

Australian Standard™

**Work in compressed air and hyperbaric facilities**

**Part 2: Hyperbaric oxygen facilities**

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 29 March 2002 and published on 24 April 2002.

---

The following interests 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  
Institution of Engineers Australia  
South Pacific Underwater Medicine Society  
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 Standards may also be withdrawn.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 Standards can be found by visiting the Standards Australia web site at [www.standards.com.au](http://www.standards.com.au) and looking up the relevant Standard in the on-line catalogue.

Alternatively, the printed Catalogue provides information current at 1 January each year, and the monthly magazine, *The Australian Standard*, has a full listing of revisions and amendments published each month.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at [mail@standards.com.au](mailto:mail@standards.com.au), or write to the Chief Executive, Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001.

---

Australian Standard™

**Work in compressed air and hyperbaric facilities**

**Part 2: Hyperbaric oxygen facilities**

First published as AS 4774.2—2002.

**COPYRIGHT**

© Standards Australia International

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.

Published by Standards Australia International Ltd  
GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 4464 8

## PREFACE

This Standard was prepared by Standards Australia Committee SF-046, Non-diving Work in Compressed Air and Hyperbaric Treatment Facilities, in response to a request from the Hyperbaric Technicians and Nurses Association (HTNA).

This Standard was prepared using the Hyperbaric Oxygen Therapy Facilities Industry Guidelines (HOTFIG) as a basis. HOTFIG was prepared by participants in the hyperbaric oxygen therapy industry during the period of 1995 to 1998. HOTFIG was a consensus document prepared by a committee with membership from the HTNA, Australian and New Zealand Hyperbaric Medicine Group and operators and suppliers of hyperbaric chambers.\* A wider review group provided comment on HOTFIG drafts at various stages.

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.

---

\* The Undersea and Hyperbaric Medicine Society (UHMS) *Guidelines for Clinical Multiplace Hyperbaric Facilities* was used as a basis for HOTFIG.

## CONTENTS

	<i>Page</i>
<b>SECTION 1 SCOPE AND GENERAL</b>	
1.1 SCOPE.....	5
1.2 OBJECTIVE.....	5
1.3 REFERENCED DOCUMENTS.....	5
1.4 DEFINITIONS .....	5
1.5 RELATIONSHIP WITH LEGISLATION .....	6
<b>SECTION 2 HYPERBARIC FACILITY</b>	
2.1 CHAMBER ROOM.....	7
2.2 HYPERBARIC TREATMENT CHAMBER.....	8
<b>SECTION 3 MULTIPLACE CHAMBER OPERATIONAL SYSTEMS</b>	
3.1 GENERAL.....	11
3.2 AIR PRESSURIZATION SYSTEM .....	11
3.3 BREATHING GAS SYSTEMS .....	14
3.4 ENVIRONMENTAL CONDITIONING SYSTEM .....	15
3.5 COMMUNICATION SYSTEM.....	15
3.6 PATIENT MONITORING SYSTEM .....	16
3.7 LIGHTING SYSTEM.....	16
3.8 ELECTRICAL SYSTEMS .....	16
3.9 FIRE SUPPRESSION SYSTEM.....	16
3.10 SOUND ATTENUATION.....	17
3.11 CLOTHING AND TEXTILES .....	17
3.12 PROHIBITED AND RESTRICTED MATERIALS.....	17
<b>SECTION 4 MONOPLACE CHAMBERS</b>	
4.1 AIR PRESSURIZED MONOPLACE CHAMBERS.....	19
4.2 OXYGEN PRESSURIZED MONOPLACE CHAMBERS .....	19
4.3 FIRE SUPPRESSION SYSTEM.....	19
<b>SECTION 5 PREVENTIVE MAINTENANCE</b>	
5.1 SYSTEM MAINTENANCE.....	20
5.2 CHAMBER CLEANING .....	20
5.3 LUBRICANTS .....	20
<b>SECTION 6 RISK MANAGEMENT FOR HYPERBARIC FACILITIES</b>	
6.1 GENERAL.....	21
6.2 HAZARD IDENTIFICATION, RISK ASSESSMENT AND CONTROL PROCESS	21
6.3 HAZARD IDENTIFICATION.....	21
6.4 RISK ASSESSMENT .....	22
6.5 RISK CONTROL.....	22
6.6 EMERGENCY PROCEDURE PROTOCOLS .....	23
6.7 REGULAR REVIEW OF EMERGENCY PROCEDURES .....	24
<b>SECTION 7 PERSONNEL FOR HYPERBARIC FACILITIES</b>	
7.1 GENERAL.....	25
7.2 SENIOR PHYSICIAN IN DIVING AND HYPERBARIC MEDICINE (SHP).....	25
7.3 HYPERBARIC PHYSICIAN (HP).....	25
7.4 HYPERBARIC MEDICAL OFFICER (HMO).....	26
7.5 HYPERBARIC ATTENDANT.....	26

	<i>Page</i>
7.6 CHAMBER OPERATORS .....	26
7.7 MINIMUM STAFF QUALIFICATIONS .....	27
<b>SECTION 8 STAFFING OF HYPERBARIC FACILITIES</b>	
8.1 DETERMINATION OF APPROPRIATE STAFFING .....	28
8.2 CHAMBER OPERATOR .....	28
8.3 PATIENT CARE .....	28
8.4 EQUIPMENT-SPECIFIC TRAINING .....	29
8.5 ALLOCATION OF RESPONSIBILITY .....	29
8.6 RESPONSIBILITIES—FACILITY MANAGEMENT .....	29
8.7 RESPONSIBILITIES—PATIENT CARE AND CHAMBER OPERATION .....	30
8.8 MINIMUM STAFFING LEVELS FOR ALL CHAMBER TYPES .....	31
8.9 STAFF FITNESS TO ENTER HYPERBARIC ENVIRONMENT .....	32
<b>SECTION 9 PREPARATION OF PATIENTS FOR HYPERBARIC OXYGEN THERAPY</b>	
9.1 PATIENT ORIENTATION .....	34
9.2 PATIENT ASSESSMENT AND PREPARATION .....	34
<b>SECTION 10 MINIMUM MEDICAL EQUIPMENT FOR A HYPERBARIC OXYGEN THERAPY FACILITY</b>	
10.1 GENERAL .....	35
10.2 MINIMUM MEDICAL EQUIPMENT .....	35
<b>APPENDICES</b>	
A LIST OF REFERENCED AND RELATED DOCUMENTS .....	36
B SUGGESTED MAINTENANCE SCHEDULE .....	39
C HYPERBARIC ATTENDANT COURSE .....	41
D MONOPLACE OPERATOR COURSE .....	45
E HYPERBARIC TECHNICAL OFFICER TRAINING .....	50
F MEDICAL EXAMINATION FORMS .....	55
G GUIDANCE FOR MEDICAL PRACTITIONERS .....	61

## STANDARDS AUSTRALIA

### Australian Standard

## Work in compressed air and hyperbaric facilities

### Part 2: Hyperbaric oxygen facilities

## SECTION 1 SCOPE AND GENERAL

### 1.1 SCOPE

This Standard specifies requirements and recommendations for the design, construction, operation and maintenance of pressure vessels used for human occupancy other than those used in conjunction with, and support of, underwater diving operations.

Minimum training requirements for hyperbaric attendants, chamber operators and technical officers are included in appendices.

#### NOTES:

- 1 Both monoplace and multiplace hyperbaric chambers are covered.
- 2 This Standard does not address hypobaric chambers.
- 3 Facilities such as sporting domes and medical or industrial clean rooms which operate at very low increased pressures are excluded from the scope of this Standard.

### 1.2 OBJECTIVE

The objective of this Standard is to provide designers, manufacturers, operators and maintainers of hyperbaric oxygen facilities other than those used in conjunction with, and support of, underwater diving operations, with requirements and recommendations so that safe hyperbaric exposures of all personnel involved in the operation of such facilities may be conducted.

### 1.3 REFERENCED DOCUMENTS

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

### 1.4 DEFINITION

For the purposes of this Standard the definitions below apply.

#### 1.4.1 Air environment

A pressurized environment having an oxygen concentration not exceeding 23.5% oxygen by volume.

#### 1.4.2 Chamber operator

The person responsible for operating the controls of a hyperbaric chamber.

#### 1.4.3 Competent person

A person who has acquired through training, qualifications or experience, or a combination of these, the knowledge and skills enabling that person to safely perform a specific task.