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DENTAL MATERIALS—WATER-BASED DENTAL CEMENTS

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The following interests are represented on Committee DN/1:

Australian Chamber of Commerce

Australian Dental Association

Australian Dental Trade Association

Australian Society of Endodontology

Australian Society of Orthodontists

Commonwealth Department of Community Services and Health, Australian Dental Standards Laboratory

Department of Defence

The Royal Dental Hospital of Melbourne

The United Dental Hospital of Sydney

The University of Melbourne

The University of Sydney

Victorian Employers Federation

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AS 3301/Amdt 1/1982-06-07

STANDARDS ASSOCIATION OF AUSTRALIA

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AMENDMENT No 1
to
AS 3301—1980
APPROVAL AND TEST SPECIFICATION
FOR
PARTICULAR REQUIREMENTS FOR MICROWAVE OVENS

REVISED TEXT

The 1980 edition of AS 3301 is amended as follows: the amendments should be inserted in the appropriate place.

SUMMARY: The following sections of the standard are covered by this amendment: Clauses 3.19.1 and 30.

Published on 7 June 1982.

AUSTRALIAN STANDARD

DENTAL MATERIALS—WATER-BASED DENTAL CEMENTS

AS 2940—1988

AS 2940 first published in part as AS T3—1949.
AS T3 revised and redesignated AS 1186—1972.
AS T8 first published 1953.
Revised and redesignated AS 1454—1973.
AS 2194 first published 1978.
AS 1186—1972, AS 1454—1973 and AS 2194—1978 revised, amalgamated and redesignated AS 2940—1988.

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PREFACE

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

This Standard is a replacement of three Standards, viz AS 1186, *Dental zinc phosphate cement*; AS 1454, *Dental silicate and silicophosphate cements*; and AS 2194, *Dental polycarboxylate materials*. It also includes glass ionomer (polyalkenoate) cements. The Standard differs from AS 1186, AS 1454 and AS 2194 in that methods have been included for measurement of initial and final set times. These times approximate to the clinical properties of working time and setting time respectively.

The committee believed that AS 1186, AS 1454 and AS 2194 should be combined under the common title 'Water-based Dental Cements', because of the similar properties of these materials.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
DENTAL MATERIALS—WATER-BASED DENTAL CEMENTS

1 SCOPE. This Standard applies to setting water-based dental cements, either for luting or for bases and liners or for filling cavities in teeth. Such cements include zinc phosphate, zinc polycarboxylate, silicate, silicophosphate, glass ionomer (polyalkenoate) materials and other materials which contain more than 20 percent water in their liquid component.

2 REFERENCED DOCUMENT. The document below is referred to in this Standard.

AS
2193 Methods for the calibration and grading of force-measuring systems of testing machines

3 CLASSIFICATION.

3.1 General. For the purpose of this Standard, dental cements shall be categorized into classes and types in accordance with the provisions of Clauses 3.2 and 3.3.

3.2 Class. Materials shall be classified on the basis of usage as follows:

Class 1—Luting cements

Class 2—Bases or liners

Class 3—Filling cements

3.3 Type. Dental cements shall be typed on the basis of their chemical composition, as follows:

Zinc phosphate
Zinc polycarboxylate
Silicate
Silico-phosphate
Glass ionomer (polyalkenoate)
Other types (containing more than 20 percent water in their liquid component).

4 MATERIAL. The components shall not contain any foreign materials and shall be uniform throughout. Liquids shall not contain any deposits or sediments.

5 TEST CONDITIONS. Except where otherwise specified, all tests shall be conducted at a temperature of 23 ±1 °C and a relative humidity of 50 ±5 percent.

6 PREPARATION OF MATERIAL FOR TESTING. All tests shall be conducted on material proportioned and mixed according to the manufacturer's instructions.

7 MIXING PROPERTIES. The components shall harden or set to a condition satisfactory for dental use. The mixed material shall be of a uniformly smooth consistency and shall not contain or form lumps nor evolve gas.

8 INITIAL SET TIME.

8.1 Class 1 (Luting cements). When determined in accordance with Appendix A, the initial set time of the material shall meet the requirements of Table 1.

8.2 Class 2 cements (Bases or liners), Class 3 (Filling cements). When determined in accordance with Appendix B, the initial set time of the material shall meet the requirements of Table 1.

9 FINAL SET TIME. When determined in accordance with Appendix C, the final set time of the material shall meet the requirements of Table 1.

10 FLOW (CLASS 1 ONLY). When determined in accordance with Appendix A, the flow of the material shall meet the requirements of Table 1.

11 FILM THICKNESS (CLASS 1 ONLY). When determined in accordance with Appendix D, the film thickness of the material shall meet the requirements of Table 1.

12 COMPRESSIVE STRENGTH. When determined in accordance with Appendix E, the compressive strength of the material shall meet the requirements of Table 1.

13 DIAMETRAL TENSILE STRENGTH. When determined in accordance with Appendix F, the diametral tensile strength of the material shall meet the requirements of Table 1.

14 ACID EROSION. When determined in accordance with Appendix G, the height loss per hour of the specimen shall meet the requirements of Table 1.

15 OPACITY (CLASS 3 ONLY) AND COLOUR. When prepared and tested in the manner described in Appendix H—

(a) the opacity of the material shall be such that the contrast ratio $C_{0.70}$* of specimens 1 mm thick is within the limits set out in Table 1; and

(b) the colour of the set material shall match the manufacturer's shade guide or correspond to the manufacturer's description.

16 TOXICITY. The material shall not be toxic nor give rise to adverse reactions when used under normal conditions.

17 INFORMATION TO BE SUPPLIED BY THE MANUFACTURER. Accurate and adequate instructions for preparing the material shall accompany each package, including the applications for which the material is suitable. These instructions

* The ratio of the luminous reflectance for CIE Illuminant C of a translucent specimen when backed by a black backing to that of the specimen when backed by a white backing is known as the contrast ratio. Where the determination is made using a white backing which has a luminous reflectance equal to 70 percent of that of magnesium oxide, the contrast ratio is designated $C_{0.70}$.