



American National Standard/American Dental Association  
**Specification No. 38**

# Metal-Ceramic Dental Restorative Systems

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Modified adoption of ISO 9693:1999, *Metal-ceramic dental restorative systems*.

**ADA** American  
Dental  
Association®  
Council on  
Scientific Affairs

2000

## **AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION SPECIFICATION NO. 38 FOR METAL-CERAMIC DENTAL RESTORATIVE SYSTEMS**

The Council on Scientific Affairs of the American Dental Association has approved the American Dental Association Specification No. 38 for Metal-Ceramic Dental Restorative Systems. This and other specifications for dental materials, instruments and equipment are being formulated by working groups of the Accredited Standards Committee MD156 for Dental Materials, Instruments and Equipment. The Council acts as administrative sponsor of that committee, which 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. The American National Standards Institute granted approval of ADA Specification No. 38 as an American National Standard on March 23, 2000. This standard becomes effective March 23, 2001.

The Council thanks the working group members and the organizations with which they were affiliated at the time the specification was developed: J. Robert Kelly (Chairman), NIST, Gaithersburg, MD; Ramon Baez, University of Texas Health Science Center at San Antonio, TX; Michael Bagby, West Virginia University, Morgantown, WV; Tom Cameron, Ney Dental, Inc., Bloomington, CT; Ronald Dudek, Austenal, Inc., Chicago, IL; Lawrence Gettleman, University of Louisville, KY; Steven Hondrum, Martinez, GA; Clyde Ingersoll, Tonawanda, NY; Abdul Khan, CMP Industries, Albany, NY; J. Rodway Mackert Jr., Medical College of Georgia, Augusta, GA; Carl Panzera, American Thermocraft Corp., Somerset, NJ; Arun Prasad, Jeneric Pentron, Inc., Wallingford, CT; Carolyn Primus, Ceramco, Inc., Burlington, NJ; Monty Reiger, University of Texas Health Science Center at Houston, TX; and Nikhil Sarkar, Louisiana State University, New Orleans, LA.

## AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION SPECIFICATION NO. 38 FOR METAL-CERAMIC DENTAL RESTORATIVE SYSTEMS

### FOREWORD

(This foreword does not form a part of the ANSI/ADA Specification 38 for Metal-Ceramic Restorative Systems)

This revision is essentially an adoption of the ISO International Standard 9693 for Metal-Ceramic Dental Restorative Systems with minor editorial changes. The ASC MD156 Working Group examined the standard and found it acceptable for adoption as ANSI/ADA Specification No.38. A number of editorial changes were made to make it suitable to the US dental profession. Based upon discussions held at the 1998 meeting of ISO TC106, the following changes have been made:

### Figure 3 — Test Specimen Configuration

Change the porcelain thickness from  $(1.0 \pm 0.1)$  mm to  $(1.1 \pm 0.1)$  mm.

#### 8.2.2 Metallic material

Under clause E change "white" to "gray":

- E The color of the metallic material (gray or yellow);

Under clause F add, "...the Young's modulus expressed in GPa...":

- F The proof stress (0.2% offset) expressed in MPa, the Young's modulus expressed in GPa, and the elongation expressed as a percentage.

Further changes were also made to the referencing of the "debonding/crack initiation strength" test. Editorial changes were made to reinforce the fact that this is not a bond strength test. It is a good screening test for metal-ceramic compatibility. This change is in the spirit of the equivalent ISO document, which also has language to clarify this issue. The changes from the ISO standards are as follows:

- 4.3.3 Substitute "bond compatibility index" for "debonding/crack initiation strength" in lines 1 and 4.
- 6.3.3 In the heading, substitute "compatibility" for "characterization."
- 6.3.3.4 Substitute "bond compatibility index" for "debonding/crack initiation strength" in the last line of that section.
- 6.3.3.5 Substitute "bond compatibility index" for "debonding/crack initiation strength" in the first line.

**Figure 5** — Substitute "compatibility index" for "bond strength" in the fifth box from the top.

**Addendum to the Foreword for this Reaffirmation:**

In 2012, the ADA Standards Committee on Dental Products approved a change in the terminology used for standards. ADA standards will no longer utilize the term Specification; standards will now be named as ADA Standards.

With this notice, this ADA Specification is now termed an ADA Standard. Where the term "specification" is used, it should be considered as "standard." It will be re-named as an ADA Standard in its next revision.