



Revised American National Standard/
American Dental Association
Standard No. 126

Casting Investments and Refractory Die Materials

ANSI/ADA Standard No. 126 is a modified adoption consisting of identical adoptions of ISO 15912:2006, *Dentistry-Casting investments and refractory die materials* and ISO 15912/Amendment 1:2011, *Requirement and test method for adequacy of expansion of Type 1 and Type 2 materials*

ADA American
Dental
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Council on
Scientific Affairs

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**REVISED AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION STANDARD
NO. 126 FOR CASTING INVESTMENTS AND REFRACTORY DIE MATERIALS**

The Council on Scientific Affairs of the American Dental Association has approved revised American Dental Association Standard No. 126 for Casting Investments and Refractory Die Materials. This and other standards for dental materials, instruments and equipment are being formulated by working groups of the ADA Standards Committee on Dental Products. 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 standards, showing professional recognition of their usefulness in dentistry, and has forwarded them to the American National Standards Institute with a recommendation that the standards be approved as American National Standards. The American National Standards Institute granted approval of revised ADA Standard No. 126 as an American National Standard on December 17, 2015.

The ADA Standards Committee on Dental Products thanks the members of Working Group 2.18 on Investments and the organizations with which they were affiliated at the time the standard was developed:

William Dunn (co-chairman), U.S. Air Force, Helotes, TX;
Linda Kronick (co-chairman), Laser Dentistry, Bozrah, CT;
Bill Knopf, Whip Mix Corporation, Louisville, KY; and
Bob Kelly, University of Connecticut, Farmington, CT

REVISED AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION STANDARD NO. 126 FOR CASTING INVESTMENTS AND REFRACTORY DIE MATERIALS

FOREWORD

(This Foreword does not form a part of the revised ANSI/ADA Standard No. 126 for Casting Investments and Refractory Die Materials).

This standard is an identical adoption of ISO 15912:2006, Dentistry – Casting investments and refractory die materials; and ISO 15912/Amendment 1:2011, Requirement and test method for adequacy of expansion of Type 1 and Type 2 materials. ISO 15912:2006 and ISO 15912/Amd 1:2011 have been identically adopted and combined to form revised ADA Standard No. 126. ADA SCDP Working Group No. 2.18 on Investments examined the international standards and found them acceptable for modified adoption as ANSI/ADA Standard No. 126. This revision cancels and replaces ADA Standard No. 126:2009.

Dental investment and other refractory materials are used for a variety of applications within the dental laboratory. Historically, standards were developed on the basis of the chemistry of the binding system used or specific type of application, resulting in five separate standards.

This single standard gives the requirements and test methods for dental casting, brazing and refractory investments and refractory die materials, regardless of the nature of the binding system or the particular application. It consolidates and replaces these five standards:

- ANSI/ADA Standard No. 2 for Gypsum-Bonded Casting Investment for Dental Gold Alloy;
- ANSI/ADA Standard No. 42 for Phosphate-Bonded Investments;
- ANSI/ADA Standard No. 91 for Ethyl Silicate Investments;
- ANSI/ADA Standard No. 92 for Refractory Die Materials;
- ANSI/ADA Standard No. 93 for Soldering Investments.

This standard classifies investments into types according to their intended use and classes according to the recommended burn-out procedure.

A specific quantitative requirement for setting expansion is not included in this standard. However, if the setting expansion of a gypsum-bonded investment is measured, use of the procedure contained in ISO 6873:1998 should be considered. This procedure is not recommended for phosphate-bonded products.

REVISED AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION STANDARD NO. 126 FOR CASTING INVESTMENTS AND REFRACTORY DIE MATERIALS

1 SCOPE

This standard is applicable to dental casting, brazing and refractory investments and refractory die materials, regardless of the nature of the binding system or the particular application.

This standard classifies investments into types according to their intended use and classes according to the burn-out procedure recommended by the manufacturer.

This standard specifies requirements for the essential physical and mechanical properties of the materials and the test methods used to determine them.

This standard also includes requirements for the information and instructions which accompany each package.

2 NORMATIVE REFERENCES

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3696:1987, *Water for analytical laboratory use — specification and test methods*

ISO 1942, *Dentistry — Vocabulary*

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO 6344-1, *Coated abrasives — Grain size analysis — Part 1: Grain size distribution test*

ISO 15854, *Dentistry — Casting and baseplate waxes*

ISO 22674, *Dentistry — Metallic materials for fixed and removable restorations and appliances*

(ISO standards for dentistry are available from the American Dental Association, Department of Standards, 211 E. Chicago Ave., Chicago, IL 60611 or www.adacatalog.org. Other ISO standards are available from the American National Standards Institute, 25 W. 43rd St., New York, NY 10036 or www.ansi.org).

3 TERMS AND DEFINITIONS

For the purposes of this document, the terms and definitions of ISO 1942 and the following apply.

- 3.1 **Dental casting investment material** –refractory filler powder and binder system which, mixed with a specified liquid, hardens to form the mold for casting dental restorations.

NOTE: Generally, the refractory powder consists of oxides such as silica. Depending upon its chemistry, all the components of the binder can be in the liquid, or some can be dispersed (as a powder) in the refractory powder. The liquid can be pure water or a special liquid, as required by the chemistry of the binding system.

- 3.2 **Refractory die material** – powder mixture of a refractory filler and binder system designed, specifically (when mixed with a particular liquid) to allow the formation of a hardened die suitable for the production of dental ceramic restorations using the sintering technique.
- 3.3 **Brazing investment material** – powder mixture of a refractory filler and binder system, designed specifically (when mixed with a particular liquid) to allow the formation of a cast upon which components are held in place while they are being joined by brazing.