Australian Standard™

Work in compressed air and hyperbaric facilities

Part 1: Work in tunnels, shafts and caissons

Standards Australia

This Australian Standard was prepared by Committee SF-046, Non-diving Work in Compressed Air and Hyperbaric Treatment Facilities. It was approved on behalf of the Council of Standards Australia on 2 January 2003 and published on 16 January 2003.

The following are represented on Committee SF-046:

Australian and New Zealand Hyperbaric Medicine Group

Australian and New Zealand College of Anaesthetists

Australian Industry Group

Australian Medical Association

Hyperbaric Engineering Industry Forum

Hyperbaric Technicians and Nurses Association

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PREFACE

This Standard was prepared by Standards Australia Committee SF-046, Non-diving Work in Compressed Air and Hyperbaric Treatment Facilities, to supersede AS CA12—1970, *Work in compressed air (known as the SAA Compressed Air Code)*.

Technological advances and a greatly increased availability of data concerning the effects of working in compressed air have identified a need to expand and split this Standard into two parts with Part 1 (this part) essentially a revision of AS CA12—1970 covering work in tunnels, shafts and caissons, and Part 2 specifying requirements for work in hyperbaric oxygen facilities.

The revision includes the insertion of metric values with both figures for bar gauge (as used in the industry) and the SI unit of kilopascals shown to reduce the risk of errors in conversions between the two. The Standard has been modified extensively during this revision and attention is drawn to the following changes:

(a) The Standard has been modified to address tunnel boring machines.

(b) Staged decompression using oxygen breathing has been specified.

(c) A requirement has been added for a hazard identification, risk assessment and control process to be conducted prior to work in compressed air being undertaken.

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

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for medical supervision, operating procedures, equipment (minimum requirements, design and operation) and general precautions to be observed for work in tunnels, shafts and caissons where compressed air is the breathing medium and the maximum pressure of the work area is 4 bar (400 kPa) gauge.

Appendices include medical standards and examination reports, instructions for persons working in compressed air and information on decompression illness for compressed air workers.

1.2 OBJECTIVE

The objective of this Standard is to provide a set of requirements to ensure safe working conditions for people entering and working under increased ambient pressure (excluding diving operations and hyperbaric treatment operations (see AS 4774.2)) and to promote uniformity of practice in relation to the health and safety of persons working in or entering shafts, tunnels, tunnelling machines and compressed air caissons pressurized above atmospheric pressure.

1.3 APPLICATION

This Standard applies to operations in tunnels, shafts and caissons pressurized to a maximum of 4 bar (400 kPa) gauge using compressed air as the breathing medium.

This Standard may also be used for guidance for operations in other environments and areas pressurized to greater than 4 bar (400 kPa) gauge. However, additional training and procedures will be necessary and the use of compressed air as the breathing medium should be reconsidered.

1.4 REFERENCED DOCUMENTS

A list of referenced and other related publications is provided in Appendix A.

1.5 DEFINITIONS

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

1.5.1 Built in breathing system (BIBS)

A system providing a close fitting face mask for each person in a personnel lock, from which the occupants breathe oxygen to speed their safe decompression. The system exhausts the exhaled breath of the mask wearer outside the lock chamber.