Australian Standard™

Elastomeric seals for waterworks purposes

Part 2: Material requirements for pipe joint seals used in water and wastewater applications—Specified by prescriptive formulation

Standards Australia

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

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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 Australia 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 wastewater 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
1646.2	Part 2:	Material requirements for pipe joint seals used in water and wastewater applications—Specified by prescriptive formulation (this Standard)
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

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 future. Revisions will be made from time to time in view of such developments and amendments to this edition will be made only 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.

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.

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FOREWORD

A designer of an installation should, among other duties, evaluate the possible conditions to which the seals will be exposed.

The type of elastomer and its properties should be selected with consideration of several factors including the following:

(a) The requirements of the regulatory authority within whose jurisdiction the seals are to be used.

(b) Where appropriate, the effects of the seal on the water conveyed.

(c) Selection for particular environments, which include the following:

  (i) Internal—having due regard to liquid conveyed, e.g. sewage at variable depths.

  (ii) External—

    (A) below ground, having due regard to—

      (1) root intrusion;

      (2) microorganism attack; and

      (3) temperature after jointing and before covering with fill; and

    (B) above ground, having due regard to—

      (1) ultraviolet light;

      (2) ozone; and

      (3) temperature.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for elastomeric seals to be used in pipeline systems that convey water and wastewater at temperatures of less than 50°C. It also specifies composition and formulation requirements for seals.

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

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS		
1199		Sampling procedures and tables for inspection by attributes
1646		Elastomeric seals for waterworks purposes
1646.1	Part 1:	General requirements
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 elastomers
1683.11	Method 11:	Tension testing of vulcanized rubber
1683.13	Method 13:	Compression set of vulcanized rubber under constant deflection
1683.15	Method 15:	International rubber hardness (ISO 48)
1683.15.1	Method 15.1:	International rubber hardness
1683.15.2	Method 15.2:	Durometer hardness
1683.23	Method 23:	Rubber—Vulcanized—Determination of resistance to liquids
1683.24	Method 24:	Rubber—Vulcanized—Determination of resistance to ozone cracking—Static strain test
2193		Methods for calibration and grading of force-measuring systems of testing machines
2490		Sampling procedures and charts for inspection by variables for percent non-conforming
SAA		
HB 18.28 (SANZ 18.28)	Guide 28:	General rules for a model third-party certification system for products
ASTM		
D1278		Standard test methods for rubber from natural sources—Chemical analysis