



# DuceramPlus<sup>®</sup>

## Product Description and Processing Manual

for DuceramPlus Veneering Ceramics

# Logical – innovative – proven.

0124

## General notes on DuceramPlus

### Indications:

Veneering of metal framework and copings for the preparation of crowns and bridges.

### Contraindications:

Contraindicated for use with alloys other than high fusing alloys with CTE values between 13.8 and 15.4  $\mu\text{m}/\text{m}\cdot\text{K}$ .

### Precautions:

Use only alloys with a minimum solidus temperature of 1030 °C.

### Data:

- CTE Dentine 13.0  $\mu\text{m}/\text{m}\cdot\text{K}$
- Dental ceramics, type 1, class 2–8 acc. to DIN EN ISO 6872
- Metall-ceramic bond characterization, flexural strength and chemical solubility acc. to DIN EN ISO 9693

### Transport and storage:

- Protect the liquids from temperature below freezing.  
Store containers tightly closed at temperatures between 10 and 25 °C.
- Powders and pastes: Keep away from sunlight.  
Store in a vibration-free place.
- Protect from humidity

### Safety notes:

- Do not inhale dust particles during grinding.





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# The future belongs to high-tech ceramics. You can use high-tech ceramics today.

**DeguDent:  
innovator and  
technology  
leader in dental  
ceramics.**

For many, many decades, the extraordinary aesthetics and specific material properties have made ceramics a focus of attention in dental technology. But only after concentrated research and development effort had been made and comprehensive tests had been conducted did ceramics become available for actual clinical use – and they fast became a roaring success.

Today, DeguDent offers time-proven specialist ceramics for the entire range of dental applications – from veneering ceramics such as Duceragold and the Cergo® Press pressable ceramics all the way to the Cercon® CAD/CAM all-ceramic system.

DeguDent ceramics meets the demands and requirements of an increasing number of innovative dentists and educated patients for state-of-the-art biocompatibility and impeccable aesthetics. Other benefits of DeguDent ceramics are their excellent handling and the many possibilities for creative refinement – for example the DuceramPlus veneering ceramics.



# One material. Many benefits.

DuceramPlus metal ceramics is a no-compromise successor to Duceram metal ceramics proven clinically and aesthetically in the dental laboratory since 1985.

When working with DuceramPlus, you can rely on components that combine in perfect harmony and are easy to handle. DuceramPlus is offered in convenient sets designed for individual requirements or as single components.

## Advantages

- Problem-free application to all high-fusing alloys with CTE values between 13.8 and 15.4  $\mu\text{m}/\text{m} \cdot \text{K}$  thanks to its linear thermal expansion curve
- Excellent aesthetics in translucency, opalescence and fluorescence
- Combines with phosphate-bonded die materials (Ducera Lay) for the fabrication of all-ceramic inlays
- Harmonized shade matching
- Natural white fluorescence in powder and paste opaques
- Flexible, controllable opaque temperatures (e.g. reducing firing temperatures by using the neutral)
- Stable shades even in combination with low-price high-silver alloys
- High stability in layering, easy to model and easy to sculpt
- Low firing shrinkage
- Smooth, homogenous surface
- Exceeds current ISO standards
- Consistently high quality across batches thanks to continuous quality checks

**General firing instructions**

**Before firing your first DuceramPlus object, please note our general firing instructions:**

- On completed pre-drying/pre-heating, full vacuum must be applied at baseline temperature. This helps avoid microporosities that would adversely affect transparency.
- Gaseous enclosures in the ceramic mass result in clouding, with colours appearing paler and brighter.
- Since the firing performance of individual ceramic furnaces varies widely, firing temperatures may have to be adjusted to the specific device on hand.

- For alloys with a CTE of  $> 14.2 \mu/m \cdot K$  (25–600 °C), we recommend slow cooling or a tempering phase of 3–5 min at 850 °C.

**\* Important note:  
The SMH shoulder material  
has been renamed  
DuceramPlus Margin.**

General firing program	Pre-heating °C	Drying min	Heating rate °C/min	Firing °C	Holding min	Vacuum hPa	Extended cooling
1st paste opaque firing	575	6:00	55	930	3:00	50	–
2nd paste opaque firing	575	6:00	55	930	2:00	50	–
1st powder opaque firing	600	2:00	55	930	3:00	50	–
2nd powder opaque firing	600	4:00	55	930	2:00	50	–
Margin firing*	600	6:00–9:00	55	920	1:00	50	–
1st dentine firing	600	6:00–9:00	55	910	1:00	50	–
2nd dentine firing	600	4:00–6:00	55	900	1:00	50	–
Glaze firing	600	4:00	55	890	1:00–3:00	–	–
Correction firing	600	4:00	55	880	1:00	50	–



**Framework preparation****Preparation and oxidation**

After finishing, unless otherwise recommended by the alloy manufacturer, sandblast the metal frameworks with alumina (100–150  $\mu\text{m}$ ) at a pressure of 2 bars (non-precious alloys: up to 4 bars).

Oxidize the finished metal frameworks according to manufacturer's recommendations. Unless otherwise recommended, the oxide should subsequently be removed as described above.



Finishing the alloy



Removing the oxide by sandblasting

### Powder opaque

#### Applying opaque

Mix opaque powder to a creamy consistency with O or OL modelling liquid. Use a brush or glass instrument to apply the opaque to the metal frame. The framework should be well covered. Fire according to firing recommendations.



Applying powder opaque with a brush



Applying powder opaque with a glass instrument

#### Paste opaque

Use the enclosed paste opaque brush to apply a thin but even layer of DuceramPlus paste opaque to the dry framework. The surface should be covered completely. The texture of the paste opaque is controlled by the paste liquid. Due to the organic particles contained in the paste, paste opaque takes longer to dry, requiring a longer pre-drying time and a basic temperature specific to the furnace used. For details, please refer to the firing instructions for DuceramPlus paste opaque.



Applying paste opaque



**General Information**

**Alloy-dependent opaque firing temperatures**

The final temperature of the 1st opaque firing depends on the type of alloy used.

- Alloys with a high melting point, such as non-precious alloys and palladium-based alloys, should be fired about 50 °C higher in order to optimize wetting of the metal surface.

- However, the maximum firing temperature for the opaque firing should always be at least 100 °C below the alloy manufacturer’s quoted melting temperature.
- For alloys with a low melting point, such as high-precious or “bio” alloys, a **neutral** should be used to reduce to the oxide firing temperatures (900 °C).

General firing program, neutral						
	Pre-heating temperature °C	Drying time min	Heating rate °C/min	Firing temperature °C	Holding time min	Vacuum hPa
Neutral	575	7:00	55	900	3:00	50

**Individual shades using opaque modifiers**

Seven paste and powder opaque modifiers (intensives) are available for individual characterization of the opaque layer.



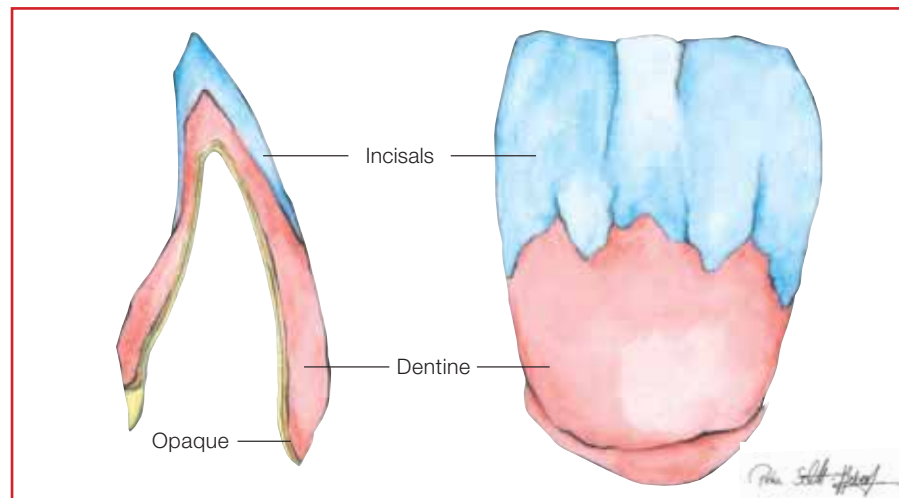
Characterization of the opaque layer

Shade combination table

Shades	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Opagues	OA1	OA2	OA3	OA3,5	OA4	OB1	OB2	OB3	OB4	OC1	OC2	OC3	OC4	OD2	OD3	OD4
Dentines	DA1	DA2	DA3	DA3,5	DA4	DB1	DB2	DB3	DB4	DC1	DC2	DC3	DC4	DD2	DD3	DD4
Incisals	1	2	3	3	6	1	1	4	6	1	5	5	6	2	4	4
Opal Incisals	OS2	OS2	OS3	OS3	OS4	OS1	OS3	OS3	OS3	OS4	OS3	OS3	OS4	OS4	OS3	OS3

Shades	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
3 D dentines	A	A	A	A	A	B	B	B	B	C	C	C	C	C	C	C
Chroma dentines	CDA1	CDA2	CDDA3	CDA3,5	CDA4	CDB1	CDB2	CDB3	CDB4	CDC1	CDC2	CDC3	CDC4	CDD2	CDD3	CDD4
Margins	1	2	3	3	4	2 + Flu	5	6	7	2	4 + 7	4 + 7	4 + 7	4 + 6	6	6

Standard anterior layering technique



Standard layering technique



Crown after 2nd opaque firing. The second opaque layer serves to improve the masking effect.



Build up the dentine to full contour to get a feel for tooth size, shape and position.



Then cut back the dentine to the actual core.



Transparents enliven the incisal area with their different reflective properties.

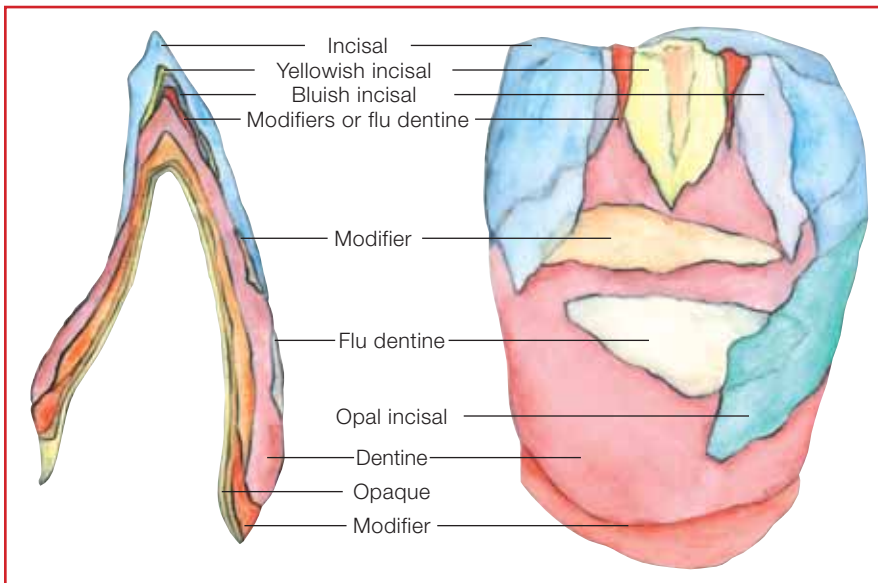


Correction after 1st dentine firing



Crown after 2nd firing

Shade combination table, professional layering technique



Shades	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
<b>Modifiers</b>																
Flamingo	X	X														
Bambus	X					X	X									
Ivory	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Creme		X	X					X	X					X		X
Solaris								X	X							
Peach			X	X												
Mango									X							
Caramel				X	X				X						X	
Pearl			X	X							X			X		
Safari										X	X	X	X			X
<b>Flu dentine</b>																
Sunny			X	X	X			X	X		X	X	X			X
Orange			X	X	X			X	X				X			
Creme		X	X										X		X	
<b>Opal incisal</b>																
OS 1						X										
OS 2	X	X														
OS 3			X	X			X	X	X		X	X			X	X
OS 4					X					X			X	X		

\* Opal incisals OS 10, 15, 50, 10 G or 10 B can be used individually for all shades. There is no specific shade table.

Professional layering technique



3D dentines are used to emphasize the shades of cervical, interdental and palatal areas. They help give the restoration a more pronounced three-dimensional character, even where the veneer is very thin.



For even more chroma, use the corresponding chroma dentines instead of some or all of the regular dentines. Hue and Value remain unchanged.



Transparents and incisals are layered in lamellar form to support the individuality of the incisal areas.

Please note:  
These pictures show the Professional layering technique. It starts after the 2nd opaque firing of the correctly prepared and individually designed framework.



Completed crown with extended basic layering using the chroma dentine set available separately.



Layering using the Professional materials



Completed Professional crown

**Glaze firing**

When all necessary corrections have been made, the surface and contours are finished with diamond and tungsten-carbide burs.

Small shade corrections and final characterizations are added with Duceram LFC stains and glaze.



Shaping and surface finishing



Glazing and surface staining



Completed crown

## Margin layering technique

The crown margins can be created using the standard margin materials SM 1–SM 7 or individual using the SM Flu intensive. This highly fluorescent margin material provides good masking even in aesthetically difficult situations such as discoloured tooth preparations, giving the ceramic margin a vital and natural appearance under any lighting conditions.

**Use the SD Quick modelling liquid or DuceramPlus SMH liquid for DuceramPlus margin powder.**

### DuceramPlus margins, step by step

1. Reduce the crown margin by approximately 0.5–0.8 mm. Mark and seal the preparation margin.
2. Sandblast the firework, followed by the 1st and 2nd opaque firings as per the pertinent instructions.
3. The model is isolated with High or SEP isolation.

4. Replace the framework on the master cast and apply the margin material in the crown's cervical region. You can avoid shading by placing SM Flu below the ceramic margin.
5. Allow margin material to dry or vacuum.
6. Place the restoration on sprues (see page 6 and pages 19–22 for firing recommendations).
7. Correct the margin without applying heat. Isolate the model.
8. Apply the 2nd margin layer. Perform 2nd margin firing as per recommendations.
9. Complete the ceramic margin. The shoulder should be sufficiently stable where it overlaps the opaque.
10. Clean the restoration and proceed with layering.



1. Crown after 2nd opaque firing. Reduced metal margin, chamfer exposed



2. Margin applied



3. Margin firing completed, dentines and incisals applied



4. Finished crown after glaze firing

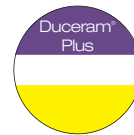
**For your success:  
The DuceramPlus range**

If your greatest concern is optimal aesthetics and perfect restorative results, you should make no compromises: With DuceramPlus, you can count on one of the largest and safest assortments of veneering ceramics in the dental market.

Special compounds such as Gum (gingival), Bleach (very white, for bleached teeth) or opal incisals permit reconstruction even in difficult cases with special characteristics.

DuceramPlus is as individual as your requirements. We offer everything from a well-balanced base assortment to a broad variety of additional compounds for the true ceramics pro. Of course, DuceramPlus is available in all V shades. A test set is available in A2/A3.

Each set is accompanied by original colour samples of all ceramics materials in the form of a shade indicator.



**Powder opaque set**  
16x 20 g O A1–O D4  
7x 20 g opaque modifier  
1x 50 ml OL modelling liquid  
1x shade indicator

**Powder opaques**  
Cover the metal framework and determine the basic shade of the veneer.



**Chroma dentine set**  
16x 20 g CD A1 – CD D4  
1x 50 ml SD modelling liquid  
1x shade indicator

**Chroma dentines**  
For safe shade matching even in very thin layers and for transparent modification of dentines.



**Paste opaque set**  
16x 2 ml O A1–O D4  
7x 2 ml opaque modifier  
1x neutral material  
2x paste opaque brush  
1x shade indicator  
2x 2 ml paste opaque liquid

**Paste opaques**  
Cover the metal framework and determine the basic shade of the veneer.



**Incisal set**  
6x 20 g S1–S6  
3x 20 g transparents (TC, T, TO)  
3x 20 g creative incisals (reddish, bluish, yellowish)  
1x 20 g dentine gum 2  
1x 20 g dentine gum 4  
1x 20 g correction  
1x 20 g glaze  
1x 50 ml SD modelling liquid  
1x 10 ml SEP isolation  
1x 15 ml staining liquid  
1x shade indicator

**Incisals**  
For incisal build-up.



**Dentine set**  
16x 20 g D A1–D D4  
3x 20 g 3D dentines  
1x 50 ml SD modelling liquid  
1x shade indicator

**Dentines**  
For creating the dentine core.



**Margin set**  
7x 20 g SM 1–SM 7  
1x 20 mg SM Flu  
1x 50 ml Quick liquid  
1x shade indicator

**Margin**  
For all-ceramic crown margins.





**Bleaching shades set**

- 3x 20 g bleach dentines
- 1x 20 g bleach margin
- 1x 2 ml bleach paste opaque
- 1x 20 g transparent TO
- 1x 15 ml SD modelling liquid
- 1x 15 ml SM special modelling liquid
- 1x 10 ml SEP isolation
- 1x paste opaque brush
- 1x shade indicator

**Bleaching shades**

A material that is significantly brighter and whiter than A1, to be used predominantly in patients with bleached natural teeth.

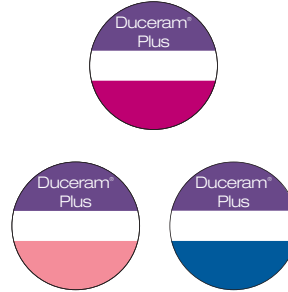


**Gum shades set**

- 5x 20 g gum
- 1x 2 ml gum paste opaque
- 1x shade indicator
- 1x paste opaque brush
- 1x 10 ml SEP isolation
- 1x 15 ml SD modelling liquid

**Gum shades**

Gum-coloured ceramics for gingival replication, e.g. for implant-supported superstructures.



**Professional set**

- 4x 20 g OS 1–OS 4\*
- 5x 20 g OS 10–OS 50\*
- 4x 20 g Flu dentine
- 10x 20 g modifier
- 1x 50 ml SD modelling liquid
- 1x shade indicator

**Modifiers**

for individual characterization.

**Opal incisals**

Naturally opalescent incisals.

**Opal enamel**

Naturally opalescent enamels for individual characterization of the incisal region.

\* Opalescence incisal



**Test set**

DuceramPlus test set in two shades (A2/A3) for fabricating crowns or bridges with an individual characterization option using opal incisals.

**Contents:**

- 4 g each of
- K Correction
- 3D dentine 3DA
- Dentine DA 2
- Dentine DA 3
- Modifier #2 Bambus
- Modifier #7 Mango
- Chroma dentine A2
- Chroma dentine A3
- Flu dentine #4 Creme
- Flu dentine #3Bright
- S1 incisal
- S2 incisal
- OS 2
- OS 3
- OS 10
- 1x 1 ml paste opaque PO A2
- 1x 1 ml paste opaque PO A3
- 1x 15 ml SD modelling liquid
- 1x 15 ml SD Form modelling liquid
- 1x paste opaque brush
- Quick reference

# Troubleshooting

Problem	Possible Causes	Recommended actions
<ul style="list-style-type: none"> <li>• Porosities, cavities, fractures of the metal framework</li> </ul>	<ul style="list-style-type: none"> <li>• Sprueing recommendations or recommendations on pre-heating and casting temperatures were disregarded</li> </ul>	<ul style="list-style-type: none"> <li>• See points 2, 4, 5 and 6 of the processing recommendations for precious dental alloys</li> </ul>
<ul style="list-style-type: none"> <li>• Ceramic shades are too bright and too opaque</li> <li>• Ceramic material is porous</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-heating temperature too high</li> <li>• Firing temperature too low</li> <li>• Vacuum pump actuated too late</li> <li>• Attained vacuum too low</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease pre-heating temperature</li> <li>• Increase firing temperature</li> <li>• Decrease pre-heating or vacuum start temperature</li> <li>• Check vacuum pump/furnace for leaks</li> </ul>
<ul style="list-style-type: none"> <li>• Ceramic surface too rough</li> <li>• Ceramic surface has too little lustre</li> <li>• Ceramic surface has too much lustre</li> <li>• Edges and contours are not clearly defined but rounded</li> </ul>	<ul style="list-style-type: none"> <li>• Firing temperature too low</li> <li>• Holding time too short</li> <li>• Firing temperature too high</li> <li>• Holding time too long</li> </ul>	<ul style="list-style-type: none"> <li>• Increase firing temperature</li> <li>• Extend holding time</li> <li>• Decrease firing temperature</li> <li>• Shorten holding time</li> </ul>
<ul style="list-style-type: none"> <li>• Cracks caused by compression: horizontal cracks in the incisal region or in bridge pontics</li> </ul>	<ul style="list-style-type: none"> <li>• Extended cooling required but not observed</li> <li>• Cooling temperature too low</li> <li>• Cooling phase too short</li> </ul>	<ul style="list-style-type: none"> <li>• Check the CTE of the alloy (if the CTE is <math>&gt; 14.2 \mu\text{m}/\text{m} \cdot \text{K}</math>, use extended cooling or temper for 3 min at 850 °C)</li> <li>• Increase tempering temperature</li> <li>• Extend cooling phase</li> </ul>
<ul style="list-style-type: none"> <li>• Cracks caused by tension: Craquelé on the ceramic surface</li> </ul>	<ul style="list-style-type: none"> <li>• Incorrect alloy</li> <li>• Ceramics CTE too high due to extended cooling or low heating rates</li> <li>• Framework walls too thin</li> </ul>	<ul style="list-style-type: none"> <li>• Check alloy for compatibility</li> <li>• Respect minimal wall thickness requirement</li> </ul>
<ul style="list-style-type: none"> <li>• Bubbles</li> </ul>	<ul style="list-style-type: none"> <li>• Metal or ceramic impurities caused by improper grinding instruments</li> <li>• Pastes or opaque incorrectly pre-dried</li> <li>• Entrapped air</li> <li>• Too much opaque thinner</li> <li>• Paste applied too thickly</li> </ul>	<ul style="list-style-type: none"> <li>• Use only tools specifically designed for metal or ceramics</li> <li>• Use only stagger-toothed tungsten-carbide cutters</li> <li>• Extend pre-drying phase</li> </ul>

**Firing recommendations  
for Cergo Compact/Press**

Cergo Compact/Press															
DuceramPlus	Pre-drying °C	Pre-drying min	Closing min	Pre-heat. °C	Pre-heat. min	Heating °C/min	Vacuum	Vacuum °C ON	Vacuum °C OFF	End temp. °C	Holding V	Holding	Tempering min	Tempering °C	Cooling
1st paste op. firing	135	5:00	2:00	575	0:00	55	On	575	930	930	0:00	3:00	0:00	–	0:00
2nd paste op. firing	135	5:00	2:00	575	0:00	55	On	575	930	930	0:00	2:00	0:00	–	0:00
1st powd. op. firing	135	2:00	2:00	600	2:00	55	On	600	930	930	0:00	3:00	0:00	–	0:00
2nd powd. op. firing	135	2:00	2:00	600	0:00	55	On	600	930	930	0:00	2:00	0:00	–	0:00
Margin firing	135	7:00	2:00	575	2:00	55	On	575	920	920	0:00	1:00	0:00	–	0:00
1st dentine firing	135	2:00	2:00	600	2:00	55	On	600	910	910	0:00	1:00	0:00	–	0:00
2nd dentine firing	135	2:00	2:00	600	2:00	55	On	600	900	900	0:00	1:00	0:00	–	0:00
Glaze firing	135	2:00	2:00	600	2:00	55	Off	–	–	890	0:00	1:00	0:00	–	0:00
Correction firing	135	2:00	2:00	600	1:00	55	On	600	880	880	0:00	1:00	0:00	–	0:00

The values listed here are intended for orientation only and should be regarded only as guidelines. Your firing results may differ. All firing results depend on the performance of the furnace used, which in turn depends on the make, model and age of the furnace. Therefore, the guideline values will have to be adapted individually for each firing. We recommend running a test firing cycle to evaluate the performance of the furnace used. We have compiled and checked all values and other data with great care. However, we cannot under any circumstances be liable for your results.

**Important note:**  
Alloys with a CTE (25–600 °C)  
>14.2 require extended  
cooling or tempering for 3 min  
at 850 °C.

**Firing recommendations  
for Multimat  
Touch & Press**

Multimat Touch & Press										
DuceramPlus	Pre-heat. °C	Drying min	Pre-heat. min	Vacuum hPa	Heat. rate °C/min	Firing temp. °C	Vacuum min	Firing min	Tempering °C	Tempering min
1st paste op. firing	575	5:00	1:00	50	55	940	1:00	2:00	–	–
2nd paste op. firing	575	5:00	1:00	50	55	930	1:00	2:00	–	–
1st powder op. firing	575	2:00	1:00	50	55	940	1:00	2:00	–	–
2nd powder op. firing	600	3:00	3:00	50	55	930	1:00	2:00	–	–
Margin firing	600	6:00	3:00	50	55	925	1:00	2:00	–	–
1st dentine firing	600	6:00	3:00	50	55	925	1:00	2:00	–	–
2nd dentine firing	600	5:00	3:00	50	55	910	1:00	2:00	–	–
Glaze firing	600	4:00	3:00	–	55	900	–	1:00–3:00	–	–
Correction firing	600	3:00	3:00	50	55	880	1:00	2:00	–	–

**Important note: Alloys with a CTE (25–600 °C) >14.2 require extended cooling or tempering for 3 min at 850 °C.**

**Firing recommendations  
for Multimat MC II/  
Mach 2/Multimat C**

Multimat MC II/Mach 2/Multimat C									
DuceramPlus	Pre-heating °C	Drying min	Pre-heating min	Vacuum min	Firing min	Firing temp. °C	Heating rate °C/min	Vacuum	
1st paste op. firing	575	5:0	1:0	1:0	4:00	930	55	50	
2nd paste op. firing	575	5:0	1:0	1:0	3:00	930	55	50	
1st powder op. firing	600	1:0	1:0	1:0	4:00	930	55	50	
2nd powder op. firing	600	3:0	3:0	1:0	3:00	930	55	50	
Margin firing	600	5:0	3:0	1:0	2:00	920	55	50	
1st dentine firing	600	6:0	3:0	1:0	2:00	910	55	50	
2nd dentine firing	600	5:0	3:0	1:0	2:00	900	55	50	
Glaze firing	600	4:0	3:0	0:0	1:00 – 3:00	890	55	–	
Correction firing	600	5:0	3:0	1:0	2:00	880	55	50	

The values listed here are intended for orientation only and should be regarded only as guidelines. Your firing results may differ. All firing results depend on the performance of the furnace used, which in turn depends on the make, model and age of the furnace. Therefore, the guideline values will have to be adapted individually for each firing. We recommend running a test firing cycle to evaluate the performance of the furnace used. We have compiled and checked all values and other data with great care. However, we cannot under any circumstances be liable for your results.

**Firing recommendations  
for Austromat 3001**

Austromat 3001	
DuceramPlus	
1st paste op. firing	C575 T360 • T60L9 V9 T055 • C930 V0 T180 C0 L0 T2 C575
2nd paste op. firing	C575 T360 T60 • L9 V9 T055 • C930 V0 T120 C0 L0 T2 C575
1st powder op. firing	C600 T60 • L9 V9 T055 • C930 V0 T180 C0 L0 T2 C450
2nd powder op. firing	C600 T120 T180 • L9 T120 V9 T055 • C930 V0 T120 C0 L0 T2 C600
Margin firing	C600 T180 T180 • L9 T180 V9 T055 • C920 V0 T60 C0 L0 T2 C600
1st dentine firing	C600 T180 T180 • L9 T180 V9 T055 • C910 V0 T60 C0 L0 T2 C600
2nd dentine firing	C600 T180 T180 • L9 T180 V9 T055 • C900 V0 T60 C0 L0 T2 C600
Glaze firing	C600 T180 T180 • L9 T055 • C890 T60 C0 L0 T2 C600
Correction firing	C600 T120 T180 • L9 T180 V9 T055 • C880 V0 T60 C0 L0 T2 C600

**Firing recommendations  
for Austromat M**

Austromat M										
DuceramPlus	Start		↑	→		°C $\begin{matrix} \nearrow \\ \text{min} \end{matrix}$	End	→	$\searrow$ <sup>1</sup>	$\searrow$ <sup>2</sup>
1st paste op. firing	575	6	1	0	9	55	930	3:00	0	0
2nd paste op. firing	575	6	1	0	9	55	930	2:00	0	0
1st powder op. firing	600	0	1	0	9	55	930	3:00	0	0
2nd powder op. firing	600	2	3	0	9	55	930	2:00	0	0
Margin firing	600	2	3	3	9	55	920	1:00	0	0
1st dentine firing	600	2	3	3	9	55	910	1:00	0	0
2nd dentine firing	600	2	3	3	9	55	900	1:00	0	0
Glaze firing	600	2	3	0	0	55	890	1:00	0	0
Correction firing	600	2	3	3	9	55	880	1:00	0	0

**Important note: Alloys with a CTE (25–600 °C) >14.2 require extended cooling or tempering for 3 min at 850 °C.**

The values listed here are intended for orientation only and should be regarded only as guidelines. Your firing results may differ. All firing results depend on the performance of the furnace used, which in turn depends on the make, model and age of the furnace. Therefore, the guideline values will have to be adapted individually for each firing. We recommend running a test firing cycle to evaluate the performance of the furnace used. We have compiled and checked all values and other data with great care. However, we cannot under any circumstances be liable for your results.

**Firing recommendations  
for Vacumat 200/250/300**

Vacumat 200/250/300						
DuceramPlus	Stand-by temperature °C	End temperature °C	Pre-drying	Heating time	Holding time	Vacuum time
1st paste op. firing	450	930	6.0	6.0	1.0	6.0
2nd paste op. firing	450	930	6.0	6.0	1.0	6.0
1st powder op. firing	600	930	1.0	6.0	2.0	6.0
2nd powder op. firing	600	930	2.0	6.0	1.0	6.0
Margin firing	600	920	6.0	6.0	1.0	6.0
1st dentine firing	600	910	6.0	6.0	1.0	6.0
2nd dentine firing	600	900	6.0	6.0	1.0	6.0
Glaze firing	600	890	2.0	3.0	1.0-2.0	0.0
Correction firing	600	880	6.0	6.0	1.0	6.0

**Firing recommendations  
for Programat P90/P95**

Programat P90/P95							
DuceramPlus	Stand-by temperature °C	Temperature increase °C	Firing temperature °C	Closing time	Holding time	Vacuum on °C	Vacuum off °C
1st paste op. firing	500	55	930	6	3	600	929
2nd paste op. firing	500	55	930	6	2	600	929
1st powder op. firing	500	55	930	0.3	3	600	929
2nd powder op. firing	500	55	930	4	2	600	929
Margin firing	500	55	920	6	1	600	919
1st dentine firing	500	55	910	7	1	600	909
2nd dentine firing	500	55	900	6	1	600	899
Glaze firing	500	55	890	5	1-2	No vacuum	No vacuum
Correction firing	500	55	880	5	1	600	889

**Important note: Alloys with a CTE (25–600 °C) >14.2 require extended cooling or tempering for 3 min at 850 °C.**

The values listed here are intended for orientation only and should be regarded only as guidelines. Your firing results may differ. All firing results depend on the performance of the furnace used, which in turn depends on the make, model and age of the furnace. Therefore, the guideline values will have to be adapted individually for each firing. We recommend running a test firing cycle to evaluate the performance of the furnace used. We have compiled and checked all values and other data with great care. However, we cannot under any circumstances be liable for your results.

# Abbreviations

## **3D**

3D dentine, can be mixed with any other material or used by itself, e.g. for thin veneering layers in the cervical region or to increase the chroma in the central occlusal region. Has the same translucency but more chroma than the corresponding dentines (D).

## **Bleach**

A material that is significantly brighter and whiter than A1, to be used predominantly in patients with bleached natural teeth.

## **D**

Dentines, adapted to the corresponding tooth shades, are used for building ceramic restorations that emulate natural teeth. To avoid confusion, the materials are marked with organic pigments that disappear completely in the firing process.

## **CD**

Chroma dentines are dentines with higher chroma (colour saturation) but identical colour and transparency.

## **Flu**

Fluorescent dentines (e.g. as modifiers for dentine mamelons) are dentines characterized by pronounced fluorescence. They increase the luminescence of the veneer. Short-wave invisible light is absorbed, long-wave visible light is emitted.

## **Glaze**

Extra finely ground powder for final glazing of the ceramic restoration.

## **Gum**

Gum-coloured ceramics for gingival replication, e.g. for implant-supported superstructures.

## **K**

Correction mass for additional firings after glaze firing.

## **“Mango”, “Ivory” etc.**

Modifiers for changing the basic colours for individual characterization.

## **OL**

Mixing liquid for mixing all powder opaques. Gives the ceramic mass a creamy consistency so it can be applied similar to a lacquer.

## **PO**

Powder opaque, paste opaque – a liner adapted to the corresponding tooth shades. Its low transparency is the reason for its good masking capabilities.

## **S**

Shade guide tooth incisal, various multi-purpose incisals, see under Dentine.

## **SD**

Modelling liquid for mixing dentines, modifiers, incisals and transparents.

## **SD Colour**

Modelling liquid for dyeing ceramic layers, making the layering technique more efficient.

## **SD Form**

Modelling liquid; like SD, but increases the physical stability of the ceramic layers. Requires extended pre-drying.

## **SD Quick**

Modelling liquid for mixing dentines, modifiers, incisals and transparents, wherever faster drying is desirable. Used for ceramic veneers, inlays, onlays, and corrections (e.g. contact points, due to lower shrinkage).

## **SM**

Margin material for all-ceramic crown margins. Requires a bevelled shoulder or chamfered margin.

## **T**

Transparents, for additional individual transparent effects in the incisal region and a more vivid light play.

## **OS 10**

Opalescent, transparent enamel, a dynamic luminous mass for adaptation to the shades of natural teeth. This material filters light, preventing absorption and inhibiting the visual influence of the dark intraoral regions. The tooth crown in the patient's mouth shows no greying effect.

## **OS 15**

This enamel has the same optical properties as OS 10, but is more opalescent.

## **OS 50**

Enamel with markedly more opalescence than OS 15.

## **OS1–OS4**

Opalescent colour-keyed incisals reproducing the colour play of natural enamel.

# Fascination Prosthetics

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