ANSI/ADA Specification No. 32
Approval date: December 6, 2000

American National Standard/
American Dental Association
Specification No. 32

Orthodontic Wires

American Dental Association
Council on Scientific Affairs 2000

AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION SPECIFICATION NO. 32 FOR ORTHODONTIC WIRES

The Council on Scientific of the American Dental Association has approved revised American Dental Association Specification No. 32 for Orthodontic Wires. 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 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 Revised ADA Specification No. 32 as an American National Standard on December 6, 2000. This standard becomes effective December 6, 2001.

The Council thanks the working group members and the organizations with which they were affiliated at the time the specification was developed: Jerry Horn (Chair), 3M Unitek Corporation, Monrovia, CA; Mike Bagby, West Virginia University, Morgantown, WV; William Brantley, Ohio State University, Columbus, OH; Guy Coby, Quakertown, PA; Manville G. Duncanson, Jr., Oklahoma City, OK; Farrokh Farzin-Nia, ORMCO Corporation, Glendora, CA; Clyde Ingersoll, Ardent Product Development, Tonawanda, NY; Earl Johnson, Mill Valley, CA; Robert Kusy, University of North Carolina, Chapel Hill, NC; Robert Nikolai, Saint Louis University, St. Louis, MO; Lee H. Tuneberg, American Orthodontics, Sheboygan, WI; Observers: Leon W. Laub, RMO Incorporated, Denver, CO; Mark Manni, GAC International, Central Islip, NY; and Consultant: Dietmar Segner, Hamburg, Fed. Rep. Germany and Friedrich Sernetz, Dentaurum, Ispringen, Fed. Rep. Germany.

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FOREWORD

(This foreword does not form a part of the ANSI/ADA Specification No. 32 for Orthodontic Wires)

In 1999, ANSI/ADA Specification No. 32-1977 for Orthodontic Wires Not Containing Precious Metals was withdrawn from the ASC MD156 work program as an outdated specification. The Working Group 1.7 Orthodontic Materials of Subcommittee 1 of ADA SCDP reviewed ANSI/ADA Specification No. 32, DIN 13971 and AS 1964-1977. The majority of the working group could not accept either the DIN or the AS as presently constituted and developed this new revised specification with an expanded scope.

AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION SPECIFICATION NO. 32 FOR ORTHODONTIC WIRES

1. SCOPE

This specification pertains to all metallic wires as components of fixed, intra-oral, orthodontic appliances with the exception of (metallic) ligatures.

2. REFERENCES

ANSI/ADA Document No. 41: Recommended Standard Practices for the Biological Evaluation of Dental Materials. (Copies of ANSI/ADA Specifications may be obtained from the Department of Standards Administration, American Dental Association, 211 E. Chicago Avenue, Chicago, IL 60611)

3. CLASSIFICATION

The orthodontic wires included in this specification shall exhibit at body temperature (37 ± 1) ℃:

3.1 Type 1 Wires

Linear elasticity

3.2 Type 2 Wires

Nonlinear elasticity

4. DEFINITIONS

4.1 Austenite-Finish Temperature

Temperature at which the metallurgical transformation of a shape-memory wire, from its low-temperature phase(s) to its high-temperature phase, is completed.

4.2 Descriptive Name

The nominal cross-sectional dimension(s) of the wire in mils (thousandths of an inch) without units designation, consistent with accepted orthodontic terminology.

4.3 Diagonal

Largest dimension across the cross-section of a rectangular wire.

4.4 Differential Scanning Calorimetry

An analytical technique where the difference in heat flow supplied to a test specimen and an inert reference specimen is scanned as a function of temperature at a constant heating rate.

4.5 Linear Elasticity

Mechanical response wherein induced mechanical strain is directly proportional to the associated mechanical stress below the elastic limit of the material.

4.6 Multistrand

Descriptive of an orthodontic wire fabricated from two or more individual strands of the wire material; the strands may be twisted, co-axial, or braided in forming the wire as a whole.