

Australian Standard[®]

Safety in laboratories

Part 7: Electrical aspects

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Australian Institute of Petroleum
Australian Nuclear Science and Technology Organisation
Bureau of Steel Manufacturers
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Part 7: Electrical aspects

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PREFACE

This Standard was prepared by the Standards Australia Committee for Safety in Laboratories under the direction of the Chemical Standards Board to supersede AS 2243.7—1980. It is Part 7 of a series of Standards on safety in laboratories initiated to promote safe working practice in laboratories. The other parts of the series are as follows:

- Part 1—General
- Part 2—Chemical aspects
- Part 3—Microbiology
- Part 4—Ionizing radiations
- Part 5—Non-ionizing radiations
- Part 6—Mechanical aspects
- Part 8—Fume cupboards
- Part 9—Recirculating fume cabinets

Although this Standard does not consider electrical installations during laboratory construction, it is noted that AS 3000—1991 will require residual current device (RCD) protection on all general purpose outlets (GPOs) in domestic installations. It is therefore strongly recommended that RCD protection be provided for GPOs in laboratories.

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STANDARDS AUSTRALIA

**Australian Standard
Safety in laboratories****Part 7: Electrical aspects**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard sets out general principles for the use of electrical equipment in all types of laboratories, to promote electrical safety in laboratories and minimize personal injury and prevent property damage.

This Standard is intended to cover all equipment which may be used in the laboratory including office equipment such as word processors, photocopiers and typewriters. This Standard does not include the installation of electrical fittings during the construction of the laboratory, which is the subject of AS 2982.

The Standard is not intended to replace any legislation, statutory requirements or electricity supply authority regulations.

1.2 REFERENCED AND RELATED DOCUMENTS A list of referenced and related documents is given in Appendix A.

1.3 DEFINITIONS For the purpose of this Standard, the definitions below apply.

1.3.1 Active — any terminal or conductor of a supply system which is maintained at a difference of potential from the neutral or earthed conductor. In a system which does not include a neutral or earthed conductor, all conductors shall be considered to be active conductors.

1.3.2 Appliance, portable — denotes either an appliance which is moved while in operation or an appliance which can easily be moved from one place to another while connected to the supply.

1.3.3 Appliance, hand held — a portable appliance intended to be held in the hand during normal use, the motor, if any, forming an integral part of the appliance.

1.3.4 Appliance, stationary — either a fixed appliance or an appliance which cannot easily be moved from one place to another.

1.3.5 Appliance, fixed — an appliance which in normal use is fastened to a support or otherwise secured in a specific position.

1.3.6 Authorized — complying with the appropriate Standard, or having the approval or acceptance of the supply authority or, where existing Standards or authority regulations do not apply, authorized by the head officer.

1.3.7 Cable, flexible — a cable, consisting of conductors, insulation and covering that afford flexibility.

1.3.8 Conductor — a wire or other form of conducting material suitable for carrying current, but not including wire or other metallic parts directly employed in converting electrical energy into another form.

1.3.9 Cord — a length of flexible cord, one end of which terminates in a plug, and the other end in a cord-extension socket.

1.3.10 Cord, flexible — a flexible cable, having not more than five cores, in which no wire exceeds a diameter of 0.30 mm and no conductor has a cross-sectional area of more than 4 mm².

1.3.11 Dead — a term applied to an object which is at or about earth potential and disconnected from any live system.

1.3.12 Earthed — connected to the general mass of earth, in accordance with the appropriate requirements of AS 3000, such that the electrical isolation of any defective equipment occurs through the operation of protective apparatus.

1.3.13 Earth leakage device (ELD) — see Clause 1.3.22.

1.3.14 Equipment — any accessory, appliance, apparatus, device, lighting fitting, fixture, material or the like used or intended for use as part of, or in connection with, an electrical installation.

1.3.15 Hazardous area — an area in which an explosive atmosphere is present or may be expected to be present in quantities that require special precautions for the construction, installation and use of potential ignition.