

# Matrix Systems for Restorative Dentistry, IRM, Temporary Crown, Perio Pack

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# Matrix Systems

# Key Terms



**Matrix-** system used to hold the dental material and tooth together during setting process

**Mylar strip-** clear plastic strip used to provide a temporary wall for restoration of an anterior tooth, Mylar is the brand name

**Overhang-** excess restorative material that extends beyond the cavity preparation



**Universal retainer-** dental device used for posterior teeth to hold a matrix band in place during the restoration of a class II cavity



**Wedge-** wooden or plastic the contour needed when class II lesion is being restored

# Learning Objectives

- Pronounce, define, and spell the key terms.
- Describe the use of matrix systems for class II, III, and IV restorations.
- Describe the purpose and use of a wedge.
- Describe the types of matrices used for anterior restorations.
- Discuss alternative methods for matrix systems used in restorative dentistry.

# Introduction

- A matrix system provides a “temporary wall” for the restoration process in class II, III and IV preparations



# Posterior Matrix System

- Universal retainer
- Also referred to as *Tofflemire retainer*
  - A mechanical device that holds the matrix band snugly in position
  - Positioned most commonly from the buccal surface of the tooth being restored

# Matrix Band

- Thin, flexible stainless steel material
- The design of the matrix band is such that when the ends of the band are brought together, the band will form a circle
  - One side of the circumference of the circle will be smaller than the other side
- The circumference guides you in placing the band
  - Smaller circumference: Gingival edge and is always positioned toward the gingiva
  - Larger circumference: Occlusal edge and is always positioned facing toward the occlusal part of the tooth

# Matrix Band (Cont.)





# Wedges



- Class II restoration requires a matrix band to act as an artificial wall for the tooth
  - The matrix band alone does not provide the anatomic contour required interproximally
- A wedge is inserted into the lingual embrasure to hold the matrix band firmly against the gingival margin of the preparation

# Wedges (cont.)



- Wedges are made in various sizes, forms (triangular or round), and materials (wood or plastic)
  - Most commonly used type of wedge is the triangular or round wooden wedge
- Considerations for wedges include:
  - Must be wide enough so that pressure is applied to apical and gingival walls of the preparation
  - Wedge presses the band against the tooth and causes a slight separation of the teeth
  - Slightly wider than the distance between the cervical portions of adjacent teeth

# Wedges (cont.)



- When positioning the wedge, cotton pliers are the instrument of choice for inserting the wedge firmly into the embrasure
  - For posterior restorations, the wedge will be positioned from the lingual side
- Improper wedge and band placement can result in an overhang or cupping

# Criteria for Placing a Posterior Matrix Retainer and Band

- Diagonal slotted surface of the retainer is always positioned toward the gingiva
- Retainer is positioned from the buccal surface of the tooth
- Handle of the retainer extends out from the oral cavity at the corner of the lips
- Seated band extends approximately 1 mm below the gingival margin of the preparation
- Seated band extends no farther than 2 mm above the occlusal surface of the tooth

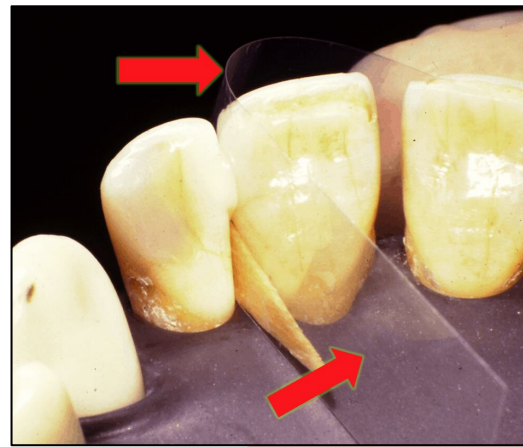
# Anterior Matrix Systems

- A clear plastic matrix is used with anterior composite resin or glass ionomer materials
  - The clear plastic matrix is also referred to as the *celluloid strip* or *Mylar strip*
- Used for a class III or IV restoration when the proximal wall of an anterior tooth is missing
- No retainer is needed to hold the matrix in place, making this system an easier application



# Anterior Matrix Systems

- Plastic matrix and wedge serve the following purposes during the restoration process:
  - Matrix is placed interproximally before the etching and bonding of the tooth to protect adjacent teeth from these materials
  - After the placement of composite material, the matrix is pulled tightly around the tooth to help in reconstructing its natural contour
  - Clear plastic matrix allows the curing light to penetrate the material, thereby completing the curing process
- Contouring the matrix before placement helps to keep it in place
  - To contour a matrix strip, pull the matrix lengthwise over the rounded end of the cotton pliers or mirror handle
  - Lingual surfaces hold the matrix in place while the material is adapted to the preparation



- How to assemble a matrix band
- Video Demonstration of placing a Matrix Band

**IRM**



# Intermediate Restorative Material (IRM)

## Why is IRM used?

- Placed for emergency situations for pain relief and if tooth is symptomatic
- Due to insufficient appointment time for a permanent restoration. The patient will return at a later date for a permanent restoration.
- After placement, the dentist is able to evaluate the response of the pulp for adequate treatment planning for the permanent restoration.

# Zinc Oxide Eugenol Cement (ZOE)

- A low strength base used as a temporary cement filling.
- Zinc Oxide is the primary ingredient
- Eugenol :
  - has distinct smell of cloves and is derivative of oil of cloves
  - Is known for its sedative effect on the pulp, caused by its antibacterial effects
  - Can be irritating when in direct contact with the oral mucosa

# ZOE



# Zinc Oxide Eugenol (ZOE)

## Advantages

- Wide variety of uses
- Sedative to the pulp
- Easily manipulated

## Disadvantages

- Low strength
- High solubility
- Unable to be used under composite restorations and indirect restorations cemented with resin

# IRM Placement Video

<https://www.youtube.com/watch?v=zn8FJa59J7Q>

# Cementation of Temporary Crowns

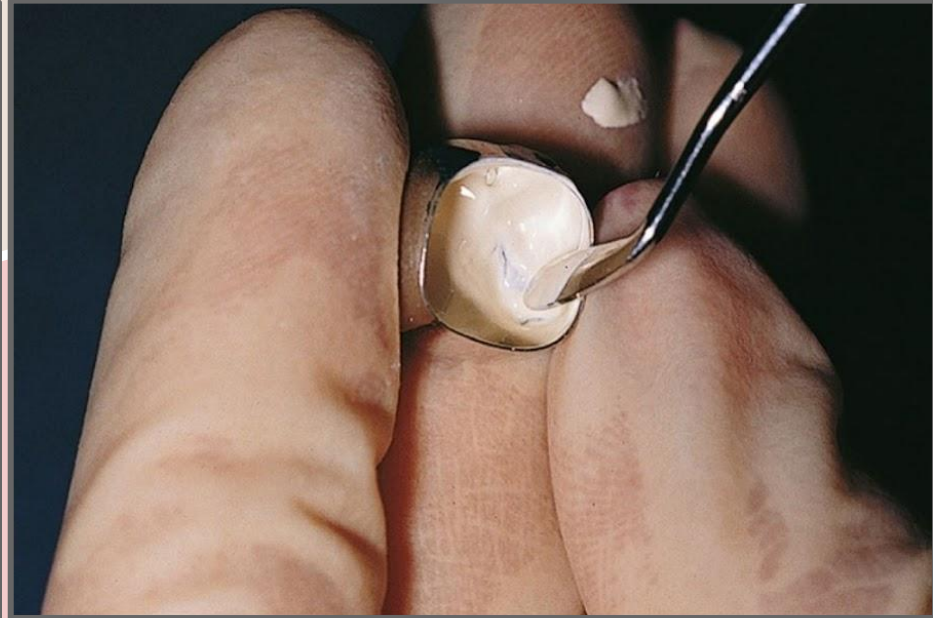
# Cementing Temporary Crowns

**In order for the crown to be comfortable in the patient's mouth, the cement needs to be loaded into the crown evenly and all margins coated.**

## **Procedure:**

- Collect the cement with the spatula
- Wipe spatula inside the the margin of the crown covering all the walls with an even and thin coat of cement.
- Overloading will prevent proper placement and seating

# Loading the Crown





# Cement Removal

## **Procedure for removing excess cement:**

- Remove the cement in large pieces
- Use scaler or explorer to gently remove the cement.
- Be careful to not scratch the restoration
- Floss to remove cement from interproximal areas. Make sure the floss is pulled out under the contact.

# Cementing Videos

- Cementing the temporary crown:

<https://www.youtube.com/watch?v=MjzNW7N1Z1w>

- Removal of excess cement:

<https://youtube.com/shorts/5EhMYOIRdAk?feature=share>

# Perio Pak (Periodontal Dressing)

# Periodontal Surgical Dressing

## What is a Perio Pak?

A surgical dressing used to provide protection, support, patient comfort and control of bleeding at surgical site.

The most widely used product is COE-PAK. COE-PAK is a eugenol-free, surgical dressing and periodontal pack that has no burning sensation, no unpleasant taste or odor, and offers proven protection to surgical sites. COE-PAK promotes cleanliness and healing. Plastic and cohesive, ropes of any length or thickness can be formed.



[Click to watch video](#)



The End