

American National Standard/
American Dental Association
Specification No. 96

Dental Water-based Cements

Modified adoption of ISO 9917:1991, Dental water-
based cements



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**AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION
SPECIFICATION NO. 96 FOR DENTAL WATER-BASED CEMENTS**

American Dental Association Specification No. 96 for Dental Water-Based Cements has been approved by the Council on Scientific Affairs of the American Dental Association. This and other specifications for dental materials, instruments and equipment are being formulated by working groups of the ADA Standards Committee on Dental Products (formerly, Accredited Standards Committee MD156 for Dental Materials, Instruments and Equipment). The Committee has representation from all interests in the United States in the standardization of materials, instruments and equipment in dentistry. The Council has adopted the specifications, showing professional recognition of their usefulness in dentistry, and has forwarded them to the American National Standards Institute with a recommendation that the specifications be approved as American National Standards. Approval of ADA Specification No. 96 as an American National Standard was granted by the American National Standards Institute on September 21, 2000. This standard becomes effective September 21, 2001.

The Council thanks the working group members and the organizations with which they were affiliated at the time the specification was developed: John M. Powers (Chairman), University of Texas Health Science Center at Houston, Houston; Keith Moore (Secretary), Indiana University, Indianapolis; James Forbes, Unitek Corporation, Monrovia, CA; Virendra Dhuru, Marquette University, Milwaukee, WI; Richard Demke, GC America, Alsip, IL; Erel Katz, Washington, DC; David Hoover, Omaha, NE; Richard Bennett, Dentsply/Caulk, Milford, DE; Wallace Chong Jr., Hilo, HI; Lael Pickett, 3M Dental Products, Minneapolis, MN.

**AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION SPECIFICATION NO. 96
FOR DENTAL WATER-BASED CEMENTS—PART I**

FOREWORD

(This foreword does not form a part of the ANSI/ADA Specification No. 96 for Dental Water-Based Cements)

ANSI/ADA Specification No. 96 for Dental Water-Based Cements is essentially the same as ISO Standard 9917:1991, Dental Water-Based Cements. Differences in the standard are of editorial nature with the exception of humidity specified in the humidity cabinet.

This revision adopts ISO Standard 9917-2:1998, Dental Water-Based Cements—Part 2: Light-activated cements.

This standard supersedes the previously published standards for the individual cements shown below:

ANSI/ADA Specification No. 8 for Dental Zinc Phosphate Cement

ANSI/ADA Specification No. 9 for Dental Silicate Cement

ANSI/ADA Specification No. 21 for Dental Silico-Phosphate Cement

ANSI/ADA Specification No. 61 for Dental Zinc Polycarboxylate Cement

ANSI/ADA Specification No. 66 for Glass Ionomer Cements

Specific qualitative and quantitative requirements for freedom from biological hazard are not included in this standard, but it is recommended that, in assessing biological or toxicological hazards, reference should be made to ISO/TR 7405:1984, Biological Evaluation of Dental Materials, or ANSI/ADA Documents Nos. 41 and 41a, Recommended Standard Practices for the Biological Evaluation of Dental Materials: 1982, or any more recent editions.

AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION SPECIFICATION NO. 96 FOR DENTAL WATER-BASED CEMENTS

1. SCOPE

This standard specifies requirements for the following types of dental cements, including both hand-mixed and encapsulated cements for mechanical mixing, that are intended for permanent cementation, lining and restoration, and that effect setting only by an aqueous acid-base reaction.

Silicate Cements based on the reaction between an alumino-silicate glass powder and an aqueous solution of phosphoric acid that may contain metal ions. They are used for the aesthetic restoration of anterior teeth.

Zinc Phosphate Cements based on the reaction between an oxide powder (the principal constituent of which is zinc oxide) and an aqueous solution of phosphoric acid that may contain metal ions. They are used as luting agents to seal dental appliances to hard oral structures or to other appliances. They also can be used as a base for restorative materials and as a temporary restorative material by increasing the ratio of powder to liquid relative to that used for luting.

Silicophosphate Cements based on the reaction between a powder of acid-soluble aluminosilicate glass and metal oxides (principally zinc oxide) and an aqueous solution of phosphoric acid that may contain metal ions. They are used as temporary restorative materials or as luting agents to seal dental appliances to hard oral structures by varying the ratio of powder to liquid.

Zinc Polycarboxylate Cements based on the reaction between zinc oxide and aqueous solutions of polyacrylic acid or similar polycarboxylic compounds, or zinc oxide/polycarboxylic acid powders that are mixed with water. They are used as luting agents to seal appliances to hard oral structures or to other appliances, as a base for restorative materials or as temporary restorative materials.

Glass Polyalkenoate Cements based on the reaction between an aluminosilicate glass powder and an aqueous solution of an alkenoic acid, or between an aluminosilicate glass/polyacid powder blend and water, or an aqueous solution of tartaric acid. These translucent cements are for use for the aesthetic restoration of teeth, as luting agents, as bases or liners, and for restoring pits and fissures.

Glass Polyalkenoate Cements in which the glass and a metal have been fused together and that are intended for the restoration of teeth are also included.

This standard specifies limits for each of the properties according to whether the cement is intended as a luting agent, a restorative material, a base or a liner.

2. NORMATIVE REFERENCES

The following standards contain provisions that, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of the International Electrotechnical Commission (IEC) and ISO maintain registers of currently valid International Standards.

ISO 2590:1973, General Method for the Determination of Arsenic—Silver Diethyldithiocarbamate Photometric Method

ISO 3696:1987, Water for Analytical Laboratory Use—Specification and Test Methods

ISO 7491:1985, Dental Materials—Determination of Colour Stability of Dental Polymeric Materials