

AS/NZS 4871.1:2012  
(Incorporating Amendment No. 1)

AS/NZS 4871.1:2012

Australian/New Zealand Standard™

**Electrical equipment for mines and  
quarries**

**Part 1: General requirements**



## **AS/NZS 4871.1:2012**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-023, Electrical Equipment in Mines and Quarries. It was approved on behalf of the Council of Standards Australia on 13 November 2012 and on behalf of the Council of Standards New Zealand on 1 November 2012. This Standard was published on 7 December 2012.

---

The following are represented on Committee EL-023:

Australian Chamber of Commerce and Industry  
Australian Coal Association  
Australian Industry Group  
Consult Australia  
Department of Employment, Economic Development and Innovation, Qld  
Department of Mines and Petroleum, WA  
Department of Trade and Investment, Regional Infrastructure and Services, NSW  
Electrical Apparatus Service Association  
Mining Electrical and Mining Mechanical Engineering Society  
National Association of Testing Authorities Australia  
Queensland Department of Environment and Resource Management  
Solid Energy New Zealand  
The Aviation and Marine Engineers Association, New Zealand  
University of Newcastle  
WorkCover New South Wales

---

### **Keeping Standards up-to-date**

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at [www.saiglobal.com.au](http://www.saiglobal.com.au) or Standards New Zealand web site at [www.standards.co.nz](http://www.standards.co.nz) and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

---

*This Standard was issued in draft form for comment as DR AS/NZS 4871.1.*

---

**AS/NZS 4871.1:2012**  
(Incorporating Amendment No. 1)

**Australian/New Zealand Standard™**

## **Electrical equipment for mines and quarries**

### **Part 1: General requirements**

Originated in Australia as part of AS 1039—1972, AS 1740—1975,  
AS 2595.1—1983 and AS 2989—1987.  
Originated in New Zealand as AS/NZS 4781.1:2002.  
Previous edition 2010.  
Third edition 2012.  
Reissued incorporating Amendment No. 1 (April 2014).

#### **COPYRIGHT**

© Standards Australia Limited/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, Private Bag 2439, Wellington 6140.

ISBN 978 1 74342 316 5

## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-023, Electrical Equipment in Mines and Quarries, to supersede AS/NZS 4871.1:2010, *Electrical equipment for mines and quarries, Part 1: General requirements*.

*This Standard incorporates Amendment No. 1 (April 2014). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.*

The objective of this Standard is to set out the minimum design, manufacturing, testing and performance requirements for electrical equipment intended for use in mines and quarries.

This Standard is Part 1 of the series AS/NZS 4871, *Electrical equipment for mines and quarries*, which comprises the following parts:

- Part 1: General requirements (this Standard)
- Part 2: Distribution, control and auxiliary equipment
- Part 3: Substations
- Part 4: Mains powered electrical mobile machines
- Part 5: Battery powered electrical mobile machines
- Part 6: Diesel powered machinery and ancillary equipment

This Standard differs from the 2010 edition as follows:

- (a) Additional requirements for high voltage tests including partial discharge and impulse testing. Appendix H updated with details for partial discharge and impulse test methods.
- (b) Creepage and clearance requirements altered in light of additional high voltage testing.
- (c) Requirements for earth-protection scheme clarified and additional information included in Appendix C.
- (d) Revised requirements for pilot protection of restrained receptacles, earth fault lockout and earth continuity in hazardous zones.
- (e) Minor changes of clarification.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

## CONTENTS

	<i>Page</i>
<b>SECTION 1 SCOPE AND GENERAL</b>	
1.1 SCOPE.....	5
1.2 APPLICATION .....	5
1.3 SERVICE CONDITIONS .....	5
1.4 REFERENCED DOCUMENTS .....	5
1.5 DEFINITIONS.....	8
1.6 EXISTING EQUIPMENT .....	14
<b>SECTION 2 COMMON REQUIREMENTS</b>	
2.1 GENERAL.....	15
2.2 ENCLOSURE REQUIREMENTS .....	17
2.3 COMPONENTS REQUIREMENTS.....	19
2.4 CONDUCTORS AND CABLING REQUIREMENTS .....	24
2.5 CONNECTION FACILITIES FOR EARTHING AND EQUIPOTENTIAL BONDING CONDUCTORS.....	25
2.6 PROTECTION REQUIREMENTS.....	27
2.7 REMOTE CONTROL.....	31
2.8 PROXIMITY DETECTION .....	31
2.9 THERMOGRAPHY .....	31
<b>SECTION 3 HAZARDOUS AREA REQUIREMENTS</b>	
3.1 SCOPE OF SECTION .....	32
3.2 EXPLOSION PROTECTION .....	32
3.3 ALUMINIUM OR LIGHT METAL ALLOY PARTS .....	32
3.4 INTERLOCKING.....	32
3.5 ENCLOSURES.....	33
3.6 MOTORS.....	34
3.7 BATTERIES.....	34
3.8 CABLE HOSE.....	35
3.9 MACHINE CABLES.....	35
3.10 INTRINSICALLY SAFE PLUGS AND SOCKETS.....	36
3.11 INTRINSICALLY SAFE CONDUCTORS .....	36
<b>SECTION 4 TESTS</b>	
4.1 GENERAL.....	38
4.2 TYPE TESTS.....	38
4.3 ROUTINE TESTS .....	38
4.4 TESTING OF DEVICES AND SELF-CONTAINED COMPONENTS INCORPORATED IN THE ASSEMBLY.....	39
4.5 HIGH VOLTAGE TESTS .....	39
<b>SECTION 5 MARKING AND LABELLING</b>	
5.1 EQUIPMENT MARKING.....	40
5.2 COMPONENT MARKING .....	40
5.3 WIRING MARKING.....	40
5.4 WARNING LABELS .....	41
5.5 RATING PLATE .....	41

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
  - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-