Fixed partial denture Lab steps mold to finish

Department of Prosthodontic & Implantology,
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Requirements of investment material
Different investment techniques
Compensation for casting shrinkage
Different stages in casting procedure
Finishing of the casting
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Three steps involved after fabrication of wax pattern

- Investing
- Burnout
- Casting

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Requirements of investment material

Reproduction of details
Sufficient strength
Expand sufficiently

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Shrinkage compensation

Gold alloys shrink on solidification by 1.5%
NiCr alloys by 2.4%

Mechanism to expand mold
Setting expansion of investment (0.4%)  
Hygroscopic setting expansion (1.2-2.2%)
Wax pattern expansion
Thermal expansion

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Gypsum bonded investment

Used with type I, II and III gold alloys
Classified as type I and II
Gypsum alpha hemihydrate acts binder 30-35%
Refractory material quartz or Cristobalite 60-65%

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Phosphate bonded investment

Stronger and withstand high temperatures
Used for alloys with higher melting temperature 1,150°C
Phosphates Mg and NH, graphite and large silica particles
Carbon free phosphate investments

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Sprue former attachment

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Sprue former attachment

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Sprue former attachment

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Investing procedure

Casting ring liner

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Plastic ring
Investing procedure

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Investing procedure

Lab steps mold to finish
Investing procedure

Lab steps mold to finish
Investing procedure

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Burnout

Remove the crucible, place the casting ring in 315°C oven for 30 min and later to 482°C or 650°C furnace for 1 hr

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Casting procedure

Lab steps mold to finish
Casting procedure

Lab steps mold to finish
Casting procedure

Lab steps mold to finish
Casting procedure

Lab steps mold to finish
Cleaning the casting

Pen blaster

Air cutter

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Cleaning the casting

Middling

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Common casting defects

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Investing with phosphate bonded investment

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Investing with phosphate bonded investment

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Investing with phosphate bonded investment

6.3cm

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Investing with phosphate bonded investment

Lab steps mold to finish
Investment with phosphate bonded investment

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Finishing the cast restorations

Objectives and procedures

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Zone 1- internal margin

1 mm band of closely adapted metal to tooth surface should be obtained

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Zone 2- internal surface

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Be careful not to spoil the precision fit when adjusting the internal surface.
Zone 2- internal surface

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Zone 3- Sprue

Lab steps mold to finish
Zone 3- Sprue

Lab steps mold to finish
Zone 4- Proximal contacts

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Zone 4- Proximal contact area

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Twine impregnated with polishing compound
Zone 5 - Occlusal surface

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Zone 6- Axial walls

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Zone 6 - Axial walls

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Zone 6- Axial walls

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Gold polishing kit

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Reference
4. SHOFU Dental products catalogue, 2006-07

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