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# Choosing the Right Impression Material

A Peer-Reviewed Publication  
Written by Shannon Pace Brinker, CDA, CDD

## Abstract

Accurate impressions are a key component of successful restorations. They play a vital role in restorative dentistry and should provide accurate intraoral details and dimensional stability. Understanding the various types of materials available, the different techniques and the best ways to keep patients comfortable will help dental professionals select the best material for each case.

## Educational Objectives

After reading this article, the reader should be able to:

1. Explain why accurate impressions are necessary
2. Discuss the different types of impression materials available today
3. Identify the ideal impression material for different indications
4. Identify impression material characteristics that help keep patients comfortable and reduce their anxiety

## Author Profile

**Shannon Pace Brinker, CDA** is a National and International Speaker and published author. Shannon is past faculty member at the Dawson Academy and Spear Education. She is an active member of the AACD. She is the first auxiliary to sit on the AACD Board of Directors and was awarded the Rising Star Award. Shannon was selected one of Dentistry Today's Top 100 Clinicians of 2009 to 2014. She was also selected as Dental Products Report 25 most influential women in dentistry and Dr. Bicuspid's Dental Assistant Educator of the year for 2012.

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## Educational Objectives

After reading this article, the reader should be able to:

1. Explain why accurate impressions are necessary
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4. Identify impression material characteristics that help keep patients comfortable and reduce their anxiety

As dental health care professionals, we know how vital it is to obtain accurate impressions. Impressions provide the foundation for successful clinical outcomes, helping to ensure patients receive comfortable, functional and beautiful restorations that last for years to come.

There are a variety of impression materials on the market today, making it a challenge to select the right products and techniques for every situation. The overwhelming number of options can lead to confusion and inconsistency, which keeps dentists from achieving successful outcomes.

Once dental professionals, particularly assistants, understand the different material characteristics, indication requirements and techniques, practices will be able to make informed decisions on the right material and approach for each case, as well as keep the process of obtaining impressions as stress-free and comfortable for patients as possible.

Accurate impressions provide clinicians with detailed records of the oral cavity. They capture the exact dimensions of the prepared teeth and the soft tissue, the margins of the preparation, and surrounding dentition relationship.<sup>1</sup> As materials continue to improve and dental teams better understand those materials and common techniques, dental professionals will be able to obtain more accurate impressions and offer patients more predictable impressions.<sup>2</sup>

## Abstract

Accurate impressions are a key component of successful restorations. They play a vital role in restorative dentistry and should provide accurate intraoral details and dimensional stability. Understanding the various types of materials available, the different techniques and the best ways to keep patients comfortable will help dental professionals select the best material for each case.

## The history of dental impressions

Phillip Phaf first introduced the dental world to impressions in 1775, when he displayed the technique using softened wax.<sup>3</sup> Clinicians soon discovered wax demonstrated too much distortion when removed. Many materials have been used since, some with better results than others. Plaster and zinc oxide-eugenol came next, and also quickly fell out of favor when it became clear they didn't have the ability to flex over and around undercuts without breaking.<sup>4</sup>

The introduction of agar and alginate, both hydrocolloid materials, offered clinicians the better accuracy they craved, but with lower tear-resistance and decreased dimensional stability over time.<sup>4,5</sup> Alginate is attractive to clinicians today because of its economical cost and quick set time, but it still has low tear strength, is technique sensitive and messy, must be poured up immediately to avoid distortion, and has a taste patients typically don't like. Thankfully, improved alginate impression materials with better properties are enabling dental practices to capture more accurate and predictable impressions (e.g., Kromafaze with its color change ability that offers a visual guide for consistent impression making).

Polysulfide rubber based impression materials were next in line, offering better accuracy and tear-resistance yet only minor improvements in dimensional stability. Beyond that, the material was difficult to mix and didn't exactly have a pleasant smell.<sup>4</sup>

Polyethers came on the scene in the 1960s and condensation and addition-reaction silicones made their debut in the 1970s, eliminating the problems dental professionals experienced with poor stability and low tear-resistance.<sup>3</sup> Of course they still had their limitations, continuing to prove no impression material was ideal for every clinical situation.<sup>4</sup>

Vinyl polysiloxane (VPS), the most popular impression material available today, offers dental professionals another option. The material doesn't require hand mixing, offers exceptional dimensional stability and features a quick set time. These features reduce the need for remakes while also helping to put patients at ease.

## The Characteristics

Impression materials continue to improve, but to know which material is best for various clinical situations, it's important to understand various impression material characteristics. They include:

**1. Hydrophilicity.** Referring to the material's affinity for water, hydrophilicity significantly affects how it reacts in the oral cavity and its ability to accurately record intraoral surface detail.<sup>3</sup>

If a material is hydrophilic, it has a high affinity for moisture. Its good surface wetting capabilities allows for a high degree of surface detail. Hydrophobic materials, on the other hand, have a low affinity for moisture and therefore a low degree of surface detail.<sup>3,6,7,8</sup>

Hydroactive materials feature both hydrophobic and hydrophilic characteristics. As a naturally hydrophobic material, they become hydrophilic through the addition of surfactants.<sup>1</sup> These materials provide a superior degree of surface wetting ability and detail.<sup>3</sup>

**2. Elasticity and Tear Strength.** This describes the way the impression material behaves as it's removed from the mouth. For best results, the material's elasticity should

allow it to stretch and then return to its original shape. If the material is stretched beyond its elastic capacity and doesn't return to its original shape, there's a good chance the impression will be distorted.

A material's tear strength is the ability to stretch and then return to its original shape without tearing.<sup>2</sup> There are several factors that contribute to tear strength, including natural undercuts, depth of the subgingival margin, amount of hemorrhage, sharp edges on the preparations, and tough preparations that increase the resistance needed to remove the materials.<sup>9</sup>

Elasticity and tear strength are important impression material characteristics. When dental professionals don't understand them properly, it can lead to multiple retakes, which are both costly and time consuming.

- 3. Viscosity.** The rate of flow of an unset impression material is its viscosity, which comes in four classifications: low (a syringe or wash material), medium, high (tray material) and very high (putty).<sup>2</sup> The amount of filler present determines a material's viscosity.<sup>10</sup>

Why is viscosity important? It influences the material's ability to capture the necessary intraoral details for an accurate impression. Lower viscosity materials typically record finer details and allow for the greatest shrinkage while the material sets<sup>10</sup>. The challenge with low viscosity materials is they're more difficult to work with than materials with a high viscosity.

Understanding viscosity is important when determining the best material for a particular case. The level of viscosity needed depends on the type of restoration being placed and how much detail is necessary.

- 4. Working and Setting Time.** The working time describes how long it takes to mix and place the material in an impression tray, while the setting time indicates how long it takes for the material to set once it's placed in the patient's mouth.<sup>2</sup> Materials with longer working times take longer to set. A number of preparations influence working time, such as whether the assistant is using hand-mix or automix materials, and the material's viscosity.<sup>1</sup> Temperature also plays a role in working and setting time.<sup>1,11</sup> Ideal working and setting times depend on the number of preparations and the assistant's skill level.
- 5. Dimensional Stability.** This is vital to ensuring the laboratory receives impressions that are accurate and solid. Completed impressions should remain unaltered for long periods of time, resist temperature changes during shipping and be able to fabricate multiple accurate casts.<sup>6</sup> If the impression doesn't have dimensional stability because of temperature changes, water absorption, contraction from polymerization or any other reason, it won't be usable, meaning the patient will need to be called back for a retake.

## Selecting the right material

The impression material you use is dependent on the case. Here are a few guidelines:

### Alginate Impressions

Alginate impression materials can be evaluated in part based on their related setting and working times. Setting time establishes the minimum time required for the impression material to be in the mouth, while working time extends from the start of mixing to when the material is placed in the tray. A material that sets quickly will have a shorter working time, and a material that sets slowly will have a longer working time.

Interestingly, setting and working times are affected by temperature, so refrigerating impression materials before use can increase working time by as much as 90 seconds. Working time may also be influenced by other factors, including the number of preparations, whether hand-mixing is required, and the material's viscosity. KromaFaze helps offer a visual guide for dental assistants by letting the color of the material be the timer. The material changes from a purple mix to a pink color indicating that it is ready to be loaded onto the tray and inserted in the oral cavity. The impression will then turn white, then we simply just have to wait thirty seconds to remove. Having canisters and *singles* packets aid in a pre-measured volume of dental alginate for a single impression. The water measure is incorporated as part of the package and eliminates the canister, scoop and water vial.

### Preliminary impressions

These impressions, used for treatment planning, don't require as many details as the final versions, making hydrocolloids, such as alginate, and alginate alternative materials better options. They should be avoided, however, when making final impressions.

What makes these materials less than adequate for final impressions? Water-based hydrocolloids are made of up to 80% water.<sup>10</sup> They're very delicate materials with low tear strength and that don't provide finite detail.<sup>12</sup> Rubber-based polysulfide materials lack dimensional stability, while they provide enough detail for treatment planning, they shouldn't be used for final impressions.

It is important to keep in mind that while they might not require as much detail, it's still necessary to obtain accurate impressions for diagnostic models used for treatment planning. The accuracy stipulations aren't nearly as stringent as they are for crowns, implants, bridges and any other restoration dentists place. Remember these models are used to study occlusion, archform, occlusal plane and esthetics, which are all important records used in treatment planning.

Alginate alternatives are polyvinyl siloxane impression-based materials that are excellent for creating an optimum di-

agnostic impression. They allow for multiple pours if necessary and eliminate the need to pour the model immediately. When using this material, assistants should dry the teeth before placing the impression and be careful to capture all the surfaces of the teeth, extending well beyond the free gingival margins, the entire buccal and lingual vestibules, and the entire hard palate.

## Final Impressions

Polyethers are among the materials best suited for making multiple impressions. The accurate, effective material allows for multiple pours, provides long-term dimensional stability and features a short set time.<sup>1</sup> These materials provide the accurate surface detail, minimal distortion on removal and tear strength needed to create impressions that last. They also have a shelf-life of up to seven days.

Of course, these materials also come with their challenges, including rigidity, an unpleasant taste and odor, the tendency to absorb water from the atmosphere and swell over time, and difficult intraoral removal.<sup>1,4</sup> Even so, polyethers have a successful clinical history and offer dental professionals an established, effective material.

Polyvinyl Siloxane (VPS) materials represent another effective option for final impressions. The popular materials help ensure assistants obtain accurate impressions.<sup>1</sup> They address many of the challenges associated with polyether materials. For example, they provide less rigid impressions that do not absorb excess fluid, and also offer a neutral taste and smell.<sup>1</sup> Other advantages include the ability to pour multiple casts, high accuracy, optimal tear strength, excellent elasticity, enhanced dimensional stability, and a shelf life of up to seven days.<sup>1</sup>

VPS materials are inherently hydrophobic, and also feature added surfactants to increase hydrophilicity.<sup>2</sup> The disadvantages include reduced polymerization when latex contamination occurs.<sup>1</sup>

There are also hybrid materials that provide the benefits of both polyether and VPS materials. Vinyl-polyether hybrids offer multiple pours, high tear strength and dimensional stability.<sup>2</sup> The polyether contributes to the material's truly hydrophilic nature without added surfactants,<sup>2</sup> while the silicone element increases dimensional stability and elasticity. The hybrid material also offers a pleasant flavor, eliminating the bitter taste and smells of polyethers.<sup>2</sup> Vinyl-polyether hybrids present an ideal combination of characteristics for accurate impressions.

With any of these materials, dentists can send their labs more accurate impressions, whether the impression is for a crown, an implant, dentures or any other restoration. The flow properties these materials exhibit help improve accuracy of fit and deliver more defined landmarks. This decreases the number of retakes, remakes and adjustments, saving practices time and money.

VPS materials demonstrate low dimensional changes and retains its shape upon setting for months, without the need for special storage. As a result, impressions can be used again in the

future. The material also can be disinfected without affecting dimensional stability.

## The Techniques

It's important to become familiar with the most popular, most effective techniques used for making impressions. They include:

- 1. The Dual Arch Technique.** Use this technique to simultaneously capture the prepared teeth, opposing arch, and occlusal articulation in maximum intercuspation.<sup>12</sup> This method is well suited for cases that require preparing one or two posterior teeth for indirect restorations. The use of inflexible metal trays increases impression accuracy in this technique.<sup>10</sup>
- 2. The Single Cord Technique.** This technique helps deflect and manage soft tissue. It works best with tooth preparations that terminate supragingivally or at the tissue height.<sup>13</sup> But, it can be uncomfortable for patients. The cord displaces the tissues, exposing the preparation's marginal area, and remains in place until the final impression.<sup>13</sup>
- 3. The Double Cord Technique.** Just like the name suggests, this technique adds another retraction cord to the single cord technique. With the single cord in place, the second cord lies on top of the first, further displacing the tissue,<sup>13</sup> and creating enough room for the material to fill the sulcular area and flow around the preparation.<sup>14</sup> This technique creates a space to record intricate details of the marginal area.<sup>15</sup> Keep in mind the first cord remains in place around the preparation until the final impression, which may lead to patient discomfort.
- 4. Gingival Retraction Paste Technique.** Dental professionals want to keep their patients as comfortable as possible, and this technique is designed to alleviate some of the discomfort associated with the retraction cord techniques. After it's placed in the gingival sulcus, the paste displaces the soft tissue, allowing for greater exposure of the preparation margin.<sup>13</sup> The chemical composition provides a localized homeostasis effect, and can be used as the basis of the double cord technique, eliminating the need for the single retraction cord.<sup>13</sup>

## Making Patients Comfortable During Impression Taking

Unfortunately, the impression taking process can be rather uncomfortable for patients. In some cases, it can be a horrible experience psychologically.<sup>16</sup>

Many patients become anxious, and there's only so much that can be done to ease their nerves, make them more comfortable and help control the involuntary gagging reflexes that make the process more difficult. Gag reflexes limit the ability to provide quality care and compromises many aspects of treatment, from diagnostic procedures to the final restoration's accuracy.<sup>17</sup>

It's important to find ways to make the procedure as stress-

free and painless for patients as possible. A big part of that comes from choosing the right material. VPS impression materials tend to have handling characteristics, accuracy, stability, and shorter setting times, all of which benefit patients while they're in the chair and lead to better final results.

Using materials that come in pre-filled cartridges help put patients at ease, while the more pleasant scent makes for a better experience. VPS materials also demonstrate improved thixotropic consistency, so they don't slump, run, or cause patients to gag. Fast set versions of these materials reduce the amount of time they're in the patient's mouth, which is a relief to anxious patients.

VPS materials also offer improved accuracy and stability, meaning patients won't have to sit through the process again because the first impression was deformed, unstable or inaccurate. With VPS materials, intraoral details, such as margins, are accurately captured without voids, bubbles or other imperfections.<sup>18, 19</sup> The material won't distort when removed from the mouth or after pouring multiple casts.

Improved accuracy also offers more precise marginal integrity when making provisional restorations, which helps prevent leaks and protects the underlying preparation. A properly formed provisional also makes patients more confident they'll be satisfied with the final outcome.

VPS materials can be poured immediately or when it's convenient, so provisional fabrication can begin as soon as the impression is removed from the patient's mouth. Many other materials require 20 minutes of waiting prior to pouring.

Because it's possible to use patients' original impressions for several months for any number of indications, it's easy to quickly address issues that come up in the future, even emergencies. If a provisional restoration needs adjustment or becomes dislodged, for example, it can easily be remade using the original impression.

## Conclusion

Obtaining accurate, stable impressions relies on careful evaluation of each patient and planned restoration to identify the ideal material and technique. Since impression materials were first introduced in 1775, they've come a long way, and dental professionals now have materials with the characteristics they need to obtain accurate, stable impressions that lead to beautiful restorations that fit properly.

Improved techniques and materials make it possible to make accurate impressions while keeping patients comfortable. Patients spend less time in the chair and are more comfortable during the process. Their impressions come out right the first time, so there's no need to re-take them, saving patients time, anxiety and discomfort and ultimately leading to more predictable outcomes.

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## Author Profile

**Shannon Pace Brinker, CDA** is a National and International Speaker and published author. Shannon is past faculty member at the Dawson Academy and Spear Education. She is an active member of the AACD. She is the first auxiliary to sit on the AACD Board of Directors and was awarded the Rising Star Award. Shannon was selected one of *Dentistry Today's* Top 100 Clinicians of 2009 to 2014. She was also selected as *Dental Products Report* 25 most influential women in dentistry and *Dr. Bicuspid's* Dental Assistant Educator of the year for 2012.

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## Questions

- There are several areas to consider when making accurate dental impressions:
  - Help patients ensure they receive comfortable care from the clinicians.
  - Receive comfortable and beautiful restorations that last for many years.
  - Understand the differences in techniques and impression materials
  - All of the above
- Practices are able to make the right decisions on materials to use because of the following:
  - Differences in characteristics of impression materials.
  - Indications based on their medications.
  - How much material to give the patient to take their own impressions at home?
  - All of the above.
- Accurate records provide the clinicians detailed records of the following:
  - Detailed Anatomy
  - Soft Tissue
  - Margins of Preparations
  - All of the above
- Some of the first impression materials used were:
  - Plummer's Tape
  - Dessert Frosting
  - Softened Wax
  - All of the Above
- The \_\_\_\_\_ is a primary consideration in determining which impression material is appropriate to use for that procedure?
  - Expense
  - What the impression is going to be used for?
  - Time of day you are taking the impression.
  - All of the above
- What was the name of the first person to introduce dental impressions to the world?
  - Peter Dawson
  - Phillip Michaels
  - Phillip Phaf
  - None of the Above
- Hydrocolloid materials first introduced contained the following:
  - Agar
  - Glue
  - Sodium powder
  - All of the above
- Some of the materials that were first introduced in dentistry were not recommended soon after releasing due to the following:
  - Too much distortion
  - Flex to much
  - Kept warm and soft
  - a and b
- The lowest cost materials used today are?
  - Polyether
  - VPS
  - Alginate
  - All of the above
- \_\_\_\_\_ impression material is used most frequently in dental practices?
  - Alginate
  - Polyether
  - Silicone
  - None of the Above
- Alginate materials have the following characters.
  - Lower tear-resistance.
  - Decreased dimensional stability with time.
  - Technique sensitive.
  - All of the above
- Alginate must be poured up within the following time to avoid distortion?
  - 1 hour
  - 5 to 7 days
  - immediately
  - All of the above
- Polysulfide Rubber based impression materials offered the following:
  - Less accuracy
  - Less tear resistance
  - Great dimensional stability
  - None of the above
- VPS materials offer the following qualities:
  - Only hand mixing
  - Comes in fast set only
  - Offers various setting times
  - All of the Above
- One of the four characteristics of impression materials is:
  - Stiff and hard
  - Hydromatic
  - Sensitive to temperatures
  - Dependency
- There are a lot of challenges with viscosity materials such as:
  - Flow
  - Shrinkage
  - More difficult to work with
  - All of the above
- What are the primary characteristics for impression materials?
  - Hydrophilicity
  - Elasticity and Tear Strength
  - Viscosity, Working and Setting Times
  - All of the Above
- Hydrophilicity means:
  - How it reacts to water
  - How it reacts to air
  - How it reacts to your hands
  - All of the above
- Elasticity and Tear Strength means:
  - How you seat the impressions
  - The position of the patient in the chair
  - The way the impression material behaves as it is removed from the patient's mouth
  - All of the above
- One of the factors that contribute to tear strength is:
  - Reflection of the material
  - Depth of the subgingival margin
  - Reaction to gagging
  - All of the above
- There are \_\_\_\_\_ classifications of viscosity.
  - 2
  - 3
  - 4
  - All of the above
- Lower viscosity materials typically record \_\_\_\_\_ dental.
  - Finer
  - Heavier
  - Middle of the road
  - All of the above
- Working and Setting times describes what?
  - How long it takes to mix
  - How long it takes to place
  - How long it takes to set
  - All of the above
- Working Time can be influenced by the following:
  - How much the operator is talking
  - If the patient is lying back
  - Using a hand-mix or auto-mix
  - All of the above
- If the impression doesn't have dimensional stability, the following will happen:
  - You will see the best margins on the final restorations
  - The patient will only need one impression
  - The impressions will need to be retaken
  - All of the above
- What material is the best for multiple impressions?
  - Alginate
  - VPS
  - Polyether
  - b and c
- Polyether's come with multiple challenges for the clinician due to the following:
  - Rigidity
  - Bad taste and smell
  - Difficult to remove
  - All of the above
- When performing the Dual Arch Technique, this type of impression captures:
  - Unprepared teeth
  - Prepared teeth
  - Opposing arches
  - All of the above
- Different Cord Techniques can be used to manage soft tissue such as:
  - Single Cord
  - Double Cord
  - Triple Cord
  - A and B
- Choosing the right impression materials can help lower the patient's anxiety by:
  - Feeling less anxious
  - Have less gagging
  - Minimize less time in the chair
  - All of the Above

# Choosing the Right Impression Material

Name: \_\_\_\_\_ Title: \_\_\_\_\_ Specialty: \_\_\_\_\_

Address: \_\_\_\_\_ E-mail: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP: \_\_\_\_\_ Country: \_\_\_\_\_

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1. Explain why accurate impressions are necessary
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## Course Evaluation

1. Were the individual course objectives met?

Objective #1: Yes No Objective #2: Yes No

Objective #3: Yes No Objective #4: Yes No

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- |   |       |   |   |   |     |    |
|---|-------|---|---|---|-----|----|
| 2. To what extent were the course objectives accomplished overall?                            | 5     | 4 | 3 | 2 | 1   | 0  |
| 3. Please rate your personal mastery of the course objectives.                                | 5     | 4 | 3 | 2 | 1   | 0  |
| 4. How would you rate the objectives and educational methods?                                 | 5     | 4 | 3 | 2 | 1   | 0  |
| 5. How do you rate the author's grasp of the topic?   | 5     | 4 | 3 | 2 | 1   | 0  |
| 6. Please rate the instructor's effectiveness.  | 5     | 4 | 3 | 2 | 1   | 0  |
| 7. Was the overall administration of the course effective?                                    | 5     | 4 | 3 | 2 | 1   | 0  |
| 8. Please rate the usefulness and clinical applicability of this course.                      | 5     | 4 | 3 | 2 | 1   | 0  |
| 9. Please rate the usefulness of the supplemental bibliography.                               | 5     | 4 | 3 | 2 | 1   | 0  |
| 10. Do you feel that the references were adequate?  |       |   |   |   | Yes | No |
| 11. Would you participate in a similar program on a different topic?                          |       |   |   |   | Yes | No |
| 12. If any of the continuing education questions were unclear or ambiguous, please list them. | _____ |   |   |   |     |    |

13. Was there any subject matter you found confusing? Please describe.  
\_\_\_\_\_

14. How long did it take you to complete this course?  
\_\_\_\_\_

15. What additional continuing dental education topics would you like to see?  
\_\_\_\_\_

If not taking online, mail completed answer sheet to  
**PennWell Corp.**  
Attn: Dental Division,  
1421 S. Sheridan Rd., Tulsa, OK, 74112  
or fax to: 918-212-9037

**For IMMEDIATE results,**  
go to [www.DentalAcademyOfCE.com](http://www.DentalAcademyOfCE.com) to take tests online.  
**INSTANT EXAM CODE 15244**  
Answer sheets can be faxed with credit card payment to  
**918-212-9037.**

Payment of \$59.00 is enclosed.  
**(Checks and credit cards are accepted.)**

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Acct. Number: \_\_\_\_\_

Exp. Date: \_\_\_\_\_

**Charges on your statement will show up as PennWell**

- |                     |                     |
|---------------------|---------------------|
| 1. (A) (B) (C) (D)  | 16. (A) (B) (C) (D) |
| 2. (A) (B) (C) (D)  | 17. (A) (B) (C) (D) |
| 3. (A) (B) (C) (D)  | 18. (A) (B) (C) (D) |
| 4. (A) (B) (C) (D)  | 19. (A) (B) (C) (D) |
| 5. (A) (B) (C) (D)  | 20. (A) (B) (C) (D) |
| 6. (A) (B) (C) (D)  | 21. (A) (B) (C) (D) |
| 7. (A) (B) (C) (D)  | 22. (A) (B) (C) (D) |
| 8. (A) (B) (C) (D)  | 23. (A) (B) (C) (D) |
| 9. (A) (B) (C) (D)  | 24. (A) (B) (C) (D) |
| 10. (A) (B) (C) (D) | 25. (A) (B) (C) (D) |
| 11. (A) (B) (C) (D) | 26. (A) (B) (C) (D) |
| 12. (A) (B) (C) (D) | 27. (A) (B) (C) (D) |
| 13. (A) (B) (C) (D) | 28. (A) (B) (C) (D) |
| 14. (A) (B) (C) (D) | 29. (A) (B) (C) (D) |
| 15. (A) (B) (C) (D) | 30. (A) (B) (C) (D) |

AGD Code 250

## PLEASE PHOTOCOPY ANSWER SHEET FOR ADDITIONAL PARTICIPANTS.

**COURSE EVALUATION and PARTICIPANT FEEDBACK**  
We encourage participant feedback pertaining to all courses. Please be sure to complete the survey included with the course. Please e-mail all questions to: [hhodges@pennwell.com](mailto:hhodges@pennwell.com).

**INSTRUCTIONS**  
All questions should have only one answer. Grading of this examination is done manually. Participants will receive confirmation of passing by receipt of a verification form. Verification of Participation forms will be mailed within two weeks after taking an examination.

**COURSE CREDITS/COST**  
All participants scoring at least 70% on the examination will receive a verification form verifying 3 CE credits. The formal continuing education program of this sponsor is accepted by the AGD for Fellowship/Mastership credit. Please contact PennWell for current term of acceptance. Participants are urged to contact their state dental boards for continuing education requirements. PennWell is a California Provider. The California Provider number is 4527. The cost for courses ranges from \$20.00 to \$110.00.

**PROVIDER INFORMATION**  
PennWell is an ADA CERP Recognized Provider. ADA CERP is a service of the American Dental Association to assist dental professionals in identifying quality providers of continuing dental education. ADA CERP does not approve or endorse individual courses or instructors, nor does it imply acceptance of credit hours by boards of dentistry.

Concerns or complaints about a CE Provider may be directed to the provider or to ADA CERP at [www.ada.org/cerptcp](http://www.ada.org/cerptcp)

The PennWell Corporation is designated as an Approved PACE Program Provider by the Academy of General Dentistry. The formal continuing dental education programs of this program provider are accepted by the AGD for Fellowship, Mastership and membership maintenance credit. Approval does not imply acceptance by a state or provincial board of dentistry or AGD endorsement. The current term of approval extends from (11/1/2015) to (10/31/2019) Provider ID# 320452

**RECORD KEEPING**  
PennWell maintains records of your successful completion of any exam for a minimum of six years. Please contact our offices for a copy of your continuing education credits report. This report, which will list all credits earned to date, will be generated and mailed to you within five business days of receipt.

Completing a single continuing education course does not provide enough information to give the participant the feeling that s/he is an expert in the field related to the course topic. It is a combination of many educational courses and clinical experience that allows the participant to develop skills and expertise.

**CANCELLATION/REFUND POLICY**  
Any participant who is not 100% satisfied with this course can request a full refund by contacting PennWell in writing.

**IMAGE AUTHENTICITY**  
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