1 Assignment
Evaluation of the bonding strength between each layer of artificial tooth material and denture base resin at the site of fracture after a tensile strength test.

The following materials were evaluated:

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Denture Base Material</th>
<th>Teeth-Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Enigma High-Base</td>
<td>enigmalife Neck PMMA</td>
</tr>
<tr>
<td>2.</td>
<td>Enigma High-Base</td>
<td>enigmalife Dentine Composite</td>
</tr>
<tr>
<td>3.</td>
<td>Enigma High-Base</td>
<td>enigmalife Enamel Composite</td>
</tr>
</tbody>
</table>

2 Materials
2.1 Denture Base Material
As Denture base Material was “Enigma High-Base” used.

The “Instruction for use” was observed, particularly:

“**Thick dentures**
Boil sufficient water to cover clamped flask, remove heat and place the flask into the water. Add 200ml cold water for every 2 liters of water used and leave for 60 minutes. Apply low heat to maintain temperature of water at about 70°C for 30 minutes bring to the boil in not less than 10 minutes and boil for a further 20 minutes. Residual monomer content <1.6%. After all curing cycles bench cool the flask for 30 minutes prior to immersing in cold water before deflasking.”
2.2 enigma life Anterior sets were manufactured from Neck- Dentine and Enamel Material
For the given Evaluation we prepared three sets of enigma life Anterior teeth respectively completely from “Neck”, “Dentine” and “Enamel” Material.

3 Specimens
All specimens were prepared according to the following photos.
4 Tensile strength test

Bonding strength to denture resin was done in accord with ISO22112:2006-Point 5.3.1

5 Results

5.1  enigma life Composite Enamel

Conclusion:
We obtained optimal results regarding the bonding strength of artificial tooth enamel material to Enigma High-Base.

5.2  enigma life Composite Dentine

Conclusion:
We obtained optimal results regarding the bonding strength of artificial tooth dentine material to Enigma High-Base.

5.3  enigma life Neck PMMA

Conclusion:
We obtained optimal results regarding the bonding strength of artificial tooth neck material to Enigma High-Base.
6 Comparison between enamel life Neck, Dentine and Enamel Materials

Conclusion: From the bonding properties point of view there was no visible difference between any of the tooth materials.

7 Conclusion
All materials show a very good bond to the base material.


**Evaluation of bond to Enigma High Impact Denture Base together with "Schottlander Composite Bonder"**

1 **Assignment**

Evaluation of the bonding strength between each layer of artificial tooth material and denture base resin at the site of fracture after a tensile strength test.

Schottlander Composite Bonder was only applied to “enigma life Dentine” and “enigma life Enamel”

The following materials were evaluated:

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Denture Base Material</th>
<th>Teeth-Material</th>
<th>Bonder</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Enigma High-Base</td>
<td>enigma life Neck PMMA</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>Enigma High-Base</td>
<td>enigma life Dentine Composite</td>
<td>Schottlander Composite Bond</td>
</tr>
<tr>
<td>3</td>
<td>Enigma High-Base</td>
<td>enigma life Enamel Composite</td>
<td>Schottlander Composite Bond</td>
</tr>
</tbody>
</table>

2 **Materials**

2.1 **Denture Base Material**

As Denture base Material was “Enigma High-Base” used.

The “Instruction for use” was observed, particularly:

- **Thick dentures**
  - Boil sufficient water to cover clamped flask, remove heat and place the flask into the water. Add 200ml cold water for every 2 liters of water used and leave for 60 minutes.
  - Apply low heat to maintain temperature of water at about 70°C for 30 minutes bring to the boil in not less than 10 minutes and boil for a further 20 minutes.
  - Residual monomer content <1.6%.
  - After all curing cycles bench cool the flask for 30 minutes prior to immersing in cold water before deflasking.”

![Image of Enigma High-Base](image-url)
2.2 Bonder

Only on “Dentine” and “Enamel”-material was “Schottlander Composite Bond” applied.

The “Instruction for use” was observed, particularly:

**Preparation of the contact surface between teeth material and base material.**
Sandblast the area to be connected with aluminum oxide with a particle size of 50 micron and at 2 bars pressure. Clean with oil-free compressed air.

**Application of Schottlander Composite Bond**
With a brush generously apply Schottlander Composite Bond and allow the solvents to evaporate for approximately one minute. Apply a second layer.
Polymerize each layer in accordance with the light curing unit employed (9 min in Labolight).

<table>
<thead>
<tr>
<th>Polymerisation Device</th>
<th>Bonding Opaque</th>
<th>Gingival Paste &amp; High Chroma</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermediate Polymerisation</td>
<td>Final Polymerisation</td>
</tr>
<tr>
<td>Labolight LV-II/III</td>
<td>1 min.</td>
<td>0,5 min.</td>
</tr>
</tbody>
</table>
2.3 enigma life Anterior sets were manufactured from Neck, Dentine and Enamel Material
For the given Evaluation we prepared three sets of enigma life Anterior teeth respectively completely from “Neck”, “Dentine” and “Enamel” Material.

3 Specimens
All specimens were prepared according to the photos.
4 Tensile strength test

Bonding strength to denture resin was done in accord with ISO22112:2006-Point 5.3.1

5 Results

5.1 enigma life Composite Enamel

Conclusion:
We obtained optimal results regarding the bonding strength of artificial tooth enamel material to Enigma High-Base.

5.2 enigma life Composite Dentine

Conclusion:
We obtained optimal results regarding the bonding strength of artificial tooth dentine material to Enigma High-Base.

5.3 enigma life Neck PMMA

Conclusion:
We obtained optimal results regarding the bonding strength of artificial tooth neck material to Enigma High-Base.
5.4 Comparison between Enigma Life Neck-, Dentine and Enamel Material

Conclusion:
From the bonding properties point of view there was no visible difference between any of the tooth materials.

6 Conclusion
All materials show a very good bond to the base material.
Evaluation of bond to "Pegasus" Pourable Cold Cure Denture Base

1 Assignment
Evaluation of bonding strength between each artificial teeth material and “Pegasus” pourable cold cure denture resin at the site of fracture after a tensile strength test.

Following material mix was evaluated:

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Denture Base Material</th>
<th>Teeth-Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>“Pegasus” Pourable Cold Cure</td>
<td>enigmalife Neck PMMA</td>
</tr>
<tr>
<td>2.</td>
<td>“Pegasus” Pourable Cold Cure</td>
<td>enigmalife Dentine Composite</td>
</tr>
<tr>
<td>3.</td>
<td>“Pegasus” Pourable Cold Cure</td>
<td>enigmalife Enamel Composite</td>
</tr>
</tbody>
</table>

2 Materials

2.1 Denture Base Material
Denture Base Material was “Pegasus” Pourable Cold Cure used. Directions are as shown.
2.2 enigmatic Anterior sets from full Neck Dentine and Enamel Material
For the given Evaluation we prepared three sets of enigmatic Anterior teeth respectively from full “Neck”, “Dentine” and “Enamel” Material.

3 Specimens
All specimens were prepared according to the following photos.
4 Tensile strength test

Bonding strength to denture resin was done in accord with ISO22112:2006 Point 5.3.1

5 Results

5.1 enigma life Enamel

Conclusion:
We obtained optimal results regarding the bonding strength of artificial tooth enamel material to “Pegasus” Pourable Cold Cure.

5.2 enigma life Dentine

Conclusion:
We obtained optimal results regarding the bonding strength of artificial tooth dentine material to “Pegasus” Pourable Cold Cure

5.3 enigma life Neck

Conclusion:
We obtained optimal results regarding the bonding strength of artificial tooth neck material to “Pegasus” Pourable Cold Cure
6 Comparison between enigmalife Neck, Dentine and Enamel Material

Conclusion:
From the bonding properties point of view there was no difference between any of the tooth materials.

7 Conclusion
All materials show a very good bond to the “Pegasus” Pourable Cold Cure base material.