

Australian/New Zealand Standard™

The storage and handling of LP Gas



AS/NZS 1596:2014

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee ME-015, Storage and Handling—Liquefied Petroleum Gases. It was approved on behalf of the Council of Standards Australia on 14 April 2014 and on behalf of the Council of Standards New Zealand on 27 March 2014. This Standard was published on 19 May 2014.

The following are represented on Committee ME-015:

Australasian Fire and Emergency Service Authorities Council
Department of Agriculture, Fisheries and Forestry, Qld
Department of Mines and Petroleum, WA
Department of the Premier and Cabinet, SA
Energy Safety, WA
Engineers Australia
Environmental Protection Authority, New Zealand
Fire Protection Association Australia
Gas Appliance Manufacturers Association of Australia
Gas Energy Australia
LPG Association of New Zealand
Ministry of Business, Innovation and Employment, New Zealand
WorkSafe, Tasmania
WorkSafe Victoria

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 Standards may also be withdrawn.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 or Standards New Zealand web site at 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 1596.

Australian/New Zealand Standard™

The storage and handling of LP Gas

Originated in Australia as AS CB 20—1965.
Originated in New Zealand as NZS 5434:1986.
Fifth edition AS/NZS 1596:1997.
Sixth edition AS/NZS 1596:2002.
Previous edition AS/NZS 1596:2008.
Eighth edition 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 712 5

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME-015, Storage and Handling—Liquefied Petroleum Gases, to supersede AS/NZS 1596:2008, *The storage and handling of LP Gas*.

This edition is the result of a comprehensive review of the 2008 edition, in order to update procedures in light of industry best practice, and correct and update references.

A new informative Appendix, ‘Impact protection’, for assessing the requirements for the protection of tanks and cylinders from impact, has been introduced.

A new informative Appendix, ‘Transport of portable LP Gas cylinders for trade use’, covering the transport of cylinders for trade use, has been included. This has drawn heavily on safety notes and bulletins produced by various government bodies following an increase in safety incidents in this area. Addressing additional safety concerns regarding the hazardous nature of working in underground pits, a number of changes have been made in this area.

Appendix K has been reviewed to bring the emergency planning aspects of the Standard in line with current emergency services terminology and practice.

A significant number of minor changes have been made to align the Standard with New Zealand regulatory practice and it is envisaged that the Standard may be called up in legislation in New Zealand in the future.

This Standard has been revised in terms of safety and technical matters. The regulatory authorities in each state and territory determine how and when Standards are to be applied. The method of application may be full, part, with or without modifications or not at all. This application is not directed by the Standard. The relevant regulatory authority should be consulted regarding the application of this Standard.

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.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

Where Australian and New Zealand references are separated by the word ‘or’, a slash (/) or parentheses, Australian references apply in Australia, and New Zealand references apply in New Zealand. Joint Standards apply in both Australia and New Zealand.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE AND OBJECTIVE.....	6
1.2 APPLICATION	6
1.3 REFERENCED DOCUMENTS.....	9
1.4 DEFINITIONS.....	9
SECTION 2 MINOR STORAGE AND USAGE	
2.1 INTRODUCTION	17
2.2 APPLICATION OF SECTION	17
2.3 MINOR STORAGE AND USAGE OF LP GAS	17
2.4 GROUPS OF TEMPORARY STRUCTURES IN WHICH LP GAS IS USED	18
SECTION 3 GENERAL REQUIREMENTS	
3.1 SCOPE OF SECTION	22
3.2 RESTRICTIONS ON IGNITION SOURCES.....	22
3.3 PIPES, VALVES AND FITTINGS.....	22
3.4 CONTROL OF ACCESS.....	22
3.5 SEPARATION DISTANCES	22
3.6 FIREWALLS AND VAPOUR BARRIERS.....	23
SECTION 4 CYLINDERS AND CYLINDER SYSTEMS	
4.1 SCOPE AND APPLICATION OF SECTION.....	25
4.2 CYLINDERS	25
4.3 REGULATORS AND PIPING FOR CYLINDER SYSTEMS.....	26
4.4 CYLINDERS IN USE.....	27
4.5 CYLINDER STORAGE	35
4.6 EXCHANGE FACILITIES FOR PORTABLE CYLINDERS	38
4.7 STORAGE OF LP GAS CYLINDERS ON TROLLEYS.....	39
4.8 CYLINDER LOADING AND UNLOADING AREAS	40
SECTION 5 COMPONENTS FOR TANK SYSTEMS	
5.1 SCOPE OF SECTION	41
5.2 TANK DESIGN AND CONSTRUCTION	41
5.3 CONTROL OF LP GAS OUTFLOW	42
5.4 SAFETY VALVES	44
5.5 VALVES AND ACCESSORIES	45
5.6 PIPING	48
5.7 VAPORIZERS.....	50
SECTION 6 TANK SYSTEM INSTALLATION	
6.1 SCOPE OF SECTION	52
6.2 TANK SPACING AND SEPARATION DISTANCES.....	52
6.3 TANK SITE CONDITIONS	55
6.4 TANK FOUNDATIONS AND SUPPORTS.....	55
6.5 FLAME IMPINGEMENT	56
6.6 CONNECTIONS FOR TANK FILLING AND TANKER LOADING	57
6.7 EMERGENCY SHUT-DOWN SYSTEM.....	60
6.8 PIPING	61
6.9 VAPORIZER INSTALLATION.....	64

6.10	REGULATORS	64
6.11	PUMPS AND COMPRESSORS.....	65
6.12	SECURITY AND DAMAGE AVOIDANCE	66
6.13	LIGHTNING AND BONDING PROTECTION.....	67
6.14	LADDERS, STEPS AND PLATFORMS	67
6.15	LEAK DETECTION.....	67
6.16	MARKINGS AND NOTICES	67
6.17	LIGHTING	67
6.18	UNODOURIZED GAS INSTALLATIONS	67
SECTION 7 UNDERGROUND TANK INSTALLATIONS		
7.1	SCOPE AND APPLICATION OF SECTION.....	68
7.2	CORROSION CONTROL	68
7.3	LOCATION AND INSTALLATION	68
7.4	ACCESS, PROTECTION, FITTINGS AND ACCESSORIES	72
7.5	DISCHARGE FROM SAFETY RELIEF DEVICES	73
SECTION 8 CYLINDER FILLING INSTALLATIONS—AUSTRALIA		
8.1	SCOPE OF SECTION	75
8.2	GENERAL REQUIREMENTS.....	75
8.3	CYLINDER FILLING AREA	75
8.4	DECANTING	76
8.5	CYLINDER TO FORKLIFT AND AUTOMOTIVE CYLINDER— FILLING BY PUMP.....	79
SECTION 9 CYLINDER FILLING INSTALLATIONS—NEW ZEALAND		
9.1	SCOPE OF SECTION	81
9.2	GENERAL REQUIREMENTS.....	81
9.3	CYLINDER FILLING AREA	82
9.4	DECANTING	84
SECTION 10 AUTOMOTIVE FILLING INSTALLATIONS		
10.1	INTRODUCTION	85
10.2	COMMON REQUIREMENTS	85
10.3	DISPENSING SYSTEMS.....	86
10.4	NOTICES, SIGNS AND INSTRUCTIONS.....	89
10.5	SPECIFIC REQUIREMENTS FOR SERVICE STATIONS.....	89
10.6	SITE SUITABILITY FOR SERVICE STATIONS.....	95
10.7	LAND USE CONTROLS FOR SERVICE STATIONS.....	95
10.8	SAFETY MANAGEMENT SYSTEM FOR SERVICE STATIONS	97
SECTION 11 OPERATIONS		
11.1	SCOPE OF SECTION	99
11.2	GENERAL PRECAUTIONS	99
11.3	ESTABLISHMENT OF PROCEDURES.....	100
11.4	COMPLIANCE, SUPERVISION AND RECORDS	103
11.5	CONSTRUCTION, INSPECTION, TESTING AND MAINTENANCE	103
11.6	SPECIFIC OPERATING PROCEDURES	106
11.7	PREPARATIONS FOR THE TRANSPORT OR REMOVAL OF STORAGE TANKS	107
11.8	TANKER OPERATIONS.....	107
11.9	GENERAL PRECAUTIONS FOR TANKER TRANSFER.....	109
11.10	SUPERVISION OF DELIVERY	109

	<i>Page</i>
11.11 PROCEDURES FOR FILLING AND EMPTYING TANKS.....	110
11.12 CYLINDER FILLING	111
11.13 FILLING FROM TANKERS TO CYLINDERS OTHER THAN IN SITU.....	112
 SECTION 12 EMERGENCY MANAGEMENT	
12.1 SCOPE OF SECTION	114
12.2 PLANNING FOR EMERGENCIES	114
12.3 MANIFEST	115
12.4 PLACARDING.....	115
 SECTION 13 FIRE SAFETY	
13.1 INTRODUCTION	116
13.2 APPLICATION OF SECTION.....	116
13.3 GENERAL REQUIREMENTS FOR FIRE PROTECTION EQUIPMENT	117
13.4 CYLINDERS	117
13.5 TANK INSTALLATIONS.....	119
13.6 AUTOMOTIVE FILLING INSTALLATIONS	120
13.7 DETAILED REQUIREMENTS.....	120
 APPENDICES	
A LIST OF REFERENCED DOCUMENTS.....	123
B TANK OR CYLINDER FILLING LEVEL.....	128
C APPROXIMATE CAPACITIES OF CYLINDERS FOR LP GAS	135
D MARKINGS, SIGNS AND NOTICES	136
E HAZARDOUS AREAS	143
F EXCHANGE FACILITIES FOR PORTABLE CYLINDERS—AUSTRALIA.....	146
G EXCHANGE FACILITIES FOR PORTABLE CYLINDERS—NEW ZEALAND..	149
H DISCHARGE CAPACITY OF SAFETY VALVES	153
I LEAKAGE TESTING OF PIPEWORK.....	155
J DECANTING PROCEDURE	157
K EMERGENCY PLANNING.....	159
L MOTOR VEHICLE REFUELLING	161
M FIRE EXPOSURE PROTECTION	162
N FIRE SAFETY.....	166
O TRANSPORT OF PORTABLE LP GAS CYLINDERS	169
P TRANSPORT OF PORTABLE LP GAS CYLINDERS FOR TRADE USE	170
Q IMPACT PROTECTION.....	172

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

-
- ▶ Looking for additional Standards? Visit [SAI Global Infostore](#)
 - ▶ Subscribe to our [Free Newsletters about Australian Standards® in Legislation; ISO, IEC, BSI and more](#)
 - ▶ Do you need to [Manage Standards Collections Online?](#)
 - ▶ Learn about [LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
 - ▶ Do you want to [know when a Standard has changed?](#)
 - ▶ Want to [become an SAI Global Standards Sales Affiliate?](#)

Learn about other SAI Global Services:

- ▶ [LOGICOM Military Parts and Supplier Database](#)
- ▶ [Metals Infobase Database of Metal Grades, Standards and Manufacturers](#)
- ▶ [Materials Infobase Database of Materials, Standards and Suppliers](#)
- ▶ [Database of European Law, CELEX and Court Decisions](#)

Need to speak with a Customer Service Representative - [Contact Us](#)