.1. *Names, Titles and Experience of the Senior Executives*

Name	Title	Experience Ex/Overall
Roelof Viljoen	Managing Member	17 Years
Francoius du Toit	Member	8 Years

2.2. *Name, Title and Experience of the Quality Management Representative*

Name	Title	Experience
Roelof Viljoen	Managing Member / Quality Manager	17 Years
Terine Orsmond	Deputy Quality Manager	5 Years

2.3. *Name and Title of Nominated Principal Contact*

Name	Title	Comments
Roelof Viljoen	Managing Member	viljoenr@masc-ex.co.za

2.4. *Name and Title of Signatories for Certification*

Name	Title	Comments
Roelof Viljoen	Managing Member	viljoenr@masc-ex.co.za
Francoius du Toit	Member	fdutoit@masc-ex.co.za

2.5. *Other Employees in ExCB activity*

Name	Title	Responsibility and Experience in Ex
Terine Orsmond	Document Controller / Administrator	5 Years
Francoius du Toit	Member / Technical Specialist	8 Years
David P. Walker	Contractor	20+ Years
Ronel Kotze	Administration	



Name	Title	Responsibility and Experience in Ex
LeeAnn Truter	Administration	

2.6. Organizational Structure

As of March 2014, the organization is changed as stated in the organization chart in **ANNEX 1**.

2.7 Administration (including Indemnity Insurance)

2.7.1 Administrative Structure

The operation is supported by appropriate administrative staff and support systems.

2.7.2 Indemnity Insurance

MASC holds indemnity insurance from SHA Specialists Underwriters as agent of Santam Limited Insurance Company. The policy # is P13116 and is valid until 28.2.2015. It can be renewed every year. The documents were reviewed during the assessment and found to be adequate.

3. RESOURCES

The operation is well resourced with appropriate facilities, test equipment, procedures and experienced staff.

4. COMMITTEES / Governing Board / Appeals / Advisory Board

MASC has a certification committee (Advisory Board) comprising 6 members (representing Department of Mineral Resources (DMR) and Department of Labour (DOL), End-Users, South African Flameproof Association (SAFA), Manufacturers, Surface & Mining Industry and MASC ExCB. They meet annually or more often if required.

The last meeting was held on 20.2.2014 with minutes of 1.3.2014.

The minutes of meeting were reviewed during the assessment as well as the agreements and all confidentiality declarations. It was found that the documentation meets the requirements of the IECEx.

5. CERTIFICATION OPERATIONS

5.1. National Approval/Certification Methods

See clause 1.11 of this report.

5.2. Certification Policy



Certification Policy is described in ExCB QM procedure 04 CB_QMS_04, MASC ExTL QM 4.2 and in ExTL QM 4.2 Quality Policy statement). The documents were reviewed during the assessment and found to meet the requirements of the IECEx.

5.3. Application for Certification

Application for Certification is described in ExCB QM procedure SD_30 and the application forms CB QM SD_02 as well CB QM SD_03. The documents were reviewed during the assessment and found to meet the requirements of the IECEx.

The Application form is sent to the customer on receipt of an enquiry / available on the MASC Website (www.masc-ex.com)

5.4. Certification Decision

Certification decision is described in EX QM procedure CB_QMS_07, clause 7.6. The procedure was reviewed during the assessment and found to meet the requirements of the IECEx especially in terms of addressing both the issues of impartiality and independence from testing activities as well as ensuring competent staff perform the necessary activities. All necessary IECEx rules and Operational Documents are also referred within the MASC Document Control System.

5.5. Suspension and Cancellation of Certificates

Certification decision is described in EX QM procedure CB_QMS_07, clause 7.11. The procedure was reviewed during the assessment and found to meet the requirements of the IECEx.

6. STATISTICS

6.1. Certificates Issued

Number of certificates issued under national schemes, mainly by converting IECEx/ATEX certificates into South African IA-Certificates in the preceding four years for each type of protection:

Standards	Title	Number of issued certificates				Total
		2010	2011	2012	2013	
60079-0	Explosive atmospheres - Part 0: Equipment - General requirements					Part 0 included in numbers below
60079-1	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures 'd'	15	20	32	45	112
60079-5	Explosive atmospheres - Part 5: Equipment protection by powder filling 'q'	1	2	1	2	6



Standards	Title	Number of issued certificates				Total
		2010	2011	2012	2013	
60079-7	Explosive atmospheres - Part 7: Equipment protection by increased safety 'e'	5	5	10	3	23
60079-11	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety 'i'	35	46	32	25	138
60079-15	Explosive atmospheres - Part 15: Equipment protection by type of protection 'n'	3	6	3	3	15
60079-18	Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation 'm' electrical apparatus	4	2	3	0	9
60079-25	Explosive atmospheres - Part 25: Intrinsically safe systems	Numerous to SANS 10086-1 standard				
60079-26	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga	2	2	2	3	9
60079-31	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"	2	2	3	3	10
61241-0	Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements					Part 0 included in numbers below
61241-1	Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosures 'tD'	3	2	1	-	6
61241-11	Electrical apparatus for use in the presence of combustible dust - Part 11: Protection by intrinsic safety 'iD'	No Certificates Issued				
61241-18	Electrical apparatus for use in the presence of combustible dust - Part 18: Protection by encapsulation 'mD'	No Certificates Issued				

7. DOCUMENTATION

7.1. Quality Manual



MASC Certification Body (MASC ExCB) operates a Quality Management System in accordance with ISO/IEC 17065:2012 “Conformity assessment – Requirements for bodies certifying products, processes and services”, in accordance with Option A. The Quality Manual was reviewed during the assessment and found to meet the requirements of the IECEx.

7.2. Procedures

Procedures are described in CB QM chapters 4. to 8. Various procedures were reviewed and found to meet the requirements of the IECEx.

There are a range of quality and operation policy and procedures, and test laboratory procedures. There is also a range of technical decisions, procedures, work Instructions etc., and were found to be consistent with IECEx Rules and ODs

7.3. Work Instructions

During the technical assessment a number of work instructions were reviewed and found to meet the requirements of the IECEx. They were included in procedures mentioned above

7.4. Records

Records are described in the CB QM procedure CB_QMS_08, clause 8.4. and MASC ExTL QM, clause 4.13. The procedures were checked during the assessment and found to meet the requirements of the IECEx.

Records are kept by the MASC Certification Body in locked offices. Certification Body documents are kept separate from the Test Laboratory's records.

Records are maintained indefinitely (although formally a 10 year retention is stated, which will be revisited when 10 years are reached).

All documentation used in the review process and work documents / reports are kept as records.

Records are maintained per project file / project number as allocated for each project according to a project number register.

Disposition of records are done by shredding / reputable recycling company.

All essential records are in soft copy and form part of the back-up system.

7.5. Document Change Control

Document control is described in CB QM procedure 8, clause 8.3 and ExTL QM clause 4.3.



The management of the MASC Certification Manual, related procedures and forms is by way of maintaining a secure master copy in electronic form on the MASC computer system. Only originals that have been approved for issue by the MASC Certification Manager shall be placed on the computer network system.

Personnel accessibility is controlled by allocating rights to different files / folders, as applicable.

The document controller is responsible for ensuring that any possible remote offices / contractors have up to date copies of all documentation (as required), as well as ensuring that MASC documents are in line with IECEx Rules and ODs

Certification Manuals and Certification Procedures also include a document history that outlines the changes from the previous version

8. CONFIDENTIALITY

All personnel of MASC as well as contractors signed a Confidentiality, Impartiality, Disclosure and Conflict of Interest Statement as described in the Quality Management System (QMS).

All agreements were checked during the assessment and found to meet the requirements of the IECEx.

9. PUBLICATIONS

There are publicity printouts made and also information on the MASC website (www.masc-ex.com). Internal information is available on the company server.

10. NATIONAL ACCREDITATION

MASC CB does presently not hold a national accreditation to ISO/IEC 17065. However, the application was sent to SANAS (South African National Accreditation System) on 12.12.2013 and the assessment for ISO/IEC 17065 is planned for mid 2014. As a certificate was not available at the time of the assessment, the quality system was reviewed comprehensively.

As a result, MASC shall be subjected to annual surveillance visits until such time as MASC achieves accreditation by SANAS for the scope of activity covered by IECEx.

MASC holds certificates from the South African Department of Labour (**see ANNEX 2**) and the South African Flameproof Association (**see ANNEX 3**)

11. RECOGNITION AND AGREEMENTS

- MASC is recognised by several bodies / schemes including:
 - ATEX (SIRA & CML)
 - ANZEx (TUV Rheinland Australia)
 - MSHA (USA)
 - IECEx (Staff of MASC in support role)



- SAFA (South African Flameproof Association) Member / Steering Committee.
- Working groups for standards writing - SABS (South African Bureau of Standards).
- National Committee for Explosion Protection (TC65)

12. INTERNAL AUDIT AND PERIODIC MANAGEMENT REVIEW

Up to date no internal audit was performed concerning IECEx. However, a full IECEx document review was conducted prior to this assessment. The internal audit schedule for 2014 covers the IECEx operations. Audits are scheduled to cover at least all aspects per annum.

MASC Certification Body management reviews cover MASC's quality system on an annual basis. MASC management follows a formal agenda to conduct this management review. Management review ensures continuing suitability and effectiveness in satisfying the requirements of MASC's stated quality policy and objectives and its effectiveness and its adherence to ISO/IEC 17065, ISO/IEC 17025 as well as certification schemes related issues. The last management review was held on 28.2.2014. The minutes were reviewed during the assessment and found to meet the requirements of the IECEx.

13. SUBCONTRACTING, USE OF OTHER LABS AND USE OF OTHER LOCATIONS

MASC resources include use of subcontractors for selected testing (refer to ExTL Assessment Report) and contracted staff for review and auditing according to MASC procedures. A comprehensive list was presented during the assessment and found to meet the requirements of the IECEx.

The Assessment Team also confirmed use of OD 024 according to IECEx requirements, following QM CB_QMS_07, clauses 7.1. to 7.4. and procedure CB QMS_SD_30.

The documents were reviewed during the assessment and found to meet the requirements of the IECEx.

14. TRAINING

The competence data system and CV's of staff were reviewed, together with the competence criteria. Training records were reviewed during the assessment and was found to be satisfactory and all current staff were found to have appropriate competence.

The procedure for training and competence is CB_QMS_06.

15. ASSESSMENT OF MANUFACTURERS AND ISSUE OF QARS

When re-assessment of manufacturers is falling due, the assessment is carried out prior to the due date, to provide time for resolving any NCR's that might be raised.

The main procedure for assessment of manufacturers is CB_QMS_07 Clause 7.9.



See MASC Procedure based on IECEx OD 009 for MASC surveillance activities.

The following QARs have been reviewed:

AU/ITA/QAR 10.0002/05, protection types d, e, nA, nR, tD, DIP, June 2013
GB/SIR/QAR 07.0007/03, protection type d, November 2013
AU/ITA/QAR 10.0009/03, protection type d, December 2013
AU/ITA/QAR 12.0007/01, protection types d, i, October 2013

These IECEx QAR assessments were performed by Roelof Viljoen in his function as contractor under agreement with TÜV RH AUSTRALIA (former ITACS) and SIRA UK. The QAR reviewed show an excellent understanding of the QAR process.

16. COMPLAINTS AND APPEALS (Including appeals to IECEx)

Complaints and appeals are described in the CB QM procedure CB_QMS-07, clause 7.13 and ExTL QM clause 4.8., procedure CB_QMS_SD-01. The procedure was reviewed during the assessment and found to meet the requirement of the IECEx.

17. SPECIAL FACTS TO BE NOTED

17.1. Supporting Documentation

Copies of additional supporting information for this assessment have been provided to the applicant and the IECEx Secretariat. These include:

- Details of issues raised and how these have been resolved
- Competence Matrix
- List of Subcontractors and Contractors
- Checklist for ISO/IEC Guide 65

18. COMMENTS (Including issues found during assessment)

The managing member of MASC, Mr. Roelof Viljoen, is familiar with the IECEx procedures since many years in his function as contractor for several IECEx Certification Bodies.

During the assessment some issues were found. However, they were all resolved during the assessment to the satisfaction of the assessment team

19. RECOMMENDATION

Based on the initial assessment performed from March 4th to 7th, 2014 the ExCB of the Mining And Surface Certification CC (MASC) is recommended for acceptance in the IECEx Scheme as an IECEx Certification Body (ExCB) according to the scope of the standards listed in this document.

Lead Assessor

Expert Assessor



Heinz Berger

Vijay Varma

Date: March 7th, 2014

List of Annexes:

Annex 1: Organization Chart of ExCB and ExTL

Annex 2: Certificate: South African Department of Labor

Annex 3: Certificate: South African Flameproof Association



Mining And Surface Certification

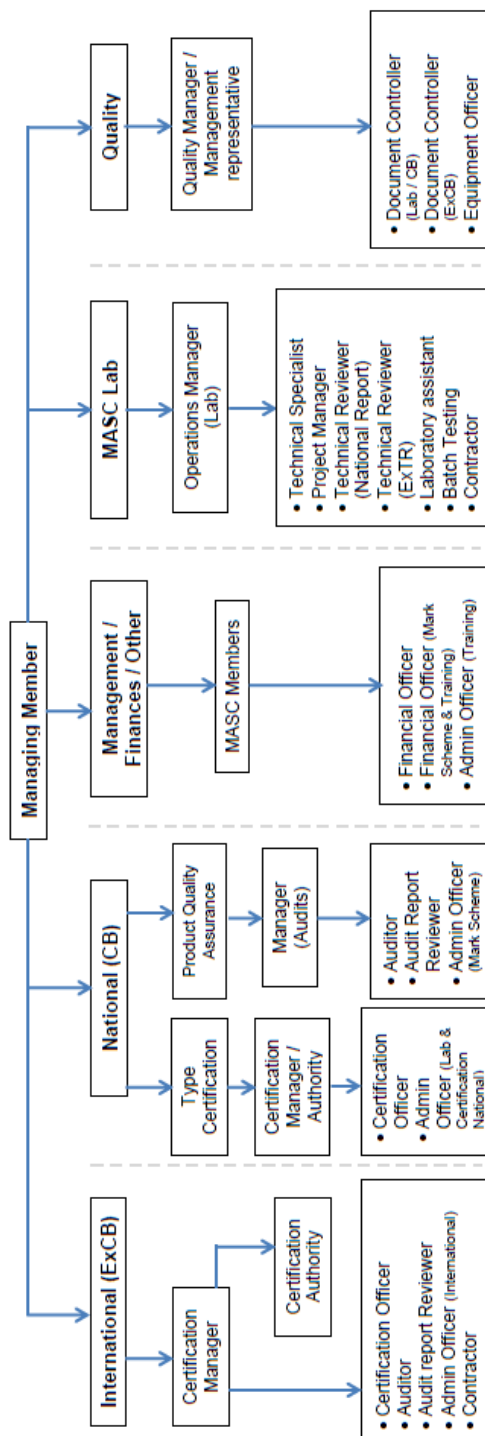
ORGANOGRAM: MASC

MASC

MASC CB (National)

MASC (International)
(ExTL & ExCB)

MASC Test Lab (SANAS)



Note: * Responsibilities / authorities are defined in MASC Job Descriptions.

MASC / QM/4.1 / Organogram / 05 / 2014 Page 1 of 3





Mining And Surface Certification

Legend: D = Deputy

Department	Functions	Personnel
Management/ Finances / Other	MASC Managing Member	Roelof Viljoen
	MASC Members	X
	Financial officer	Deputy
	Financial Officer (Markscheme & Training)	Deputy
International Body (ExCB):	Administrative officer (Training)	Deputy
	Certification Manager	Deputy
	Certification Authority	Deputy
	Certification Officer	Deputy
	Auditor	Deputy
	Audit Report Reviewer	Deputy
	Administrative officer (International)	Deputy
National Certification Body (CB):	Contractor	Deputy
	Certification Manager / Authority	Deputy
	Certification Officer	Deputy
	Administrative officer (Lab & Certification National)	Deputy
	Manager (Audits)	Deputy
	Auditor	Deputy
	Audit Report Reviewer	Deputy
MASC Lab	Administrative officer (Mark Scheme)	Deputy
	Operations Manager (Lab)	Deputy
	Technical Specialist	Deputy
	Project manager	Deputy





Mining And Surface Certification

Department	Functions	Personnel	Rooft Viljoen	Deputy	Francois du Toit	Deputy	Maryke Viljoen	Deputy	Ronel Kotze	Deputy	Terine Ormond	Deputy	Andrew Duncley	Deputy	Gerrit Schepers	Adele Koekemoer	Deputy	Kim Bagarete	Deputy	Lee-Ann Tinter	Deputy	PJ van Oudshoorn	Deputy	David Walker	Deputy	Peter Collins	Deputy
	Technical reviewer (National Report)		X		X								X		X						X						
	Technical reviewer (ExTR)		X		X								X														
	Laboratory Assistant												X														
	Batch testing												X														
	Contractor																										
Quality	Quality Manager / Management representative		X																								
	Document Controller (Lab / CB))												X														
	Document Controller (ExCB)																										
	Equipment officer																										



DEPARTMENT
OF LABOUR

Certificate

This is to certify that

MINING AND SURFACE CERTIFICATION C.C.

has been approved as an inspection authority in terms
of the Electrical Machinery Regulation 12 (1) (a) under the
Occupational Health and Safety Act, 1993

Scope: As per Annexure A: Schedule of Accreditation
Testing Laboratory Number: T0444

Signed on: 25 February 2011

Chief Inspector: _____

No.: CI 012



July 2013/June 2014

South African Flameproof Association



This is to certify that

Mining and Surface Certification

is a Member of the Association

And has undertaken to uphold the objectives of the
Association especially with the regard to improving
safety and quality of equipment in hazardous
environment in industry and mining.

P. Marneel

President

M. A.

Secretary