

Australian Standard™

**Elastomeric seals for waterworks  
purposes**

**Part 1: General requirements**



**S t a n d a r d s A u s t r a l i a**

This Australian Standard was prepared by Committee WS/10, Flexible Jointing Gaskets. It was approved on behalf of the Council of Standards Australia on 31 March 2000 and published on 28 April 2000.

---

The following interests are represented on Committee WS/10:

Australasian Plastics and Rubber Institute  
Australian Association of Certification Bodies  
Australian Chamber of Commerce and Industry  
Australian Industry Group  
Concrete Pipe Association of Australasia  
Master Plumbers' Association of Queensland  
New Zealand Contractors Federation  
Plastics and Chemicals Industries Association Incorporated  
Rubber Manufacturers Association of Australasia  
Water Services Association of Australia

---

#### **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 Standards may also be withdrawn.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, PO Box 1055, Strathfield, NSW 2135.

---

Australian Standard™

**Elastomeric seals for waterworks  
purposes**

**Part 1: General requirements**

Originally as AS A139—1964.  
Previous edition AS 1646—1992.  
Revised and redesignated in part as AS 1646.1—2000.

**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  
PO Box 1055, Strathfield, NSW 2135, Australia

ISBN 0 7337 3356 5

## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee WS/10, Flexible Jointing Gaskets, to supersede, in part, AS 1646—1992, *Elastomeric seals for waterworks purposes*.

This Standard is the result of a consensus among Australian and New Zealand representatives on the Joint Committee to produce it as an Australian Standard.

The objective of this Standard is to set out requirements for a wide range of seals used in the water and sewage industries, including the material requirements for specific applications.

AS 1646 is a suite of standards that covers elastomeric seals. To date the suite is comprised of the following:

## AS

- 1646 Elastomeric seals for waterworks
- 1646.1 Part 1: General requirements (this Standard)
- 1646.2 Part 2: Material requirements for pipe joint seals used in water and waste water applications—Specified by prescriptive formulation
- 1646.3 Part 3: Material requirements for pipe joint seals used in water and waste water applications with the exception of natural rubber and polyisoprene compounds

The previous edition of AS 1646 has been retained and amended, and incorporated into Parts 1 and 2, significantly, for its valuable information on natural rubber.

This Standard necessarily deals with existing conditions, but is not intended to discourage innovation or to exclude materials, equipment and methods which may be developed in the future. Revisions will be made from time to time in view of such developments and amendments to this edition will be made when absolutely necessary.

Where possible the suite of Standards (Parts 1 to 3) makes reference to ISO Standards, which have been taken into consideration at the time of preparation of this Standard.

This Standard takes cognizance of BS EN 681-1:1996, *Elastomeric seals—Material requirements for pipe joint seals used in water and drainage applications, Part 1: Vulcanized rubber*, which has been generally adopted.

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 mandatory part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

## CONTENTS

	<i>Page</i>
1 SCOPE AND GENERAL.....	4
2 REFERENCED DOCUMENTS .....	4
3 DEFINITIONS .....	5
4 DIMENSIONAL TOLERANCES .....	9
5 EFFECT ON WATER .....	9
6 STORAGE.....	9
7 PURCHASING.....	9
8 ABBREVIATIONS .....	9
9 PERFORMANCE REQUIREMENTS.....	9
 APPENDICES	
A MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS STANDARD .....	12
B PURCHASING GUIDELINES.....	14
C TEST FOR SPLICE STRENGTH OF PREVULCANIZED PROFILE ENDS AND JOINT.....	15
D GUIDANCE ON OZONE RESISTANCE .....	17
E DETERMINATION OF STRESS RELAXATION IN TENSION .....	18

## STANDARDS AUSTRALIA

## Australian Standard

## Elastomeric seals for waterworks purposes

## Part 1: General requirements

**1 SCOPE AND GENERAL****1.1 Scope**

This Standard specifies the general requirements applicable to the AS 1646.1 series of Standards for the use of elastomeric seals in water and sewerage systems.

Means for demonstrating compliance with this Standard are given in Appendix A.

**1.2 General**

This Standard shall be used in conjunction with AS 1646.2 and AS 1646.3, where applicable.

**2 REFERENCED DOCUMENTS**

The following documents are referred to in this Standard.

## AS

- |         |  |
|---------|--|
| 1199    | Sampling procedures and tables for inspection by attributes  |
| 1290    | Linear measuring instruments used in construction  |
| 1290.2  | Part 2: Wooden and synthetic material folding rules  |
| 1646    | Elastomeric seals for waterworks purposes  |
| 1646.2  | Part 2: Material requirements for pipe joint seals used in water and wastewater applications — Specified by prescriptive formulation                         |
| 1646.3  | Part 3: Material requirements for pipe joint seals used in water and wastewater applications with the exception of natural rubber and polyisoprene compounds |
| 1683    | Methods of test for rubber   |
| 1683.24 | Part 24: Rubber—Vulcanized—Determination of resistance to ozone cracking—Dynamic strain test   |
| 2490    | Sampling procedures and charts for inspection by variables for percent nonconforming   |
| 3855    | Suitability of plumbing and water distribution systems products for contact with potable water   |

## AS/NZS

- |      |   |
|------|---|
| 4020 | Products for use in contact with drinking water |
|------|---|

## SAA

- |          |   |
|----------|---|
| HB 18.28 | Guide 28: General rules for a model third-party certification system for products |
|----------|---|

## SANZ

- |          |   |
|----------|---|
| HB 18.28 | Guide 28: General rules for a model third-party certification system for products |
|----------|---|