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

Title: Re-assessment Report for the continued acceptance of *TestSafe Australia* as an Accepted Ex Test Laboratory (ExTL)

To: Members of the IECEx Management Committee, ExMC

Introduction

In accordance with the 5 year re-assessment plan for the surveillance and monitoring of bodies within the IECEx System, the following document contains the IECEx Re-assessment Report for ***TestSafe Australia*** as an Accepted Ex Test Laboratory (ExTL)

This report is issued for endorsement during the 2013 Fortaleza, Brazil Meeting.

Chris Agius
IECEx Secretariat

IECEx Secretariat **Standards Australia Building** **286 Sussex Street** **Sydney NSW 2000** **Australia**	**Tel: +61 2 8206 6940** **Fax: +61 2 8206 6272** **Email: chris.agius@iecex.com**

IECEx ASSESSMENT REPORT FOR TESTSAFE IECEx TEST LABORATORY ExTL

Type of Assessment: (please mark)

Initial assessment for Candidate ExTL

Re-Assessment of ExTL X

Scope Extension of ExTL

1. OBJECT AND FIELD OF APPLICATION

1.1. Country:
AUSTRALIA

1.2. Name of Accepted TL
TestSafe Australia

1.3. Members of the Assessment Team

IECEx Team Leader:	Thierry Houeix
Expert Assessor:	Herbert Peters
Observers:	Chris Agius

1.4. Place and Date of Assessment
919 Londonderry Road, Londonderry, NSW, 2753, Australia
21-23 June 2011

1.5. Assessment References

i) IECEx 02:2010 IECEx Scheme rules of procedure
ii) Ex OD 003 IECEx Assessment procedures
iii) Ex OD 009 Issuing of CoCs, ExTRs and QARs
iv) ISO/IEC 17025:2005
v) IECEx Technical Guidance Documents (TGDs)
vi) ExTAG decision sheets (DSs)
vii) ExTL application documents dated

1.6. **Scope of Application (to be selected)**

Number	Title
60079-0 Edition 5	Explosive atmospheres - Part 0: Equipment - General requirements
60079-1 Edition 6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures “d”
60079-2 Edition 5	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure «p»
60079-5 Edition 3	Explosive atmospheres - Part 5: Equipment protection by powder filling «q»

Number	Title
60079-6 Edition 3	Explosive atmospheres - Part 6: Equipment protection by oil immersion «o»
60079-7 Edition 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
60079-11 Edition 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety “i”
60079-13 Edition 1	Explosive atmospheres - Part 13: Equipment protection by pressurised room
60079-15 Edition 4	Electrical apparatus for explosive gas atmospheres - Part 15: Construction, test and marking of type of protection "n" electrical apparatus
60079-18 Edition 3	Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation "m" electrical apparatus
60079-25 Edition 2	Electrical apparatus for explosive gas atmospheres - Part 25: Intrinsically safe systems
60079-26 Edition 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
60079-27 Edition 2	Explosive atmospheres – Part 27: Fieldbus intrinsically safe concept (FISCO)
60079-31 Edition 1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
60079-35-1 Edition 1	Explosive atmospheres – Caplights (replacement for 62013-1)
61241-0 Edition 1	Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements
61241-1 Edition 1	Part 1: Protection by enclosures 'tD'
61241-1-1 Edition 2	Part 1-1: Electrical apparatus protected by enclosures and surface temperature limitation - Specification for apparatus
61241-4 Edition 1	Electrical apparatus for use in the presence of combustible dust Part 4: Protection by enclosures "pD"
61241-11 Edition 1	Electrical apparatus for use in the presence of combustible dust – Part 11: Protection by intrinsic safety 'iD'
61241-18 Edition 1	Electrical apparatus for use in the presence of combustible dust Part 18: Protection by encapsulation "mD"
62013-1 Edition 2	Caplights for use in mines susceptible to firedamp Part 1: General requirements - Construction and testing in relation to the risk of explosion

1.7. Accepted TL Persons Interviewed

Name	Position
Ron Keelty	Director, TestSafe
Ujen Singh	Manager, Quality & Certification
Gordana Ostojic	Manager, Electrical High Current Branch
Ajay Maira	Manager, Electrical Low Current Branch
Adrian Rietdijk	Quality & Compliance Officer
John Watt	Audit & Compliance Officer
Debbie Wouters	Assistant Project / Marketing Officer
James Zhao	Senior Engineer LCB
James Bes	Senior Technical Officer
Daniel Ling	Electrical Engineer
Russel Ashley	Audit & Compliance Officer
Suresh Khatav	Audit & Compliance Officer

1.8. Legal Entity of The Accepted TL

TestSafe is a commercial unit of WorkCover NSW, which is the health and safety regulator of the state of New South Wales. TestSafe does not have its own business identity, but rather operates under the auspices of WorkCover.

1.9. Associated ExCB

TestSafe Australia

1.10. Financial Support

TestSafe operates on a customer fee for service arrangement, and is funded by WorkCover NSW. TestSafe is a business unit of WorkCover NSW, the State authority for occupational health and safety, from which any shortfall in funding from current operations is obtained.

1.11. History

TestSafe, formerly Londonderry Occupational Safety Centre (LOSC) was created to engage in research and testing in support of the NSW coal mining industry. TestSafe has been an Ex certification body from around 2003 and issued its first ExTR in 2003.

2. ORGANISATION

2.1. Names, Titles and Experience of the Senior Executives

Name	Title	**Experience**
Ron Keelty	Director	Management, Occupational health and safety
Ajay Maira	Manager, Electrical Low Current Branch	15 years
Gordana Ostojic	Manager, Electrical High Current Branch	18 years

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

Name	Title	**Experience**
Ujen Singh	Manager, Quality & Certification	9 years

2.3. Name and Title of Nominated Principal Contact

Name	Title	**Comments**
Ujen Singh	Manager, Quality & Certification	

2.4. Employees

Name	**Title**	**Experience**
Adrian Rietdijk	Audit & Compliance Officer	25 years
Suresh Khatav	Electrical Engineer	5 years
John Watt	Audit & Compliance Officer	29 years
Henry Huynh	Senior Electrical Engineer	10 years
Russell Ashley	Audit & Compliance Officer	13 years
Kent Mei	Electrical Engineer	5 years
Gerry Gonzalez	Senior Technical Officer	17 years
James Zhao	Senior Electrical Engineer	9 years
Daniel Ling	Electrical Engineer	6 years
Lional Rajasekera	Electrical Engineer	6 years
David Fraser	Electrical Engineer	9 years
James Bes	Senior Technical Officer	25 years

2.5. Organizational Structure

Refer to TestSafe Organisational Chart in Annexe 1

3. RESOURCES

Resources are allocated in terms of buildings, equipment, services and trained personnel by the Ex Managers. A business plan is produced from which budgets are set and reviewed quarterly during the Directors meetings. Competent staffs are ensured by an annual appraisal system which identifies future training needs.

The Ex operation at TestSafe has 15 professional and technical staff involved in Ex testing. It has a comprehensive range of testing equipment and good facilities for this type of testing. The following are some of the major test equipment at TestSafe:

- Climatic chambers
- Equipment for IP testing to IEC 60529
- Various test apparatus for testing to IEC 60079-0
- Equipment for light aging test to IEC 60079-0
- Gas mixing and measurement systems
- Explosion chambers for testing to IEC 60079-1
- System for pressure measurement to IEC 60079-1, including associated software
- Hydraulic bench for tensile tests on cables to IEC 60079-0

- Hydraulic bench for overpressure tests to IEC 60079-1
- Dielectric tests to IEC 60079-7
- Apparatus for CTI test to IEC 60079-7 and IEC 60079-11
- Spark test apparatus for tests to IEC 60079-11 with associated calibration system
- Heating bench for small components according to IEC 60079-11
- Recorders for temperature measurement

4. DOCUMENTATION

4.1. Quality Manual

TestSafe has a comprehensive quality manual supported by other procedural documents, which refer to ISO 9001, ISO/IEC 17025 standards and ISO/IEC Guide 65.

4.2. Procedures

TestSafe has a very comprehensive range of procedures covering all aspects of the testing operations that were audited as part of this assessment. Where applicable each procedure has with it an associated test sheet for completion by the staff.

4.3. Work Instructions

See above

4.4. Records

All records are maintained in according GGP035-Records control procedure. The records are kept digitally on TRIM system and in paper form in accordance with NSW state record-keeping regulations. This was found to comply with IECEx requirements.

4.5. Document Change Control

Document change control is affected by having the master document as the digitally document on the intranet in accordance with GGP032-Document Control procedure.

4.6. Test Records

Test records are maintained in job files opened for each job, as per GGP035-Records control procedure.

5. TEST REPORTS

5.1. Test Reports Issued

Number of test reports issued under the IECEx, national or regional schemes in the preceding four years for each type of protection:

Standards	Title	Number of issued test reports				
		2008	2009	2010	2011	Total
						Part 0 included in numbers below

Standards	Title	Number of issued test reports				
		2008	2009	2010	2011	Total
						Part 0 included in numbers below
60079-11	Intrinsic Safety	53	62	45	39	**199**
60079-18	Encapsulation	2	2	4	1	**9**
62013	Cap lights	0	0	0	0	**0**
60079-1	Flameproof	21	24	26	6	**77**
60079-2	Pressurization	0	0	0	1	**1**
60079-15	Non-sparking	2	2	3	0	**7**
60079-7	Increased safety	3	2	6	0	**11**
60079-31 and 61241-1	Dust protected	5	6	5	0	**16**

6. CALIBRATION

The majority of test equipment is sent out equipment for calibration by an external calibration facility. These calibration facilities are NATA accredited. All test equipment examined had an indication of the calibration status. Original copies of the calibration certificates for all apparatus are stored at the facility in which the test equipment resides. A database also exists for equipment indicating the calibration status. This database can be interrogated to determine which equipment needs to be re-calibrated. A random sample of the test equipment used in Ex was chosen and the records for these examined.

There were a number of aspects identified in regard to calibration that required further clarification or actions. All these were subsequently dealt with to the satisfaction of the assessment team. Details are recorded in the site assessment report.

7. CONFIDENTIALITY

All employees, contractors and members of the TestSafe Certification committees sign confidentiality agreements. Examples of these were sighted by the team.

There is a system of security control at the main entrance gate and entrance to buildings is controlled by key or, in the case of newer buildings, by key pad. GGP024-Procedure for confidentiality and conflict of interest was found to comply with ISO/IEC 17025.

8. NATIONAL ACCREDITATION

TestSafe has accreditation from NATA: Certificate No 1032 to ISO/CEI 17025. See Annex 2.
http://www.nata.asn.au/index.php/scopeinfo/?key=1025

9. RECOGNITION AND AGREEMENTS

TestSafe have a number agreements including ITACS in Australia, CNEx in China, Sipai in China, SABS in South Africa, FM Global in US and MSHA in US.

10. INTERNAL AUDIT AND PERIODIC REVIEW

Internal audits are done once a year for each type of operation. The last internal audit for IECEx was carried out on July-August 2010 was reviewed. Internal Audit procedure-GGP034.

The Management review is defined in the Quality Manual, is also conducted annually.

11. COMPLAINTS AND APPEALS (Including appeals to IECEx)

They have a general process in TestSafe from external complaints defined in GGP022-Appeals procedure and in CSWI002-Customer Feedback. This covers the complaints mechanism requirements of the ExCB and ExTL and found to comply with IECEx requirements.

12. SPECIAL FACTS TO BE NOTED

12.1. *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
- Checklist for ISO/IEC 17025
- Photos of the tests carried out
- Assessors' notes from the assessment

12.2. Review of Test Reports

A review was carried out of ExTRs that had been issued. Some errors were found and TestSafe was advised of these so they could be corrected and staff training carried out where appropriate. Details are included in the site assessment report.

12.3. Witnessed Tests

The following tests were witnessed during the re-assessment:

- Use of the spark test apparatus
- Pressure determination for Ex d
- Temperature rise test
- Dust testing for IP6X

All tests were performed competently and demonstrated the capability of TestSafe staff carry out Ex testing

13. COMMENTS (Including issues found during assessment)

There were some issues during assessment that were subsequently resolved to the satisfaction of the assessment team. These issues were to do with:

- Impact test, Earth continuity test, Reference pressure test, Short Circuit Test, Temperature Test with dust layer, CTI test, Bubble test.
- Some testing equipment which were out of calibration

All issues were resolved to the satisfaction of the assessment team.

14. RECOMMENDATION

Based on the re-assessment performed on 21-23 June 2011, TestSafe is recommended for continued acceptance in the IECEx scheme as a IECEx Testing Laboratory (ExTL) according to the scope of the standards listed in this document.

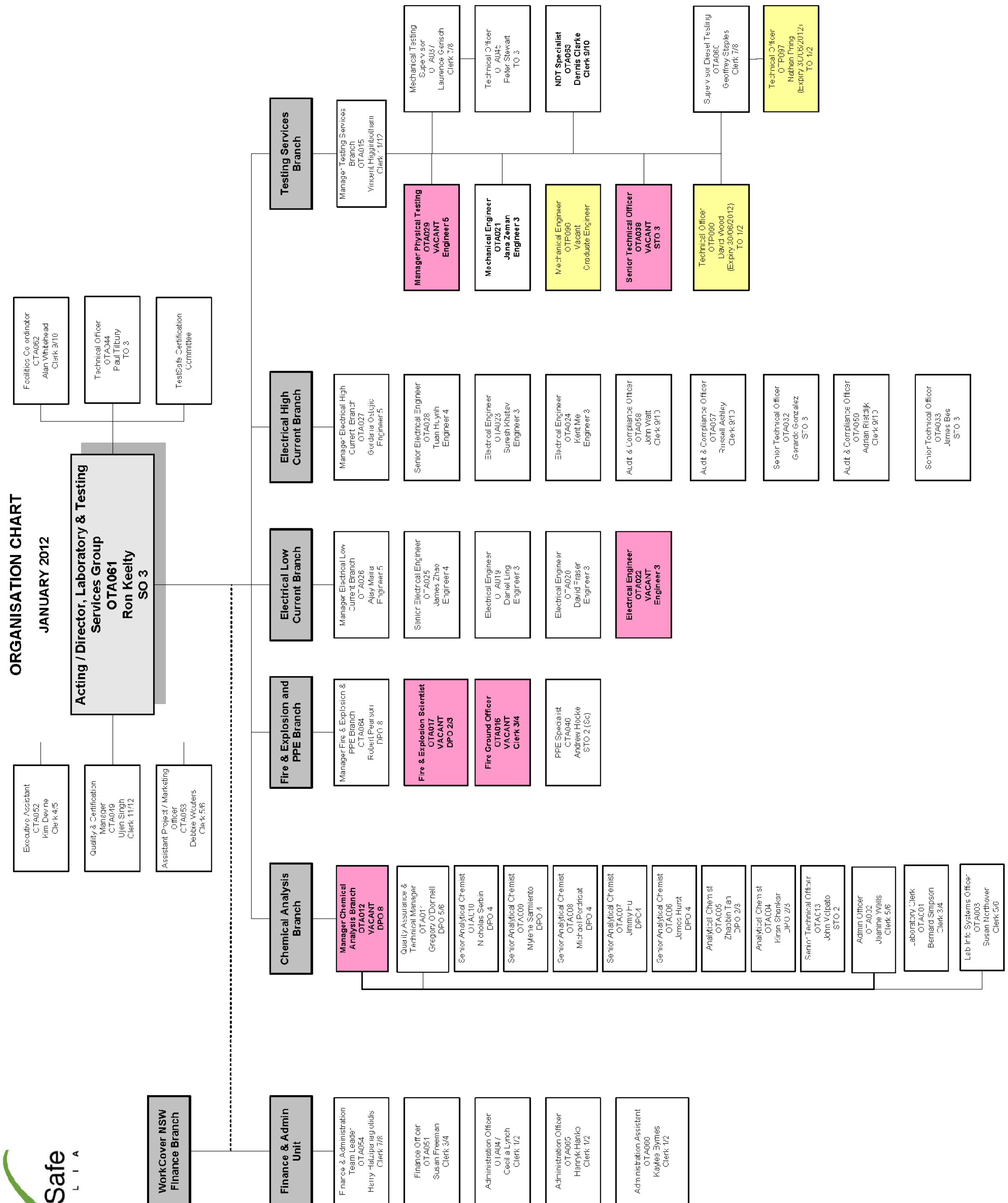
Thierry Houeix Lead Assessor	Herbert Peters Expert Assessor

Date: 2012-06-18

List of Annexes:

1. Overall Organization Chart of TestSafe
2. NATA – Scope of Accreditation

Annexe 1


ORGANISATION CHART
JANUARY 2012
Acting / Director, Laboratory & Testing Services Group OTA061 Ron Keelty SO 3
Executive Assistant OTA052 Kim Devine Clerk 4/5
Quality & Certification Manager OTA049 Ujen Singh Clerk 11/12
Assistant Project / Marketing Officer OTA053 Debbie Wouters Clerk 5/6
Facilities Co ordinator OTA062 Alan Whitehead Clerk 3/10
Technical Officer OTA044 Paul Tilbury TO 3
TestSafe Certification Committee
WorkCover NSW Finance Branch
Finance & Admin Unit
Finance & Administration Team Leader OTA054 Harry Hatzipanagiotidis Clerk 7/8
Finance Officer OTA051 Susan Freeman Clerk 3/4
Administration Officer OTA047 Cecilia Lynch Clerk 1/2
Administration Officer OTA065 Henryk Hanko Clerk 1/2
Administration Assistant OTA060 Kaylee Symes Clerk 1/2
Chemical Analysis Branch
Manager Chemical Analysis Branch OTA012 VACANT DPO 8
Quality Assurance & Technical Manager OTA011 Gregory O'Donnell DPO 5/6
Senior Analytical Chemist OTA010 Nicholas Serbin DPO 4
Senior Analytical Chemist OTA009 Mylene Sarmiento DPO 4
Senior Analytical Chemist OTA008 Michael Pordroat DPO 4
Senior Analytical Chemist OTA007 Jimmy Fu DPO 4
Senior Analytical Chemist OTA006 James Hurst DPO 4
Analytical Chemist OTA005 Zhaobin Tan DPO 2/3
Analytical Chemist OTA004 Kiran Shankar DPO 2/3
Senior Technical Officer OTA013 John Volpato STO 2
Admin Officer OTA002 Jeanine Wells Clerk 5/6
Laboratory Clerk OTA001 Bernard Simpson Clerk 3/4
Lab Info Systems Officer OTA003 Susan Northover Clerk 5/6
Fire & Explosion and PPE Branch
Manager Fire & Explosion & PPE Branch OTA064 Robert Pearson DPO 8
Fire & Explosion Scientist OTA017 VACANT DPO 2/3
Fire Ground Officer OTA016 VACANT Clerk 3/4
PPE Specialist OTA040 Andrew Hocke STO 2 (Sc)
Electrical Low Current Branch
Manager Electrical Low Current Branch OTA026 Ajay Maira Engineer 5
Senior Electrical Engineer OTA025 James Zhao Engineer 4
Electrical Engineer OTA019 Daniel Ling Engineer 3
Electrical Engineer OTA020 David Fraser Engineer 3
Electrical Engineer OTA022 VACANT Engineer 3
Electrical High Current Branch
Manager Electrical High Current Branch OTA027 Gordana Ostojic Engineer 5
Senior Electrical Engineer OTA028 Tuan Huynh Engineer 4
Electrical Engineer OTA023 Suresh Khatav Engineer 3
Electrical Engineer OTA024 Kent Me Engineer 3
Audit & Compliance Officer OTA058 John Watt Clerk 9/10
Audit & Compliance Officer OTA057 Russell Ashley Clerk 9/10
Senior Technical Officer OTA032 Gerardo Gonzalez STO 3
Audit & Compliance Officer OTA050 Adrian Rietdijk Clerk 9/10
Senior Technical Officer OTA033 James Bes STO 3
Testing Services Branch
Manager Testing Services Branch OTA015 Vincent Higginbotham Clerk 11/12
Manager Physical Testing OTA029 VACANT Engineer 5
Mechanical Engineer OTA021 Jana Zeman Engineer 3
Mechanical Engineer OTP090 Vacant Graduate Engineer
Senior Technical Officer OTA038 VACANT STO 3
Technical Officer OTP090 David Wood (Expiry 30/06/2012) TO 1/2
Mechanical Testing Supervisor OTA037 Laurence Gerisch Clerk 7/8
Technical Officer OTA045 Peter Stewart TO 3
NDT Specialist OTA063 Dennis Clarke Clerk 9/10
Supervisor Diesel Testing OTA060 Geoffrey Staples Clerk 7/8
Technical Officer OTP097 Nathan Pring (Expiry 30/06/2012) TO 1/2
Test Safe AUSTRALIA

Scope of Accreditation

ACCREDITATION NO: 1032

WorkCover NSW - TestSafe Australia

TestSafe Australia
919 Londonderry Road
LONDONDERRY NSW 2753

CONTACT: Mr A Maira
PHONE: (02) 4724 4962 FAX: (02) 4724 4999 MOBILE:
EMAIL: ajay.maira@workcover.nsw.gov.au
WEB SITE: www.testsafe.com.au

FACILITIES: Public testing service

This facility complies with the requirements of ISO/IEC 17025:2005

3.24 Approval tests on electrical appliances and accessories

Tests as called up by Standards listed in class 3.35 below limited to the clauses 8.3, 8.4, 8.5, 8.7, 8.8, 8.11 of AS 3100
Classification of degrees of protection provided by enclosures for electrical equipment to AS 1939 and AS 60529 except 14.2.1 and 14.2.2

3.35 Electrical equipment for explosive atmospheres

Tests and examination for explosive atmospheres for compliance with the following specifications:
Explosion protection techniques - General requirements IEC 60079-0, AS/NZS 60079.0 and AS 2380.1
Flameproof enclosures - Type of protection 'd' to IEC 60079-1, AS/NZS 60079.1 and AS 2380.2
Pressurised enclosures - Type of protection 'p' to IEC 60079-2, AS/NZS 60079.2 and AS 2380.4
Increased safety apparatus - Type of protection 'e' to IEC 60079-7, AS/NZS 60079.7 and AS 2380.6
Instrinsic safety - Type of protection 'i' to IEC 60079-11, AS/NZS 60079.11 & AS 2380.7
Electrical apparatus for explosive gas atmospheres - intrinsically safe systems to IEC 60079.25 and AS/NZS 60079.25
Explosive atmospheres - field bus intrinsically safe concept (FISCO) to IEC 60079.27 and AS/NZS 60079.27
Non-sparking apparatus - Type of protection 'n' to IEC 60079-15, AS/NZS 60079.15 and AS 2380.9 except tests using pure oxygen
Encapsulated apparatus - Type of protection 'm' to IEC 60079-18, AS/NZS 60079.18 and AS 2431 except clause 3.5
Special protection - Type of protection 's' to AS 1826
Powder (sand) filled apparatus - Type of protection 'q' to IEC 60079-5 and AS/NZS 60079.5
Oil immersion - Type of protection 'o' to IEC 60079-6 and AS/NZS 60079.6
Dust-excluding ignition - proof equipment (DIP) enclosures to IEC 61241 parts 0 & 1, AS/NZS 61241 parts 0 & 1 and AS 2236
Flameproof restrained plugs and receptacles to AS 1299 except clause 3.3.9
Bolted flameproof cable coupling devices to AS 1300 except clause 3.3.7
Cable glands to AS 1828
Electrical systems of dispensing equipment to AS 2229 parts 1, 2
Combustible (flammable) gas detection instruments to IEC 61779 parts 1 to 5, AS/NZS 61779 parts 1

Scope of Accreditation

to 5 and AS 2275 part 1
Electrical apparatus for explosive gas atmospheres - electrical resistance trace heating to AS/NZS 62086.1 excluding bend test and moisture resistance test

Explosion protected distribution and control boxes for voltages up to 3300 V to AS/NZS 4871 parts 1 to 5 excluding through-fault and making capacity tests
Transformer substations to AS/NZS 4871 parts 1 to 5 excluding through-fault and making capacity tests
Equipment for earth fault protection, monitoring and current limitation to AS/NZS 2081
High voltage circuit breaking and isolating for voltages up to 11 kV ac to AS/NZS 4871 parts 1 to 5, excluding through-fault and making capacity tests
Caplights to AS/NZS 62013 parts 1 & 2 and IEC 62013 parts 1 & 2
Also tests on the above equipment to similar international specifications

Accreditation No: 1032
Corporate Site No: 1025
(Scope Last Changed 22/11/10)