Metal Ceramic Restorations

Part Two

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Metal Ceramic Restorations
Metal Ceramic Restorations
Metal Ceramic Restorations

Steps

Clinical Steps

Laboratory Steps
Metal Ceramic Restorations

First Visit
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record
Metal Ceramic Restorations

Clinical Steps
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record

Complex Cases

Laboratory Steps
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s
Metal Ceramic Restorations

Clinical Steps
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record

Complex Cases

Laboratory Steps
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s

First Visit
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record
- Crown preparation
- Provisional crown
- Secondary impression

Second Visit
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s
Metal Ceramic Restorations

Clinical Steps
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record

Complex Cases

Laboratory Steps
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s

First Visit
- Crown preparation
- Provisional crown
- Secondary impression

Second Visit
- Working models
- Coping (metal/ceramic) fabrication
Metal Ceramic Restorations

Clinical Steps
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record

Second Visit
- Crown preparation
- Provisional crown
- Secondary impression

Third Visit
- Coping (metal/ceramic) try-in

Laboratory Steps
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s

Complex Cases
- Working models
- Coping (metal/ceramic) fabrication

First Visit
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s
Metal Ceramic Restorations

**Clinical Steps**
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record

**Complex Cases**
- Crown preparation
- Provisional crown
- Secondary impression
- Coping (metal/ceramic) try-in
- Correct any problem
- Porcelain build-up

**Laboratory Steps**
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s
- Working models
- Coping (metal/ceramic) fabrication

**Steps**
- First Visit
  - Exam and Tx plan
  - Primary impressions
  - Bite registration
  - Face-bow record
- Second Visit
  - Crown preparation
  - Provisional crown
  - Secondary impression
- Third Visit
  - Coping (metal/ceramic) try-in

Tuesday 29 October 13
Metal Ceramic Restorations

**Clinical Steps**

- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record

**Complex Cases**

**Laboratory Steps**

- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s

**First Visit**

- Crown preparation
- Provisional crown
- Secondary impression

**Second Visit**

- Coping (metal/ceramic) fabrication

**Third Visit**

- Coping (metal/ceramic) try-in
- Correct any problem
- Porcelain build-up

**Fourth Visit**

- Porcelain try-in

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Metal Ceramic Restorations

Clinical Steps
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record

Complex Cases
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s

Laboratory Steps
- Working models
- Coping (metal/ceramic) fabrication

First Visit
- Crown preparation
- Provisional crown
- Secondary impression

Second Visit
- Coping (metal/ceramic) try-in

Third Visit
- Porcelain try-in

Fourth Visit
- Correct any problem
- Porcelain build-up
- Correct any problem
- Porcelain finishing

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Metal Ceramic Restorations

**Clinical Steps**

- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record

**Laboratory Steps**

- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s

**Complex Cases**

- Work models
- Coping (metal/ceramic) fabrication

**Steps**

- **First Visit**
  - Crown preparation
  - Provisional crown
  - Secondary impression

- **Second Visit**
  - Exam and Tx plan
  - Primary impressions
  - Bite registration
  - Face-bow record

- **Third Visit**
  - Crown preparation
  - Provisional crown
  - Secondary impression

- **Fourth Visit**
  - Coping (metal/ceramic) try-in

- **Fifth Visit**
  - Porcelain try-in

**INSERTION**

Tuesday 29 October 13
Metal Ceramic Restorations

Clinical Steps

- Coping (metal/ceramic) try-in

Laboratory Steps

- Working models
- Coping (metal/ceramic) fabrication

Third Visit
- Correct any problem
- Porcelain build-up

Fourth Visit
- Correct any problem
- Porcelain finishing

Fifth Visit
- Insertion

Tuesday 29 October 13
Metal Ceramic Restorations

Clinical Steps

Third Visit
- Coping (metal/ceramic) try-in

Fourth Visit
- Porcelain try-in

Fifth Visit
- Insertion

Simple Cases

Laboratory Steps

- Working models
- Coping (metal/ceramic) fabrication

- Correct any problem
- Porcelain build-up

- Correct any problem
- Porcelain finishing

Tuesday 29 October 13
Metal Ceramic Restorations

**Clinical Steps**
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record

**Laboratory Steps**
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s

**First Visit**
- Working models
- Coping (metal/ceramic) fabrication

**Third Visit**
- Correct any problem
- Porcelain build-up

**Fourth Visit**
- Correct any problem
- Porcelain finishing

**Fifth Visit**
- INSERTION

**Simple Cases**
- Coping (metal/ceramic) try-in

**Tuesday 29 October 13**
Metal Ceramic Restorations

Clinical Steps
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record

Laboratory Steps
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s

Simple Cases

First Visit
- Working models
- Coping (metal/ceramic) fabrication

Third Visit
- Coping (metal/ceramic) try-in
- Correct any problem
- Porcelain build-up

Fourth Visit
- Porcelain try-in
- Correct any problem
- Porcelain finishing

Fifth Visit
INSERTION

Tuesday 29 October 13
Metal Ceramic Restorations

First Visit
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record

Simple Cases
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s

Laboratory Steps
- Working models
- Coping (metal/ceramic) fabrication

Third Visit
- Coping (metal/ceramic) try-in

Fourth Visit
- Porcelain try-in

Fifth Visit
- Correct any problem
- Porcelain build-up

- Correct any problem
- Porcelain finishing

INSERTION

Tuesday 29 October 13
Metal Ceramic Restorations

First Visit
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record

Simple Cases
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s

Laboratory Steps
- Working models
- Coping (metal/ceramic) fabrication

Third Visit
- Coping (metal/ceramic) try-in

Fourth Visit
- Porcelain try-in

Fifth Visit
- Correct any problem
- Porcelain build-up
- Correct any problem
- Porcelain finishing

INSERTION
Metal Ceramic Restorations

First Visit
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record

Third Visit
- Coping (metal/ceramic) try-in

Fourth Visit
- Porcelain try-in

Fifth Visit
- INSERTION

Simple Cases
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s

Laboratory Steps
- Working models
- Coping (metal/ceramic) fabrication

- Correct any problem
- Porcelain build-up

- Correct any problem
- Porcelain finishing

Tuesday 29 October 13
Metal Ceramic Restorations

**Clinical Steps**
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record
- Putty key

**Laboratory Steps**
- Study models
- Face-bow mounting
- Diagnostic wax-up
  - Putty key
  - Special tray/s
- Working models
- Coping (metal/ceramic) fabrication

**Simple Cases**
- Correct any problem
- Porcelain build-up

**Third Visit**
- Coping (metal/ceramic) try-in

**Fourth Visit**
- Porcelain try-in

**Fifth Visit**
- Insertion

**Notes**
- Tuesday 29 October 13
Metal Ceramic Restorations

**Clinical Steps**
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record
- Putty key

**Laboratory Steps**
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s

**First Visit**
- Study models
- Face-bow mounting
- Diagnostic wax-up

**Third Visit**
- Coping (metal/ceramic) try-in
- Correct any problem
- Porcelain build-up

**Fourth Visit**
- Porcelain try-in
- Correct any problem
- Porcelain finishing

**Fifth Visit**
- Insertion

Notes:
- Tuesday 29 October 13
Metal Ceramic Restorations

**Clinical Steps**
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record
- Putty key

**Laboratory Steps**
- Study models
- Face-bow mounting
- Diagnostic wax-up
- Putty key
- Special tray/s

**Simple Cases**
- Working models
- Coping (metal/ceramic) fabrication

**First Visit**
- Putty key

**Third Visit**
- Coping (metal/ceramic) try-in
- Correct any problem
- Porcelain build-up

**Fourth Visit**
- Porcelain try-in
- Correct any problem
- Porcelain finishing

**Fifth Visit**
- INSERTION
Metal Ceramic Restorations

**Clinical Steps**
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record
- Putty key

**Simple Cases**
- Study models
- Face-bow mounting
- Diagnostic wax-up
  - Putty key
  - Special tray/s

**Laboratory Steps**
- Working models
- Coping (metal/ceramic) fabrication
- Correct any problem
  - Porcelain build-up
- Correct any problem
  - Porcelain finishing

**First Visit**
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record
- Putty key

**Third Visit**
- Coping (metal/ceramic) try-in

**Fourth Visit**
- Porcelain try-in

**Fifth Visit**
- INSERTION

Tuesday 29 October 13
Metal Ceramic Restorations

**Clinical Steps**
- Exam and Tx plan
- Primary impressions
- Bite registration
- Face-bow record
- Putty key

**Laboratory Steps**
- Study models
- Face-bow mounting
- Diagnostic wax-up
  - Putty key
  - Special tray/s
- Working models
- Coping (metal/ceramic) fabrication

**Simple Cases**

**First Visit**
- Crown preparation
  - Provisional crown
  - Secondary impression
  - Opposing impression

**Second Visit**
- Coping (metal/ceramic) try-in

**Third Visit**
- Porcelain try-in

**Fourth Visit**
- Porcelain try-in

**Fifth Visit**
- Correct any problem
  - Porcelain build-up

**Insertion**

Tuesday 29 October 13
Metal Ceramic Restorations
Metal Ceramic Restorations

Alloy used
Metal Ceramic Restorations

Alloy used

NOBLE
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium
Metal Ceramic Restorations

Alloy used

**NOBLE**
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

**BASE METAL**
Nickel, Chromium, Beryllium, Cobalt & Titanium

Tuesday 29 October 13
Metal Ceramic Restorations

Alloy used

**Noble**
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

**Base Metal**
Nickel, Chromium, Beryllium, Cobalt & Titanium

Noble ≥ 60%
Gold ≥ 40%
Metal Ceramic Restorations

**Alloy used**

**Noble**
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

**Base Metal**
Nickel, Chromium, Beryllium, Cobalt & Titanium

Noble $\geq 60$
Gold $\geq 40$

High noble
Metal Ceramic Restorations

Alloy used

Noble
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

Noble ≥ 60%
Gold ≥ 40%

High noble

Base Metal
Nickel, Chromium, Beryllium, Cobalt & Titanium

Noble ≥ 25%
Metal Ceramic Restorations

Alloy used

NOBLE
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

Noble ≥ 60%
Gold ≥ 40%

BASE METAL
Nickel, Chromium, Beryllium, Cobalt & Titanium

Noble ≥ 25%

High noble

Noble
Metal Ceramic Restorations

**Alloy used**

**NOBLE**
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

**BASE METAL**
Nickel, Chromium, Beryllium, Cobalt & Titanium

- Noble ≥ 60%
- Gold ≥ 40%
- Noble ≥ 25%
- Noble ≤ 25%
- High noble
- Noble

**Tx Plan**

Tuesday 29 October 13
Metal Ceramic Restorations

Alloy used

Noble
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

BASE METAL
Nickel, Chromium, Beryllium, Cobalt & Titanium

Noble ≥ 60%
Gold ≥ 40%

Noble ≥ 25%

Noble ≤ 25%

High noble

Noble

Base metal
Metal Ceramic Restorations

**Alloy used**

**NOBLE**
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

- Noble ≥ 60%
- Gold ≥ 40%

**BASE METAL**
Nickel, Chromium, Beryllium, Cobalt & Titanium

- Noble ≥ 25%
- Noble ≤ 25%

**High noble**

**Noble**
Iron ➔ Strengthening
Tin, Indium & Iron ➔ Oxide layer
Gallium & Beryllium ➔ Reduce melting temperature

**Base metal**

**Tx Plan**

Tuesday 29 October 13
Metal Ceramic Restorations

Alloy used

NOBLE
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

Noble ≥ 60%
Gold ≥ 40%

High noble

Noble ≥ 25%

Noble

BASE METAL
Nickel, Chromium, Beryllium, Cobalt & Titanium

Noble ≤ 25%

Base metal

Iron ➔ Strengthening
Tin, Indium & Iron ➔ Oxide layer
Gallium & Beryllium ➔ Reduce melting temperature

- Gold-Platinum-Palladium

Tuesday 29 October 13
Metal Ceramic Restorations

Alloy used

**NOBLE**
- Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

**BASE METAL**
- Nickel, Chromium, Beryllium, Cobalt & Titanium

Noble ≥ 60%
- Gold ≥ 40%

Noble ≥ 25%

Noble ≤ 25%

High noble

Noble

Base metal

Iron ➔ Strengthening
- Tin, Indium & Iron ➔ Oxide layer
- Gallium & Beryllium ➔ Reduce melting temperature

Expensive - Gold-Platinum-Palladium
Metal Ceramic Restorations

Alloy used

NOBLE
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

BASE METAL
Nickel, Chromium, Beryllium, Cobalt & Titanium

Noble ≥ 60%
Gold ≥ 40%

Noble ≥ 25%

Noble ≤ 25%

High noble

Noble

Base metal

Iron ➔ Strengthening
Tin, Indium & Iron ➔ Oxide layer
Gallium & Beryllium ➔ Reduce melting temperature

Expensive
- Gold-Platinum-Palladium
- Gold-Palladium-Silver

Tx Plan

Tuesday 29 October 13
Metal Ceramic Restorations

Alloy used

Noble
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

Base metal
Nickel, Chromium, Beryllium, Cobalt & Titanium

Noble ≥ 60%
Gold ≥ 40%

High noble

Noble ≥ 25%

Noble

Noble ≤ 25%

Base metal

Iron ➔ Strengthening
Tin, Indium & Iron ➔ Oxide layer
Gallium & Beryllium ➔ Reduce melting temperature

Expensive
- Gold-Platinum-Palladium
- Gold-Palladium-Silver

Greening

Tuesday 29 October 13
Metal Ceramic Restorations

Alloy used

**NOBLE**
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

- Noble ≥ 60%
- Gold ≥ 40%

**BASE METAL**
Nickel, Chromium, Beryllium, Cobalt & Titanium

- Noble ≥ 25%
- Noble ≤ 25%

**High noble**

**Noble**

**Base metal**

Iron ➔ Strengthening
Tin, Indium & Iron ➔ Oxide layer
Gallium & Beryllium ➔ Reduce melting temperature

Expensive
- Gold-Platinum-Palladium
- Gold-Palladium-Silver
- Gold-Palladium

Greening

Tuesday 29 October 13
Metal Ceramic Restorations

Alloy used

NOBLE
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

BASE METAL
Nickel, Chromium, Beryllium, Cobalt & Titanium

Noble ≥ 60%
Gold ≥ 40%

Noble ≥ 25%

Noble ≤ 25%

High noble

Noble

Base metal

Iron ➔ Strengthening
Tin, Indium & Iron ➔ Oxide layer
Gallium & Beryllium ➔ Reduce melting temperature

Expensive
- Gold-Platinum-Palladium
- Gold-Palladium-Silver
- Gold-Palladium

Greening
- Palladium-Silver

Tuesday 29 October 13
Metal Ceramic Restorations

Alloy used

**NOBLE**
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

- Noble ≥ 60%
- Gold ≥ 40%

**BASE METAL**
Nickel, Chromium, Beryllium, Cobalt & Titanium

- Noble ≥ 25%
- Noble ≤ 25%

High noble

Noble

Base metal

Iron ➔ Strengthening
Tin, Indium & Iron ➔ Oxide layer
Gallium & Beryllium ➔ Reduce melting temperature

Expensive
- Gold-Platinum-Palladium
- Gold-Palladium-Silver
- Gold-Palladium

Greening
- Palladium-Silver
- Palladium-Copper-Gallium

Tuesday 29 October 13
Metal Ceramic Restorations

Alloy used

Noble
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

NOBLE
Noble ≥ 60%
Gold ≥ 40%

High noble

BASE METAL
Nickel, Chromium, Beryllium, Cobalt & Titanium

BASE METAL
Noble ≥ 25%

Noble

Noble ≤ 25%

Base metal

Iron → Strengthening
Tin, Indium & Iron → Oxide layer
Gallium & Beryllium → Reduce melting temperature

Expensive
- Gold-Platinum-Palladium
- Gold-Palladium-Silver
- Gold-Palladium

Greening
- Palladium-Silver
- Palladium-Copper-Gallium

Too hard
Metal Ceramic Restorations

Alloy used

Noble
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

Base metal
Nickel, Chromium, Beryllium, Cobalt & Titanium

Noble ≥ 60%
Gold ≥ 40%

Noble ≥ 25%

Noble ≤ 25%

High noble

Noble

Base metal

Expensive
Gold-Platinum-Palladium
Gold-Palladium-Silver
Gold-Palladium

Greening
Palladium-Silver
Palladium-Copper-Gallium
Palladium-Gallium

Iron → Strengthening
Tin, Indium & Iron → Oxide layer
Gallium & Beryllium → Reduce melting temperature

Too hard

Tuesday 29 October 13
Metal Ceramic Restorations

Alloy used

**NOBLE**
Gold, Silver, Platinum, Palladium, Rhodium, Iridium, Osmium & Ruthenium

Noble ≥ 60%
Gold ≥ 40%

High noble

**BASE METAL**
Nickel, Chromium, Beryllium, Cobalt & Titanium

Noble ≥ 25%

Noble

Noble ≤ 25%

Base metal

Iron ➔ Strengthening
Tin, Indium & Iron ➔ Oxide layer
Gallium & Beryllium ➔ Reduce melting temperature

Expensive
- Gold-Platinum-Palladium
- Gold-Palladium-Silver
- Gold-Palladium

Greening
- Palladium-Silver
- Palladium-Copper-Gallium
- Palladium-Gallium

Too hard
- Nickel-Chromium
- Cobalt-Chromium

Tuesday 29 October 13
Metal Ceramic Restorations
Metal Ceramic Restorations

Coping design
Metal Ceramic Restorations

Coping design

Porcelain coverage

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Metal Ceramic Restorations

Tx Plan

Coping design

Porcelain coverage
Facial surface
Metal Ceramic Restorations

Coping design

Porcelain coverage
Facial surface
Non-functional cusps
Metal Ceramic Restorations

Tx Plan

- Coping design
- Porcelain coverage
- Facial surface
- Non-functional cusps
- Full
Metal Ceramic Restorations
Metal Ceramic Restorations

Coping design
Metal Ceramic Restorations

- Coping design
- Metal
- Facial porcelain
- Full porcelain

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Metal Ceramic Restorations

- Coping design
- Margin design
- Metal
- Facial porcelain
- Full porcelain

Tuesday 29 October 13
Metal Ceramic Restorations

Coping design

Margin design → Metal → Facial porcelain → Full porcelain

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Metal Ceramic Restorations
Metal Ceramic Restorations
Metal Ceramic Restorations

Tx Plan

Coping design

Framework design

Metal design & thickness

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Metal Ceramic Restorations

- Tx Plan
- Coping design
- Framework design
- Metal design & thickness
- Bridge connector

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Metal Ceramic Restorations

Coping design

Framework design → Metal design & thickness → Bridge connector → RPD rest seats

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Metal Ceramic Restorations
Metal Ceramic Restorations
Metal Ceramic Restorations

Clinical & lab steps
Metal Ceramic Restorations

Summary

Alloy used

Clinical & lab steps
Metal Ceramic Restorations

- Clinical & lab steps
- Alloy used
- Coping design
Metal Ceramic Restorations

- Clinical & lab steps
- Alloy used
- Coping design
- Alloy surface treatment
Metal Ceramic Restorations

- Clinical & lab steps
- Alloy used
- Coping design
- Alloy surface treatment
- Metal-ceramic bond
Metal Ceramic Restorations

- Clinical & lab steps
- Alloy used
- Coping design
- Alloy surface treatment
- Metal-ceramic bond
- Porcelain addition