

# Australian Standard 2616—1983

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## DENTAL MATERIALS PORCELAIN TEETH FOR DENTURES

The Tariffs, Instruments, Materials and Equipment Committee of the Australian Dental Association has adopted this standard for use in connection with its program for accreditation of certified dental products, lists of which are published periodically. Enquiries regarding this program should be addressed direct to the Australian Dental Association. When used in connection with the program, the standard is known as Australian Dental Standard (ADS) 2616—1983.

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## PREFACE

This standard was prepared by the Association's Committee on Dental Ceramics under the direction of the Dental Materials and Equipment Standards Committee, and is one of a series intended for use in assessing the quality of dental goods used in Australia.

The standard is based on parallel work proceeding within ISO/TC 106, Dentistry. The testing procedures are virtually technically identical with those given in TC 106's sixth Draft Proposal for porcelain denture teeth.

The standard does not specify specific toxicity tests, but it is envisaged that these will be included when more positive tests can be devised.

The Australian Dental Standards Laboratory, 240 Langridge Street, Abbotsford, Victoria 3067, has facilities for testing of materials for compliance with this standard.

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## STANDARDS ASSOCIATION OF AUSTRALIA

## Australian Standard

for

## DENTAL MATERIALS—PORCELAIN TEETH FOR DENTURES

**1 SCOPE.** This standard specifies requirements for porcelain teeth suitable for use in the fabrication of dentures.

**2 REFERENCED DOCUMENTS.** The following documents are referred to in this standard:

AS 1043	Acrylic Denture Base Resin
AS 1183	Cold-processing Resins for Denture Repairs
AS 2193	Methods for Calibration and Grading of Force-measuring Systems of Testing Machines
ANSI/ADA	Specification No 52, Uranium Content in Dental Porcelain and Porcelain Teeth

**3 CLASSIFICATION.** For the purpose of this standard, the teeth shall be classified according to the following types:

Type I—anterior teeth, which are teeth approximating to the crowns of human anterior teeth.

Type II—posterior teeth, which are—

- anatomic teeth approximating to the crowns of human posterior teeth;
- non-anatomic teeth approximating to the crowns of human posterior teeth but having modified occlusal surfaces.

**4 DEFINITIONS.** For the purpose of this standard, the following definitions apply:

**4.1 Diatoric teeth**—teeth designed to be retained by anchorage slots and/or holes.

**4.2 Pin teeth**—teeth designed to be retained by headed pins.

**4.3 Set**—consisting of six anterior teeth (Type I) or eight posterior diatoric teeth (Type II) as relevant, and as received from the manufacturer.

**4.4 Contact point (contact area)**—the area of contact of approximating surfaces of two adjacent teeth, the areas of contact being located at the line of junction between the occlusal and middle thirds of the posterior teeth and the incisal and middle thirds of the anterior teeth.

**5 MATERIAL.** The teeth shall consist of a suitable fused porcelain. The pins of the pin teeth shall be of metals that do not have any adverse reaction with the porcelain of the tooth or with a denture base polymer complying with AS 1043 and AS 1183, or with normal saliva.

**6 SAMPLING.** When compliance of porcelain teeth with this standard is to be assessed, the sample

shall comprise seven sets of teeth. They shall be distributed in five different shades and moulds covering the range of shades shown by the manufacturer's shade guide and mould chart which shall accompany the sample. Two of the seven sets shall be of the same mould and shade. The teeth shall be representative of the physical dimensions of the brand and type.

**7 SIZE AND SHAPE.** The size of the teeth, when measured in accordance with Appendix A, and the shape of the teeth shall conform to the manufacturer's mould chart which shall show—

- the shapes of the teeth;
- the dimensions in millimetres;
- for anterior teeth (Type I) the overall width of a set and the mesio-distal width and the incisogingival length of the left central incisor; and
- for posterior teeth (Type II) the mesio-distal width of a half-set (the four teeth of one side), or sufficient information to allow adequate selection of the required mould.

NOTE: Overall width is measured from the distal surfaces of canines or second molars and mesial surfaces of first premolars, as relevant. Measurements are made from the contact points of the relevant proximal surfaces.

**8 COLOUR AND BLENDING OF SHADES.**

Anterior teeth shall be blended and shall show no line of demarcation between incisal and gingival portions on the facial aspects of the teeth. If blending is used with posterior teeth, the same conditions shall apply. The colour, visual appearance, and blending of the teeth shall correspond, within limits of professional acceptance, to the manufacturer's shade guide when both are visually inspected against the same background.

**9 TEST CONDITIONS.** Unless otherwise indicated, all testing shall be carried out with material and equipment at a temperature of  $23 \pm 2^\circ\text{C}$ .

**10 FREEDOM FROM IRRITANTS AND TOXIC INGREDIENTS.** The teeth, both as supplied by the manufacturer and after processing by acceptable techniques, shall not cause damage to oral mucous membranes.

When tested in accordance with ANSI/ADA Specification No 52, the content of uranium, if present in the porcelain, shall not exceed 0.03 percent.

**11 FREEDOM FROM IMPERFECTIONS.** When visually examined, the teeth shall be free from any surface defects that might impair their serviceability.

**12 SURFACE FINISH.** When visually examined, the teeth as received shall have a smooth, lustrous, non-porous surface.