

**ADA Professional Product Review (Online)
Denture Base Polymers: Laboratory Test Methods**

Scope

This protocol for the laboratory testing of denture base polymers was developed to provide clinically relevant laboratory information that will be used as part of a report on these materials in an upcoming issue of the ADA Professional Product Report. The tests listed below should provide the dental practitioner with appropriate comparative scientific information to assist in the purchase of denture base polymers.

The following tests shall be performed according to the methods set forth in ANSI/ADA Specification No. 12,¹ ISO 20795-1² and ANSI/ADA Specification No. 80³:

- A. Packing Plasticity (Spec. 12)
- B. Color stability (Spec. 80)
- C. Translucency (Spec. 12)
- D. Ultimate Flexural Strength and Flexural Modulus (Spec. 12)
- E. Fracture Toughness (ISO 20795-1)
- F. Total Fracture Work (ISO 20795-1)
- G. Residual Methyl Methacrylate Monomer (Spec. 12)
- H. Water Sorption and Solubility (Spec. 12)
- I. Polishability (Spec. 12)

References:

1. American National Standards Institute/American Dental Association Specification No. 12—2002, Denture Base Polymers. Chicago: American Dental Association. Copies of this standard are available for purchase through the [ADA Catalog](#).
2. International Organization for Standardization, ISO 20795-1:2008, Dentistry—Base Polymers—Part 1: Denture Base Polymers Geneva:ISO. Copies of this standard are available for purchase through the [International Organization for Standardization](#).
3. American National Standards Institute/American Dental Association Specification No. 80—2001, Dental Materials - Determination of Color Stability of Dental Polymeric Materials. Chicago: American Dental Association. Copies of this standard are available for purchase through the [ADA Catalog](#).

General Information

Denture base polymers are classified by ANSI/ADA Spec. No 12¹ and ISO 20795-1² as follows:

- Type 1: Heat-polymerizable materials
- Class 1: Powder and liquid
 - Class 2: Plastic cake

- Type 2: Autopolymerizable materials
 Class 1: Powder and liquid
 Class 2: Powder and liquid pour-type resins
- Type 3: Thermoplastic blank or powder
Type 4: Light-activated materials
Type 5: Microwave cured materials