

**TEST BANK**

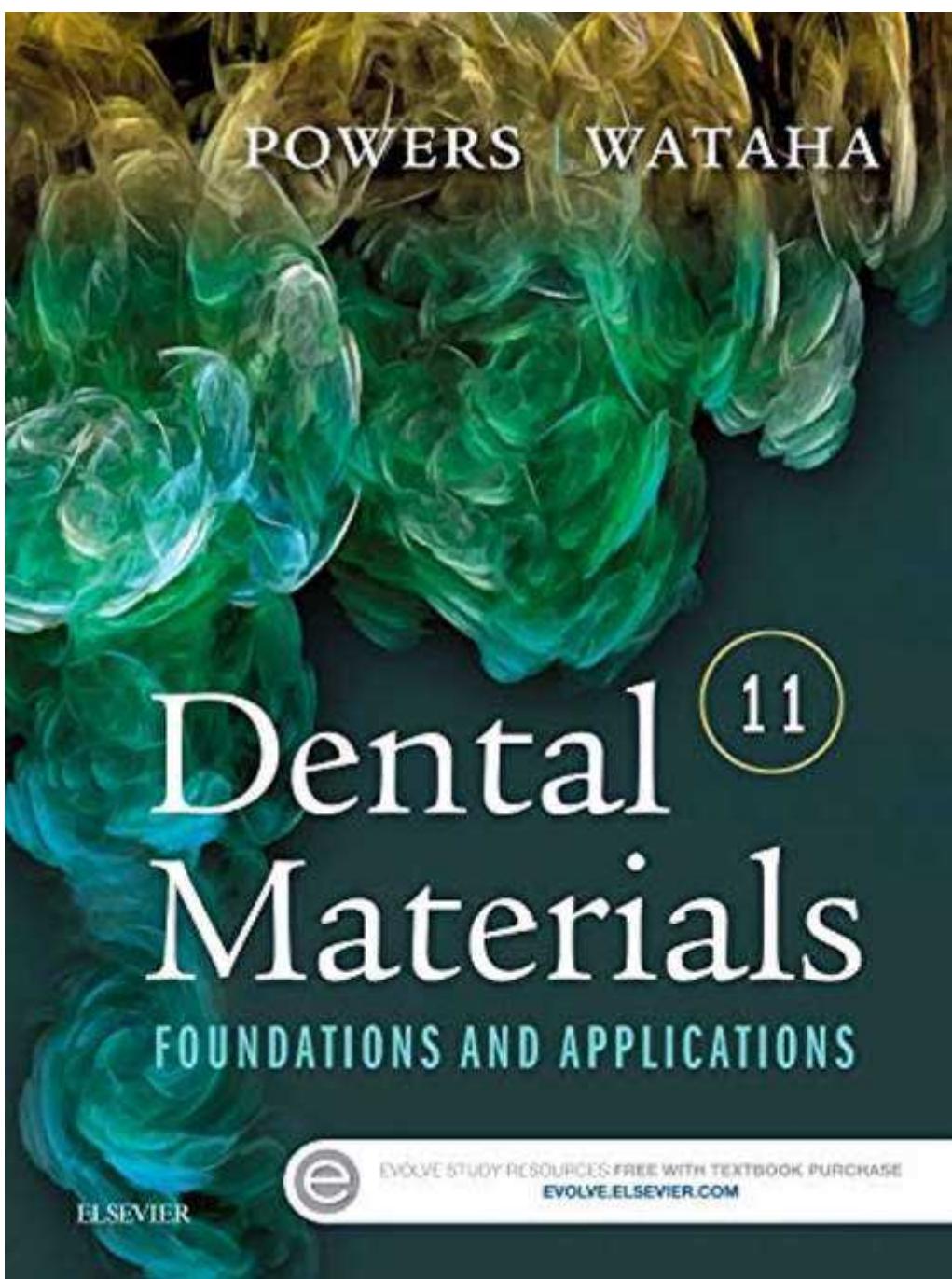
# **Dental Materials**

## **Foundations and Applications**

**John M. Powers, John C. Wataha**

---

**11th Edition**



## Table of Contents

1. Introduction to Restorative Dental Materials
2. Properties of Dental Materials
3. Preventive Dental Materials
4. Direct Esthetic Restorative Materials
5. Dental Amalgam
6. Finishing, Polishing, and Cleansing Materials
7. Cements
8. Impression Materials
9. Model and Die Materials
10. Waxes
11. Casting Alloys, Wrought Alloys, and Solders
12. Casting, Soldering, and Welding
13. Polymers in Prosthodontics
14. Dental Ceramics
15. Dental Implants

## Chapter 01: Introduction to Restorative Dental Materials

### Powers: Dental Materials, 11th Edition

---

#### MULTIPLE CHOICE

1. What causes caries?
  - a. Food debris
  - b. Materia alba
  - c. Acidic foodstuff
  - d. Bacterial plaque
  - e. Salivary glycoproteins

ANS: D

Feedback	
<b>A</b>	Food debris does not have the structural organization of bacterial plaque biofilm.
<b>B</b>	Materia alba does not have the structural organization of bacterial plaque biofilm.
<b>C</b>	Acidic foodstuff lowers pH and may demineralize teeth but does not directly cause decay.
<b>D</b>	Caries is caused by biofilm; also known as bacterial plaque.
<b>E</b>	Salivary glycoproteins form the acquired enamel pellicle to which bacteria adhere.

DIF: Knowledge REF: p. 1 OBJ: 2

TOP: CDA, GC, V, A,1b. Patient Education and Oral Health Management

MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.1 Properties and Manipulation of Materials

2. Caries is most likely to occur on which of the following tooth surfaces?
  - a. Buccal
  - b. Lingual
  - c. Occlusal
  - d. Interproximal
  - e. C and D are both correct.

ANS: E

Feedback	
<b>A</b>	Buccal surfaces are also susceptible to caries; however, there is less surface area left unchecked.
<b>B</b>	Lingual surfaces are also susceptible to caries; however, there is less surface area left unchecked.
<b>C</b>	Caries is most likely to occur in pits and fissures on the occlusal surface and on interproximal tooth surfaces where plaque accumulates unchecked.
<b>D</b>	Caries is most likely to occur in pits and fissures on the occlusal surface and on interproximal tooth surfaces where plaque accumulates unchecked.

<b>E</b>	Caries is most likely to occur in pits and fissures on the occlusal surface and on interproximal tooth surfaces where plaque accumulates unchecked.
----------	---

DIF: Knowledge REF: p. 1 OBJ: 2

TOP: CDA, GC, III, B, 1, Describe how to prepare, mix, deliver, and store restorative materials, including but not limited to a. amalgam, c. composites

MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

3. Which of the following is an intracoronal restoration?

- Ceramic–alloy crown on tooth number 21
- Ceramic veneer on tooth number 8
- Ceramic onlay on tooth number 30
- Ceramic inlay on tooth number 14

ANS: D

<b>Feedback</b>	
<b>A</b>	The alternate choices are all extracoronal restorations used to repair the external.
<b>B</b>	The alternate choices are all extracoronal restorations used to repair the external.
<b>C</b>	The alternate choices are all extracoronal restorations used to repair the external.
<b>D</b>	A ceramic inlay on tooth number 14 is an example of an intracoronal restoration, meaning that the restoration is being used to repair damage restricted to the internal parts of a tooth. Materials such as amalgam and composite resin are used in addition to ceramic or cast metal.

DIF: Knowledge REF: p. 4 OBJ: 3

TOP: CDA, GC, III, B, 1, Describe how to prepare, mix, deliver, and store restorative materials, including but not limited to a. amalgam, c. composites

MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

4. What is the process called where decay is removed from the tooth in order for a restoration to be placed?

- Cavity preparation
- Convenience form
- Margination
- Extension

ANS: A

<b>Feedback</b>	
<b>A</b>	The process is referred to as <i>cavity preparation</i> . Cavity preparation is used to remove diseased or damaged tissue and provide a space accessible for restoration and one that can stably retain the restoration.
<b>B</b>	<i>Convenience form</i> is a term describing the nature of the cavity preparation.
<b>C</b>	<i>Extension</i> is a term describing the nature of the cavity preparation.
<b>D</b>	Margination is the procedure for finishing the margins of a restoration.

DIF: Knowledge REF: p. 4 OBJ: 2

TOP: CDA, GC, III.B.1. Describe how to prepare, mix, deliver, and store restorative materials  
 MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

5. Which of the following is an example of an intracoronal (direct) restoration?

- Laboratory-cured composite
- Dental amalgam
- Ceramic veneer
- Cast crown

ANS: B

<b>Feedback</b>	
<b>A</b>	Laboratory-cured composite is a restoration that is constructed away from the patient in the dental laboratory.
<b>B</b>	Dental amalgam is an example of a direct restoration. All of the other restorations are prepared away from the tooth and then cemented or bonded to the tooth using a procedure that is independent of the manufacturer of the restoration.
<b>C</b>	Ceramic veneer is a restoration that is constructed away from the patient in the dental laboratory.
<b>D</b>	Cast crown is a restoration that is constructed away from the patient in the dental laboratory.

DIF: Knowledge REF: p. 4 OBJ: 3

TOP: CDA, GC, III.B.1. Describe how to prepare, mix, deliver, and store restorative materials  
 MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

6. Which of the following is an example of an extracoronal restoration? Choose all that apply.

- Ceramic inlay
- Ceramic–alloy crown
- Porcelain jacket crown
- A, B, and C
- A and C

ANS: D

<b>Feedback</b>	
<b>A</b>	All three restorations involve lab procedures and are examples of indirect restorations.
<b>B</b>	All three restorations involve lab procedures and are examples of indirect restorations.
<b>C</b>	All three restorations involve lab procedures and are examples of indirect restorations.
<b>D</b>	All three restorations involve lab procedures and are examples of indirect restorations.
<b>E</b>	All three restorations involve lab procedures and are examples of indirect restorations.

DIF: Knowledge REF: p. 5 OBJ: 3

TOP: CDA, GC, III.B.1. Describe how to prepare, mix, deliver, and store restorative materials  
 MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

7. Which of the following is an example of an extracoronal restoration?

- Disto-occlusal ceramic inlay on tooth number 29
- Buccal Cl. V composite resin on tooth number 31
- Mesio-occlusal gold onlay on tooth number 15
- Mesio-occlusal amalgam on tooth number 13

ANS: C

	<b>Feedback</b>
<b>A</b>	This is an example of intracoronal restoration because it fits within the internal borders of the anatomical crown.
<b>B</b>	This is an example of intracoronal restoration because it fits within the internal borders of the anatomical crown.
<b>C</b>	An onlay involves an inlay with extension to cover or protect a cusp. Thus a mesio-occlusal gold onlay on tooth number 15 is an example of an extracoronal restoration.
<b>D</b>	This is an example of intracoronal restoration because it fits within the internal borders of the anatomical crown.

DIF: Knowledge REF: p. 5 OBJ: 3

TOP: CDA, GC, III.B.1. Describe how to prepare, mix, deliver, and store restorative materials  
 MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

8. Which material is used to fill the root canal once all of the pulpal tissue has been removed?

- Silver point
- Paper points
- Dental cement
- Moisture-resistant sealer

ANS: D

	<b>Feedback</b>
<b>A</b>	Silver master points are no longer used to fill canals.
<b>B</b>	Paper points are used to dry the canal after irrigation.
<b>C</b>	Dental cements may be used to seal the access opening but are not suited to fill the canals.
<b>D</b>	The space created when the pulpal tissues are removed must be replaced with sealers that prevent ingress of bacteria that comes with moisture.

DIF: Knowledge REF: p. 5 OBJ: 4

TOP: CDA, GC, II. B.2. h. Select and describe how to prepare tray setups and all necessary armamentaria for chairside dentistry and dental emergency procedures, including but not limited to h. endodontic therapy  
 MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

9. A(n) \_\_\_\_\_ is also known as a bridge.

- removable partial denture
- fixed partial denture

- c. abutment
- d. pontic

ANS: B

<b>Feedback</b>	
<b>A</b>	A removable partial denture may be removed by the patient and is not known as a bridge.
<b>B</b>	A fixed (cemented) partial denture is commonly known as a bridge. The crown preparation portions of the bridge are called abutments, and the missing tooth replacement is called the pontic.
<b>C</b>	An abutment is an individual component of a fixed partial denture and is not known as a bridge.
<b>D</b>	A pontic is an individual component of a fixed partial denture and is not known as a bridge.

DIF: Knowledge REF: p. 9 OBJ: 5

TOP: CDA, GC, II. B.2. e. Select and describe how to prepare tray setups and all necessary armamentaria for chairside dentistry and dental emergency procedures, including but not limited to e. crown and bridge MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

10. A resin-bonded fixed partial denture is sometimes used under which conditions?

- a. Bridge has only one abutment.
- b. Abutment teeth have been endodontically treated.
- c. Abutment teeth are healthy and free of major restorations.
- d. The bridge has a long span involving more than four teeth.

ANS: C

<b>Feedback</b>	
<b>A</b>	Placement of crowns on the abutment teeth requires substantial sacrifice of tooth structure regardless of the condition of the abutment tooth.
<b>B</b>	Endodontically treated teeth become brittle over time once the blood supply has been removed. The teeth need additional reinforcement.
<b>C</b>	A resin-bonded fixed partial denture may be used when the abutment teeth are healthy and free of major restorations. Case selection is critical, because retention problems may occur with this type of restoration.
<b>D</b>	Long span bridges require a significant amount of retention. A resin-bonded fixed partial, bridge.

DIF: Knowledge REF: p. 10 OBJ: 5

TOP: CDA, GC, II. B.2. h. Select and describe how to prepare tray setups and all necessary armamentaria for chairside dentistry and dental emergency procedures, including but not limited to e. crown and bridge preparation/cementation

MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

11. The \_\_\_\_\_ of a fixed partial denture fills the edentulous space.

- a. pontic
- b. obturator

- c. abutment
- d. connector

ANS: A

<b>Feedback</b>	
<b>A</b>	The artificial replacement tooth used to fill the edentulous space of a fixed bridge is called a <i>pontic</i> .
<b>B</b>	An obturator is used to fill tissue defects due to an accident or disease.
<b>C</b>	The crowned teeth are called <i>abutments</i> .
<b>D</b>	A connector joins crowns to pontics.

DIF: Comprehension

REF: p. 9

OBJ: 5

TOP: CDA, GC, II. B.2. e. Select and describe how to prepare tray setups and all necessary armamentaria for chairside dentistry and dental emergency procedures, including but not limited to e. crown and bridge preparation/cementation

MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

12. Dental implants are commonly fabricated from \_\_\_\_\_-based metal alloys.

- a. dental amalgam
- b. titanium
- c. gold
- d. iron

ANS: B

<b>Feedback</b>	
<b>A</b>	Dental amalgam is used to fill intracoronal restorations.
<b>B</b>	Dental implants are commonly fabricated from titanium alloys. The surface of the implant may be titanium oxide or may be treated with other materials.
<b>C</b>	Gold is used to fabricate extracoronal restorations.
<b>D</b>	Iron is not a metal used in the oral environment.

DIF: Knowledge REF: p. 11 OBJ: 5

TOP: CDA, GC, II. B.2. m. Select and describe how to prepare tray setups and all necessary armamentaria for chairside dentistry and dental emergency procedures, including but not limited to m. implants

MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

13. Which of the following types of implants are placed into but not through bone?

- a. Subperiosteal
- b. Transosseous
- c. Endosseous
- d. Mucosal

ANS: C

<b>Feedback</b>	
<b>A</b>	A subperiosteal implant is placed between the bone and the overlying soft tissue.
<b>B</b>	A transosseous (staple) implant is placed through bone (e.g., the mandible).

<b>C</b>	An endosseous implant is placed into but not through bone. It is usually a single tooth form.
<b>D</b>	A mucosal implant is placed between the bone and overlying soft tissue.

DIF: Knowledge REF: p. 11 OBJ: 5

TOP: CDA, GC, II. B.2. m. Select and describe how to prepare tray setups and all necessary armamentaria for chairside dentistry and dental emergency procedures, including but not limited to m. implants  
 MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

14. Which of the following is an advantage of endosseous implant placement when contrasted with fixed bridgework? Endosseous implants

- leave adjacent teeth unrestored.
- do not require invasive surgery.
- are less costly than fixed partial dentures.
- require floss threaders to clean abutment teeth.

ANS: A

<b>Feedback</b>	
<b>A</b>	Endosseous implants leave adjacent teeth unrestored.
<b>B</b>	Endosseous implants require a surgical procedure.
<b>C</b>	Endosseous implants are relatively costly.
<b>D</b>	Fixed partial dentures require floss threaders to clean abutment teeth.

DIF: Knowledge REF: p. 11 OBJ: 5

TOP: CDA, GC, II. B.2. m. Select and describe how to prepare tray setups and all necessary armamentaria for chairside dentistry and dental emergency procedures, including but not limited to m. implants  
 MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

15. Which type of crown is placed on an implant?

- Direct intracoronal
- Direct extracoronal
- Indirect intracoronal
- Indirect extracoronal

ANS: D

<b>Feedback</b>	
<b>A</b>	A direct intracoronal restoration is fabricated in the mouth.
<b>B</b>	Direct extracoronal restorations for implants do not exist.
<b>C</b>	An indirect intracoronal restoration is surrounded by tooth structure.
<b>D</b>	An indirect extracoronal crown is placed on an implant.

DIF: Knowledge REF: p. 10 OBJ: 5

TOP: CDA, GC, II. B.2. m. Select and describe how to prepare tray setups and all necessary armamentaria for chairside dentistry and dental emergency procedures, including but not limited to m. implants  
 MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

16. When would removable partial dentures be indicated?

- Replacement of single missing teeth

- b. Replacement of multiple missing teeth in multiple locations
- c. Situations where there is a distal abutment tooth to anchor a fixed bridge
- d. A and C
- e. B and C

ANS: B

Feedback	
<b>A</b>	Fixed partial dentures or single tooth implants are appropriate for replacement of single missing teeth.
<b>B</b>	Removable partial dentures are appropriate for replacement of multiple missing teeth in multiple locations.
<b>C</b>	Removable partial dentures are appropriate for situations in which there is not a distal abutment tooth to anchor a fixed partial denture.
<b>D</b>	A and C are incorrect answers.
<b>E</b>	C is an incorrect answer, but B is a correct answer.

DIF: Comprehension

REF: p. 12

OBJ: 5

TOP: CDA, GC, II. B.2. e. Select and describe how to prepare tray setups and all necessary armamentaria for chairside dentistry and dental emergency procedures, including but not limited to e. crown and bridge

MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

17. The abutment teeth of a removable partial denture are engaged by what method?

- a. Ceramic–alloy crowns
- b. All-ceramic crowns
- c. Pontics
- d. Clasps

ANS: D

Feedback	
<b>A</b>	Abutment teeth of a removable partial denture may be restored with crowns.
<b>B</b>	Abutment teeth of a removable partial denture may be restored with crowns.
<b>C</b>	Pontics are artificial teeth used with fixed partial dentures to restore edentulous spaces.
<b>D</b>	Abutment teeth of a removable partial denture are engaged by clasps.

DIF: Knowledge

REF: p. 12

OBJ: 5

TOP: CDA, GC, II. B.2. V. Select and describe how to prepare tray setups and all necessary armamentaria for chairside dentistry and dental emergency procedures, including but not limited to V. removable partials or full dentures

MSC: NBDHE, 6.0 Providing Supportive Treatment Services, 6.5 General

18. Which of the following statements is true of removable partial dentures?

- a. Removable partial dentures use a framework made of acrylic.
- b. The partial denture framework rests on tissue.
- c. The partial denture framework rests on specific abutment teeth.
- d. The partial denture framework rests on specific pontic teeth.

ANS: C