

PORCELAIN DENTAL CERAMICS

ULTRAPALINE

100%

- SYNTHETIC CERAMICS
- FUNCTIONALITY AND AESTHETICS
- ECONOMIC BENEFITS

CE
NB 2292

ISO
13485



BEST
PRICE
QUALITY
RATIO



INSTRUCTIONS FOR USE OF THE CERAMIC MASS ULTROPALINE

ULTRAPALINE CERAMIC MASS

Use

- Ultrapaline is designed for cladding metal carcasses with a coefficient of thermal expansion (CTE) of 13,7 – 14,2*10⁻⁶ K⁻¹.

Advantages and features

- Effective combination with a wide range of non-precious metals with a thermal expansion coefficient (CTE) value in the range of 13,7 – 14,2*10⁻⁶ K⁻¹.
- High aesthetics thanks to the widest range of dyes and modifiers.
- Fluorescence and opalescence of natural teeth.
- The latest surfactants and dispersants have been used in the simulation fluids to ensure high stability of the ceramic particles in the wetted state, as well as good condensation.
- All technical specifications of Ultrapaline exceed current ISO standards.
- The Ultrapaline mass is time-tested. Clinical cases with more than 25 years of successful use of the prosthesis in the patient's mouth have been documented.

Contraindications

- A history of allergic reactions to any of the components of dental ceramics.
- Ultrapaline is contraindicated in cases of insufficient interocclusal space, bruxism or other parafunctions.

Safety precautions

- Follow the instructions for use when handling the material.
- Pastes and liquids: hazardous to health if swallowed.
- Do not allow Ultrapaline Modeling Liquid (kneading liquid) to come into contact with unprotected skin areas and eyes. In case of contact, rinse with plenty of water.
- Use protective masks when handling ceramic materials.
- For professional users only.

Side effects

At this time, we are not aware of any side effects and/or risks arising from the use of Ultrapaline Ceramic Mass.

Warranty obligations

The manufacturer guarantees the quality of its products. The warranty does not cover defects caused by failure to comply with the instructions for use, improper storage conditions or other conditions that are not intended for the function of the material.

It is the consumer's responsibility to determine the suitability of this product for their (the consumer's) use. Condition for the warranty claim: non-conformity of the product with the specifications stated by the manufacturer. If a material defect is detected during the warranty period, the manufacturer will replace the product.

Limitation of liability for the manufacturer

The manufacturer's liability extends only to cases expressly provided for by applicable national legislation.

Storage and shelf life

- Unfavourable storage conditions will reduce the period of use and may lead to a deterioration of the material's properties. Do not expose the product to direct sunlight. Store in a dry place.
- Store the product at 4 – 25 °C [39,2 – 77 °F].
- Ultrapaline powders have a guaranteed shelf life of 5 years.
- Ultrapaline pastes and liquids have a guaranteed shelf life of 4 years.

Recycling

Dispose of the medical device in accordance with local / regional / national / international legal requirements.



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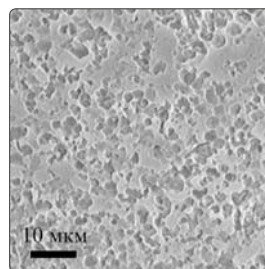
CHARACTERISTICS OF ULTRAPALINE CERAMICS

- Ultrapaline ceramics meets the basic requirements of modern metal-ceramic materials.

Phase composition

According to the phase composition, Ultrapaline ceramics is a glass matrix with leucite microcrystallites distributed in it. Such masses as: IPS-Classic, Duceram, Vita-VMK, Vita VM 13, Vita Omega 900, Carmen, Ceramco, Synspar, Creation, Noritake EX3, etc. have exactly the same phase composition.

In the synthetic Ultrapaline ceramic mass, the leucite crystallites are micron-sized and arranged fairly uniformly in the glass matrix. This results in high mechanical strength, as the leucite crystals act as stoppers of micro-cracks that occur in the less robust amorphous glass phase.



The structure of the Ultrapaline mass

Flexural strength

Ultrapaline ceramics have a very high strength and, most importantly, a high bending strength. This is achieved due to the very small size of the leucite crystals and their high density in mass.

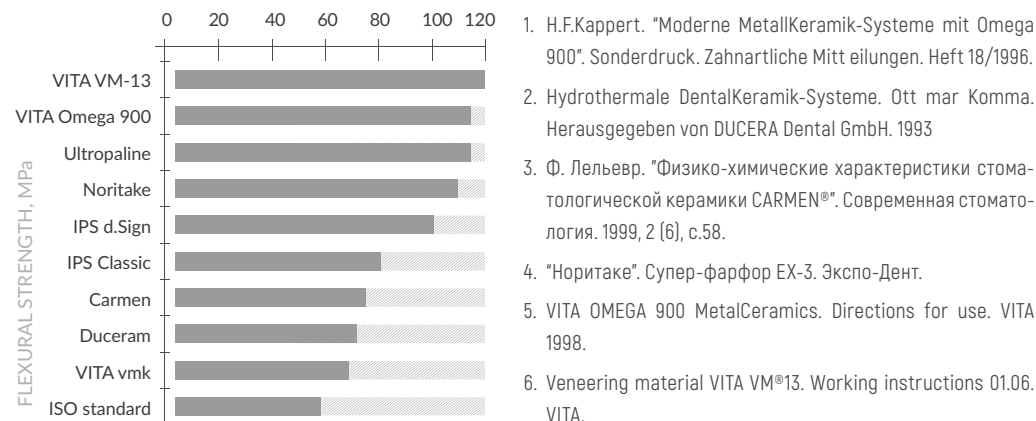
The bending strength of Ultrapaline ceramics is comparable to Vita VM 13, Vita Omega 900.

Metal-ceramic mass	Bending strength (MPa)	Metal-ceramic mass	Bending strength (MPa)
Ultrapaline	105-125	Carmen	75
Duceram	70-72	Vita VMK Master	90
Duceram LFC	110-111	Vita OMEGA 900	110-120
IPS Empress 1	160	Vita VM 13	120
IPS Classic	76-78	Noritake EX-3	112

Table 1. Flexural strength of various ceramic materials.

The high strength of Ultrapaline metal-ceramic allows it to be used for durable dentures with a sufficiently thin covering layer, guarantees the durability and high reliability of the product.

The diagram uses the bending strength data for various masses given in the following publications:



1. H.F.Kappert. "Moderne MetallKeramik-Systeme mit Omega 900". Sonderdruck. Zahnärztliche Mitteilungen. Heft 18/1996.
2. Hydrothermale DentalKeramik-Systeme. Ottomar Komma. Herausgegeben von DUCERA Dental GmbH. 1993
3. Ф. Лельевр. "Физико-химические характеристики стоматологической керамики CARMEN®". Современная стоматология. 1999, 2 (6), с.58.
4. "Норитакс". Супер-фарфор EX-3. Экспо-Дент.
5. VITA OMEGA 900 MetalCeramics. Directions for use. VITA 1998.
6. Veneering material VITA VM®13. Working instructions 01.06. VITA.

Adhesion to NiCr and CoCr alloys - 37 MPa!

Please bear in mind that according to ISO 6872, ISO 9693 and ADA 38, the adhesion strength must be at least - 25 MPa.

Parameter	ISO and ADA norm	Ultrapaline mass
Flexural strength	50 MPa	105-125 MPa
Opacuer adhesion to metals	25 MPa	37 ± 2 MPa (Ni-Cr) 37 ± 2 MPa (Co-Cr)

Table 2. Characteristics of Ultrapaline ceramics.

Particle size distribution

This characteristic determines the mass shrinkage during sintering, porosity, transparency and rheological characteristics (modelling behaviour). Ultrapaline is close to the most common materials in terms of the values of this characteristic. As with most modern masses, 50% of the particles are smaller than 33 μm and about 12-15% are smaller than 5 μm. This particle size distribution ensures that sintering shrinkage is quite low. Ultrapaline does not require significant condensation during modelling and produces a sufficiently transparent coating after sintering without any shrinkage cracks, even with slight compaction.

Stability

Ultrapaline is characterised by high stability. The basic characteristics of the material change only slightly from sintering to sintering.



GENERAL BAKING PROGRAMME

Firing program	Opaque		Dentines, enamels, transparents, opaque dentins, mamelons, dentin modifiers		Glaze and glaze pigments
	First layer	Second layer	First firing	Second firing	
Drying temperature	250 °C	250 °C	250 °C	250 °C	250 °C
Drying time	4-7 min.	4-7 min.	4-7 min.	4-7 min.	4 min.
Heating speed	60 °C/ min.	60 °C/ min.	60 °C/ min.	60 °C/ min.	56-60 °C/ min.
Baking temperature, maximum	980 °C	960 °C	910 °C	900 °C	890 °C
Baking time	1 min.	1 min.	1 min.	1 min.	1 min.
Vacuum pump switching temperature	550 °C	550 °C	580 °C	580 °C	air
Vacuum pump shutdown temperature	980 °C	960 °C	910 °C	900 °C	air
Chamber opening temperature	700 °C	700 °C	700 °C	700 °C	700 °C

Table 3. General baking programme.

MASS COMBINATION FOR ULTRAPALINE CERAMICS

Colour	A1	A2	A3	A3.5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Opaque	OA1	OA2	OA3	OA3.5	OA4	OB1	OB2	OB3	OB4	OC1	OC2	OC3	OC4	OD2	OD3	OD4
Dentine	DA1	DA2	DA3	DA3.5	DA4	DB1	DB2	DB3	DB4	DC1	DC2	DC3	DC4	DD2	DD3	DD4
Cervical (20%-30%)	CA	CA	CA	CA	CA	CB	CB	CB	CB	CC	CC	CC	CC	CD	CD	CD
Opaque-dentin	ODA1	ODA2	ODA3	ODA3.5	ODA4	ODB1	ODB2	ODB3	ODB4	ODC1	ODC2	ODC3	ODC4	ODD2	ODD3	ODD4
Enamel	S58	S58	S59	S59	S60	S57	S59	S59	S60	S58	S59	S59	S60	S60	S59	S59
Translucent enamel	TS1	TS1	TS2	TS2	TS2	TS1	TS2	TS2	TS2	TS1	TS2	TS2	TS2	TS2	TS2	TS2

Table 4. Mass combination for Ultrapaline ceramics.

Thermal expansion and the metals used

The thermal expansion characteristics of Ultrapaline are in line with those of the most common metal-ceramic masses and makes $13,4 \cdot 10^{-6} \text{ K}^{-1}$.

The thermal characteristics of Ultrapaline allow it to be successfully combined with non-precious alloys such as Denta, Remanium 2000, Remanium CD, Remanium CSE, Wiron 88, Wiron 99, Wirobond C, Microlit N, Nicor, CCX, Cellit and others, which have a coefficient of thermal expansion in the range of $13,7 - 14,2 \cdot 10^{-6} \text{ K}^{-1}$.



THE USE OF ULTRAPALINE CERAMICS

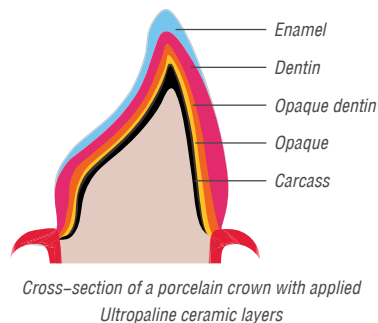
1. PREPARING THE METAL CARCASS

The surface of the metal carcass must be machined and cleaned to ensure good adhesion to the ceramic mass. In the case of products made of base metals, it is recommended that blasting is carried out with grit size 110-150 µm at a pressure of up to 4 atmospheres. The particle jet should be directed at an angle of 30-50° to the surface. After processing, the surface of the carcass should be cleaned with water vapour, an ultrasonic bath or under running water using a brush without any detergents.



Prepared metal carcass

Compressed air from the compressor must not be used when drying the cleaned carcass, as this would contaminate the surface of the carcass with compressor oil vapour. The surface should be oxidised according to the metal manufacturer's instructions. If they are not known precisely, the oxidation regime recommended for most metals can be used - vacuum annealing for 5 minutes at 980 °C. Remove the applied oxide layer with a sandblaster, unless otherwise advised by the manufacturer. After cleaning and drying, the surface of the metal carcass is ready for application of the opaque coat.



Cross-section of a porcelain crown with applied Ultrapaline ceramic layers

2. ULTRAPALINE OPAQUE MASSES

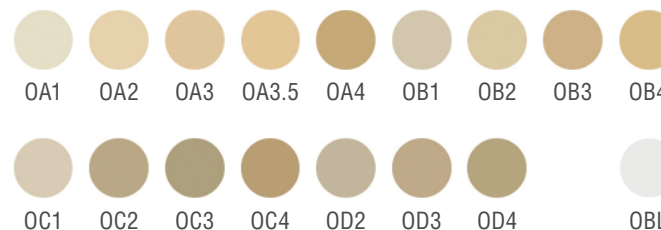
Opaque is designed to ensure chemical and mechanical bonding of the porcelain mass to the surface of the metal carcass, to mask the metal oxide layer and to give the metal cap the desired initial colouring.

Specifications for Ultrapaline Opaque	
Thermal expansion coefficient	13,7-13,9*10 ⁻⁶ K ⁻¹
Sintering temperature	980-960°C

The opaque composition includes special components which ensure a high degree of adhesion to the oxide layer of the carcass, an increased flowability of the opaque mass at high temperatures, necessary for the mass to flow into pits formed by sand-blasting, thus increasing the strength of the bond with the metal. The carefully selected particle size distribution of the mass determines the good opaque hiding power and very low baking shrinkage. Opaque can be used with most well-known Co-Cr-Mo and Ni-Cr-Mo alloys for metal-ceramic dentures, which have thermal expansion coefficients in the range of 13,7 - 14,2*10⁻⁶ K⁻¹.

Firing program	Opaque	
	First layer	Second layer
Drying temperature	250 °C	250 °C
Drying time	4-7 min.	4-7 min.
Heating speed	60 °C/ min.	60 °C/ min.
Baking temperature, maximum	980 °C	960 °C
Baking time	1 min.	1 min.
Vacuum pump switching temperature	550 °C	550 °C
Vacuum pump shutdown temperature	980 °C	960 °C
Chamber opening temperature	700 °C	700 °C

Ultrapaline is available as a paste (4 g syringe) and powder (20 g can) in 16 colour shades according to the classic VITA-Classic scale.



PASTE-LIKE OPAQUE. Directions for use

Moisten the brush with distilled water and wipe off any excess moisture with a cloth. Squeeze the required amount of mass from the syringe onto the palette. A small amount of syringe fluid may accumulate in the syringe spout due to separation. It should be removed with a cloth.

Carefully transfer the mass to the pre-oxidised metal surface and spread the mass thinly and evenly over the surface with a brush. The first coat of opaque (pre-paque) is applied in a very thin, «watery» layer. Applying the first layer thinly has the following objectives: burning out the organic residues on the metal surface through the opaque layer, forming a bonding oxide film on the metal surface, creating a chemical bond between the porcelain and this oxide film.

Thickened opaque should be thinned with Ultrapaline Modeling Liquid Opaque or another manufacturer's liquid. Do not make the mass too liquid as it will swell and may produce a porous surface after sintering.

To compact the opaque layer and obtain a more uniform distribution over the surface, simply tap lightly on the clamp to which the metal carcass is attached. After applying the opaque, remove any paste residue from the inner surface of the carcass with a dry brush. Before sintering the opaque layer, dry it on the furnace table in the lowered position at a temperature of 250-300°C for 4-7 min, depending on the dimensions of the product and the distance from the chamber to the table.

The first layer of opaque, or so-called 'pre-pack', is baked at 980°C. After baking, the opaque surface should have a good gloss.

After the first baking, a second layer of opaque is applied. Make sure that there are no areas on the product through which dark metal shines through. As a rule, the opaque is applied to a layer thickness of 0.15-0.2 mm, which is enough to completely mask the metal carcass. The second layer of opaque is baked at 960°C. After sintering, the opaque surface should have a characteristic matt sheen similar to that of eggshells.



The first layer of opaque, or so-called "pre-opaque"



Applying a second layer of opaque



View of the crown after sintering the second opaque layer

The sintered opaque surface can be roughened with a diamond tool before applying the dentin mass to improve the bond between the two layers. It is advisable to wet both the denture surface and the diamond tool during treatment - this will reduce the amount of harmful dust and increase the life of the diamond head. The carcass must always be cleaned after treatment. Ultropaline opaque is compatible with virtually all dentine materials with a sintering temperature range of 900-940 °C. The application and baking technique is the same for all colour ranges.

Attention!

Make sure that the syringe spout stays clean, as a loose fit of the syringe cap can cause the curing liquid to dry out and make it difficult to squeeze the mass out of the syringe.

POWDER OPAQUE. Directions for use

Powdered opaque should be mixed with Ultropaline Modeling Liquid Opaque or another manufacturer's liquid. The consistency of the opaque should be sufficiently thick when kneaded. The desired consistency can be checked by touching the stirred plaster with a spatula (glass rod) and slowly lifting up the spatula. The opaque should pull on the spatula and form a tight, slightly flowing cone. The consistency of the opaque when applying the first coat should be less thick.

After mixing, apply the opaque in a thin, uniform layer to the surface of the metal carcass. A brush or glass rod lightly moistened in liquid or distilled water can be used. Do not make the mass too liquid as it will swell and may produce a porous surface after sintering. To compact the opaque layer and obtain a more uniform distribution over the surface, it is sufficient to tap lightly on the base on which the metal carcass is attached. The opaque should not be excessively compacted and condensed. This can lead to opaque flow, discolouration and a deterioration in adhesion to the metal.

After the opaque has been applied, any powder residue must be removed from the inner surface of the carcass with a dry brush. The drying time for powdered opaque on the furnace table at a temperature of 250-300°C is 4-7 minutes, depending on the size of the product and the distance between the table and the furnace. As with paste opaque, the surface should have a good gloss after the first sintering and resemble eggshells after the second and subsequent baking.

OPAQUE CRYSTALS

Ultropaline opaque crystals are used in combination with Ultropaline to improve the aesthetic properties of metal-ceramic dentures. These crystals serve to mask the grey colour of the metal carcass and, in combination with opaque itself, set the basic colour of the denture. The homogeneous distribution of opaque crystals on a thin layer of opaque forms a rough surface after sintering, which results in the scattering and refraction of light inherent to natural teeth.



Opaque crystals are available in three types - Light, Medium and Dark.

Ultropaline Medium and Dark opaque crystals are to be used according to table.

Use of opaque crystals of Ultropaline metal-ceramic mass									
Shade	A1, A2, A3	A3.5, A4	B1	B2	B3, B4	C1	C3, C3, C4	D2, D4	D3
Opaque crystals	Medium	Dark	Light	Medium	Dark	Medium	Dark	Medium	Dark

Ultropaline Medium and Dark opaque crystals are used when forming the first, thin opaque layer directly on the metal surface, whereas Ultropaline Light is used when creating the main opaque shade when the material is applied to an already sintered layer.

The use of Ultropalin Medium and Dark opaque crystals, applied during the formation of the first opaque layer, provides additional masking of the metal base, enhances the basic shade of the denture and facilitates the subsequent application of opaque by holding the required layer of material on all surfaces of the carcass. Ultropaline Light Opaque Crystals contribute to the high colour saturation and depth of a metal-ceramic denture even when there is insufficient space for ceramic veneering.



Directions for use

Apply a layer of opaque on the surface of the carcass and, without drying, sprinkle the surface of the carcass with opaque crystals. Make sure they cover the entire surface evenly. Gently blow on the frame to remove any excess opaque crystals. It is not recommended to use a high-flow air source (compressor) for this purpose. Excessive air pressure or vibration can cause crystals to sink into the unbaked opaque layer, which can lead to the formation of bubbles during baking.

Remove the crystals from the edges of the carcass with a soft, dry brush to obtain a thin layer of opaque on the edges. Check for opaque crystals and opaque material on the inner surface of the carcass. If necessary, remove them with a soft dry brush. Allow the work to dry well before baking, insufficient drying can lead to blistering and cracking of the opaque.



Applying opaque crystals to the surface of the carcass



View of the crown after sintering of opaque crystals



View of crowns with different opaque application techniques

3. ULTRAPALINE DENTINE, ENAMEL, TRANSLUCENT, CERVICAL, OPAQUENTINE MASSES AND DENTINE MODIFIERS

Firing program	Dentines, enamels, transparents, opaque dentins, mamelons, dentin modifiers	
	First firing	Second firing
Drying temperature	250 °C	250 °C
Drying time	4-7 min.	4-7 min.
Heating speed	60 °C/ min.	60 °C/ min.
Baking temperature, maximum	910 °C	900 °C
Baking time	1 min.	1 min.
Vacuum pump switching temperature	580 °C	580 °C
Vacuum pump shutdown temperature	910 °C	900 °C
Chamber opening temperature	700 °C	700 °C

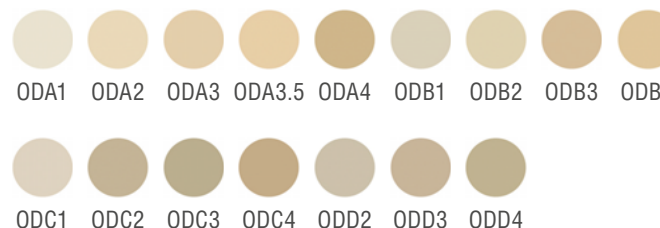
The aforementioned varieties of Ultrapaline are similar in their basic physical parameters and have the following technical characteristics:

Technical specifications of Ultrapaline masses	
Thermal expansion coefficient	13,3-13,5*10 ⁻⁶ K ⁻¹
Sintering temperature	910-900°C

OPAQUE DENTINES

Ultrapaline opaque dentines are masses which give the same shade as basic dentines after baking, but which have a higher colour intensity, i.e. a higher concentration of colours and therefore a lower translucency. The main purpose of opaque dentin masses is to ensure that the required colour and sufficient depth of that colour can be obtained with a low thickness of the porcelain in the denture. They can also be used to prevent loss of colour on the intermediate part of the bridge.

Opaque dentine Ultrapaline is available in 16 VITA-Classic shades.



If necessary, a 1:1 mixture of dentin and opaque dentin powders may be used as opaque dentin to increase transparency.

The basic design of the denture when modelling with opaque dentine masses remains unchanged and involves the use of cervical masses in the gingival area. When modelling in this area, a mixture of cervical masses with both base dentin and opaque dentin can be used. Opaque dentine should be mixed with the cervical mass in proportions of approx. 1.5:1 to 1:1 [it should be noted that the base dentine is mixed with the cervical mass in proportions of 4:1 to 2.5:1]. This is due to the lower transparency of opaque dentin compared to the base dentin.



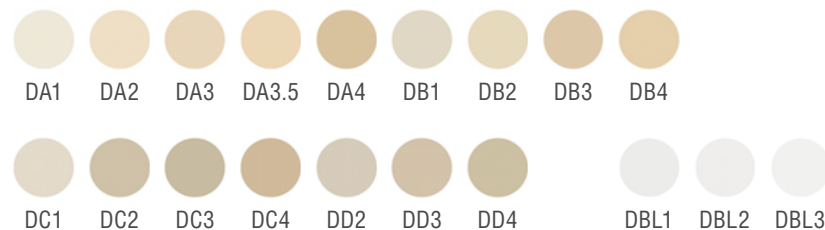
Closing opaque with a thin layer of opaque-dentine

The basic physico-chemical characteristics of opaque dentines are virtually identical to those of dentines and the modelling of opaque dentine masses should be carried out with the same technique as that used for dentine masses. Opaque dentines are sintered according to the sintering programme for dentine and enamel masses.

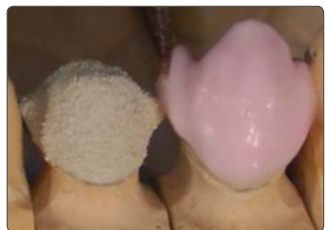
DENTINES

Ultrapaline dentine masses correspond to the classical European VITA-Classic shade system.

Each opaque color has its own dentin powder. There are a total of 19 dentine shades in the Ultrapaline shade (16 VITA-Classic shades + 3 white shades).



Ultrapaline dentine masses are used for the fabrication of the main body of the denture. Along with the enamel and transparent masses, dentine creates light refraction and scattering effects in the model, thus ensuring maximum resemblance to the natural tooth. It must always be kept in mind that dentin in the thin layer is quite transparent and that the colour of the opaque also plays an enormous role in shaping the colour shade of the model, especially in the cervical area.



Application of dentin mass to the vestibular surface of the crown



Shaping the approximal crown rims



Application of dentin mass to the oral surface

The above-mentioned Ultrapaline materials are similar in their modelling and sintering behaviour to those of the most common ceramic materials for metal-ceramics, such as IPS Classic, Duceram and VITA OMEGA. Therefore, the modelling technique using Ultrapaline is not much different from the modelling techniques developed for the masses mentioned above.

Ultrapaline dentine and enamel masses are fluorescent.

The masses are available in powder form in 30 g jars.

Directions for use

The masses are kneaded with Ultrapaline Modeling Liquid to the consistency of a thick cream and then applied with a brush or spatula to the treated opaque surface. Cut off excess porcelain mass with a sharp spatula.

When modelling the body of the tooth, the following points must be taken into consideration:

- Taking into account the firing shrinkage, the denture is modelled larger by 10-15%.
- Perform as few baking operations as possible.
- The thickness and degree of enamel coverage depends on the patient's dental structure, and the best match of the VITA-Classic colouring is achieved when the enamel covers approximately 1/3 of the surface in the upper incisal area of the denture.
- The incisal edges of young people's teeth may have a translucent, bluish tinge. They are imitated by opalescent enamel and translucent masses.

The colour intensity of the denture can be adjusted by the thickness ratio of the dentine and enamel layers. As the dentin thickness increases, the colour intensity of the denture increases, whereas the colour intensity decreases as the thickness of the enamel layer and the degree of enamel coverage of the denture surface increase.

Once the modelling is completed, the formed model is placed on a holder and placed at the entrance of the furnace heated to 250-300°C.

Note the following features of working with masses:

- Ultrapaline is sufficiently fine-grained and does not require excessive compaction during modelling. When modelling, it is advisable to carry out a non-intensive compaction of the mass by drying out the moisture with a cloth.
- It is also possible to additionally condense by lightly tapping on the clamp securing the metal carcass.
- It is recommended to apply the mixture in moderately thick layers, drying it out in layers and compacting it.
- Do not dry out the mass too much when modelling as too dry mass will quickly draw moisture away from the following layer, thus preventing it from compacting.
- Fluting is not necessary as the shrinkage of the mass is low and allows for sufficiently transparent layers after sintering without any shrinkage cracks, even with slight compaction.
- When modelling complex dentures with a fine structure that require the application of different masses in areas of different sizes, it is sufficient to obtain a clear final structure and to avoid its erosion by simply drying out the mass with a cloth during application. It is recommended to apply the mass in thin layers. Also note that the shrinkage in this case will be slightly higher than in the modelling with compaction.
- If the diluted mass on the palette has dried out, it is not recommended to re-dilute and reuse the mass, as excessive bubbles may form in the mass during sintering, resulting in reduced strength and in opacity of the denture.



Please note!

- Firing chambers differ from furnace to furnace in terms of volume, heater location and geometry, and the location of the thermocouple. Each oven has its own specific temperature distribution in the chamber and within that chamber it can vary by 30-40 °C. To ensure optimum results when working with Ultrapaline, a test sintering is recommended.
- When properly fired, the surface of the crown should have a glossy appearance with some grit and retain all of the finest anatomical features of the denture structure. A too high firing temperature results in the loss of these features and excessive transparency of the denture, which cannot be eliminated by subsequent baking. At a low firing temperature, the denture looks whitish and opaque and lacks the desired gloss.
- Both excessive and insufficient baking results in a loss of strength of the mass.
- In case of inaccurate selection of the regime during the first sintering, the recommended baking temperature variation is $\pm 10-15$ °C.

CERVICAL MASS

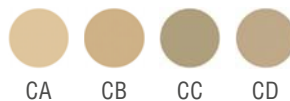
For forming dentures in the cervical area, where the thickness of the denture layer is small and where the colouring of natural teeth is usually more intense, the use of a cervical mass is recommended. This mass has an increased pigment percentage, is less transparent than dentine and covers the opaque layer at a thickness of 0.3-0.4 mm. The cervical mass baking programme corresponds to the dentin baking programme.

Correspondence of the cervical mass to the main shade

CA	A1, A2, A3, A3.5, A4
CB	B1, B2, B3, B4
CC	C1, C2, C3, C4
CD	D2, D3, D4

The cervical masses are available in four types - mass CA for colour group A, mass CB for colour group B, mass CC for colour group C, and mass CD for colour group D.

For modelling, it is not recommended to use a pure cervical mass but its mixture with dentin: 70-80% dentin and 30-20% cervical mass, depending on the shade of the mass.



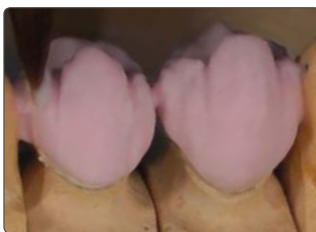
TRANSPARENT MASSES

The range of transparencies:

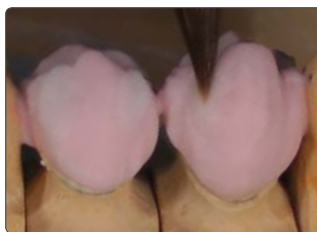


Transparency masses are selected individually on a case-by-case basis.

It is possible to mix transparent and enamel as well as transparent and dentin layers to obtain «colour coming from the depths» optical effects.



Creating vertical slots



Formation of a shadow zone with the help of a supertransparent

TRANSLUCENT ENAMEL

Two new translucent enamels, TS1 and TS2, have been added to the traditional Ultrapaline enamels. They have a translucency intermediate between the most transparent S60 enamel from the standard set and Transparent T.



The use of more transparent enamels extends the possibilities for creating dentures with high translucency of the incisal part, which are close to the natural tooth aesthetics of the patients.

DENTIN INTENSITY MODIFIERS



Ultrapaline dentine intensity modifiers are designed to enhance individual colours, match the shade of the denture, and simulate colour variations in them.

The modifiers white, yellow, brown and orange have a high colour concentration (up to 2%) and give a noticeable effect when mixed with dentin in a 1:9 to 1:10 ratio, and brown also in a 1:20 ratio. With Red Gum (Gingiva Colour), a noticeable effect is achieved when mixed with dentin in a 1:7 to 1:8 ratio. In contrast, the grey and blue modifiers have a dye concentration of approximately 1% and a moderate effect is achieved with 1 part modifier per 4-5 parts of dentine.

The application, condensing, drying and sintering of the modifiers is carried out as for ordinary dentine and does not require a separate baking process.

MAMELONS

Mamelons dentine is designed to enhance individual shades, especially the modelling of stained areas in the incisal area. The use of this mass gives a close-to-natural tooth-to-tooth interaction between the light and the ceramic material.

Three shades of Mamelons are available: Light-Yellow, Light-Orange and Yellow-Orange.

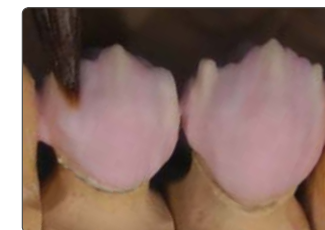


They are an intensely coloured mass with a transparency less than opaque dentin.

Mamelons are usually applied in the incisal third of the cut dentin area in thin strips, which allows for individual colouring of the denture. They can also be used to stain other areas in the layers, both dentin and opaque dentin. Mamelons are considerably more transparent than opaque and are therefore not used for staining opaque layers.

Mamelons mass can be mixed with transparencies to soften the effect.

These materials are baked together with the main mass of the layer according to the dentin baking programme.



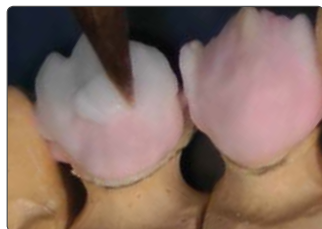
Formation of Mamelon tips



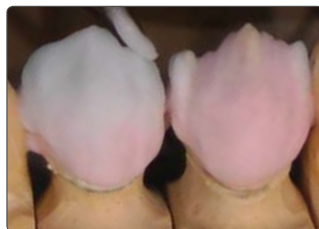
ENAMELS

Enamel masses are designated as follows:

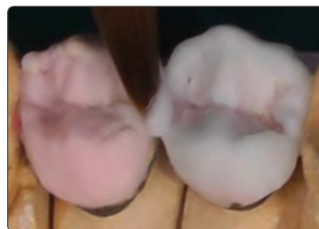
Enamel masses Ultrapaline are similar in their modelling and sintering behaviour to those of the most common ceramic materials for metal-ceramics, such as IPS Classic, Duceram and VITA OMEGA. Enamel masses Ultrapaline are fluorescent.



Application of enamel mass to the vestibular surface of the crown



Preforming the cutting edge of the crown



Application of enamel mass on the chewing surface

Enamel masses Ultrapaline are available in powder form in 30 g jars.

4. ULTRAPALINE GLAZES AND GLAZE PIGMENTS

GLAZE

The glaze is designed to give ceramic or metal-ceramic dentures a glossy appearance after the final baking process. The glaze blends perfectly with the self-glazed porcelain masses and creates a «depth» and «finish» effect with them. It should be noted that the application of a glaze increases the strength of the mass. It is therefore recommended to glaze the product even when it is placed on temporary cement.

Technical specifications of Ultrapaline glaze and glaze colourant

Thermal expansion coefficient	12,8-13,2*10 ⁻⁶ K ⁻¹
Sintering temperature	890 °C

PASTE GLAZE. Directions for use

Before the glaze is applied, the surface of the denture must be roughened with diamond or other abrasive heads. The entire surface of the denture must be treated with the same abrasive tool in order to obtain the same surface roughness. It is advisable to wet both the denture surface and the diamond tool during treatment - this will reduce the amount of harmful dust and increase the life of the diamond head. The surface of the denture should then be cleaned with water vapour, an ultrasound bath or under running water using a brush without any detergents.

Firing program	Glaze	Glaze pigments
Drying temperature	250 °C	250 °C
Drying time	4 min.	4 min.
Heating speed	56-60 °C/ min.	56-60 °C/ min.
Baking temperature, maximum	890 °C	890 °C
Baking time	1 min.	1 min.
Vacuum pump switching temperature	air	air
Vacuum pump shutdown temperature	air	air
Chamber opening temperature	700 °C	700 °C

The glaze should be squeezed out of a syringe and kneaded onto the palette with a brush dipped in distilled water. A small amount of syringe fluid may accumulate in the syringe spout due to separation. It should be removed with a cloth.

The glaze is then applied in a uniform layer to the ceramic surface. It is recommended to seal the applied layer by grooving according to standard techniques to ensure an even flow of the glaze into the irregularities of the product to be moulded. Before sintering, the glaze layer must be dried on the work table at a temperature of 300-350°C.

After the final removal of the liquid, the product must be baked in the furnace without a vacuum in accordance with the programme described above. To remove any traces of roughness and give the piece a perfect glossy sheen, apply the glaze in a fairly thick layer.

If, after the first firing, you find spots on the piece where the gloss does not seem sufficient, apply a thin layer of glaze to these spots (without the diamond tool) and re-bake in the same programme.



Application of a thin layer of glaze on the entire surface of the crown



Individualisation of the tooth structure with glaze colourants



Final view of the crown after sintering



POWDER GLAZE. Directions for use

Before applying the powder glaze, the denture surface should be prepared in the same way as with the paste glaze.

A special Ultrapaline Modeling Liquid Glaze is used to knead the powdered glaze. A similar fluid from other manufacturers can also be used. Do not dilute the glaze with too much liquid as this can cause it to flow and cause irregularities in the coating and bubbles to form.

The glaze should be applied to the ceramic surface with a brush. After application, the glaze should be lightly compacted to allow the glaze to spread evenly.

Before sintering, the glaze layer must be dried on the work table at a temperature of 300-350 °C.

Attention!

- A distinctive feature of Ultrapaline is that it can be applied in thick layers to reduce gaps on the apical sides of dentures. The glaze retains its transparency and does not distort the colours, unlike some other types of glaze.
- Make sure that the syringe nozzle remains clean, as a loose fit of the syringe cap can cause the syringe fluid to dry out, making it difficult to squeeze the mass out of the syringe.
- Ultrapaline can be used with IPS-CLASSIC, CERAMCO, SYNSPAR, BIDENT, DUCERA and other porcelain masses which are matched to the KTR and baking temperatures of the opaque, dentine and enamel layers.

GLAZE PIGMENTS

The glaze pigments is intended to give ceramic or metal-ceramic dentures a final shade of colour and lustre during the final baking process. The colouring agent combines perfectly with self-glazed porcelain masses with a baking temperature of over 890 °C.

Glaze pigments is available in 14 shades in powder and paste form.



Directions for use

Before applying the colourant, the surface of the denture should be prepared in the same way as for the glaze.

The colourant should be squeezed out of a syringe and kneaded onto the palette with a brush dipped in distilled water. It should then be applied in an even layer to the ceramic surface. It is recommended to flatten the applied layer by grooving according to standard techniques to ensure even flow of the colourant into the irregularities of the product to be processed. Excess liquid is removed by drying off at the furnace inlet or by using a cloth. After the final removal of the liquid, the product must be baked in the furnace without a vacuum in accordance with the programme described above. To remove any traces of roughness and give the piece a perfect glossy sheen, apply the colourant in a fairly thick layer. The thickness of the layer to be applied can be approximated by assuming that the intensity of the colouring agent changes little after sintering.

When working with glaze colours, do not make them too thin, as this can lead to delamination of the glaze and the colours and, after sintering, produce a defective surface with a weak lustre.

Attention!

- The main advantage of Ultrapaline colourants is their transparency. Unlike other types of colourants on the market, Ultrapaline colourants do not mask the main colour of the model (earthenware cup effect), but give it an additional colour shade, thereby maintaining the original depth of light refraction and thus the aesthetic integrity of the model.
- If a more intense colouring is required (e.g. in the fissure area), leave space when modelling or make a small selection with a diamond tool, filling these areas with a thicker layer of the colouring agent. You'll be pleasantly surprised to get a «colour depth effect» that cannot be achieved with other types of colourants.
- Ultrapaline colourant can be used with IPS-CLASSIC, CERAMCO, SYNSPAR, BIDENT, DUCERA and other porcelain masses which are matched to the KTR and baking temperatures of the opaque, dentine and enamel layers.

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RANGE OF ULTRAPALINE METAL-CERAMIC MASSES

ULTRAPALINE BIG SET

- Dentin, powder - 16 shades: (DA1, DA2, DA3, DA3.5, DA4, DB1, DB2, DB3, DB4, DC1, DC2, DC3, DC4, DD2, DD3, DD4) - 30 g each.
- Opaque, powder - 16 shades: (OA1, OA2, OA3, OA3.5, OA4, OB1, OB2, OB3, OB4, OC1, OC2, OC3, OC4, OD2, OD3, OD4) - 20 g each.
- Enamel, powder - 4 shades: (S57, S58, S59, S60) - 30 g each.
- Cervical mass, powder - 4 shades: (CA, CB, CC, CD) - 30 g each.
- Transparent mass (T), powder - 30 g.
- Opalescent mass (Opal), powder - 30 g.
- Glaze colourant, paste - 2 shades: (Ochre, Light Brown) - 4 g each.
- Glaze, paste - 2 syringes of 4 g.
- Modeling liquid for dentin and enamel (Ultrapaline Modeling liquid) - 2 bottles of 50 ml.

ULTRAPALINE COLOURANT KIT

- Glaze colourant, paste - 11 shades: (Yellow, Blue, Grey Blue, Red Gum, Light Ochre, Ochre, Grey Ochre, Light Brown, Brown, Dark Brown, Orange) - 4 g each.
- Glaze, paste - 4 g syringe.

ULTRAPALINE POWDER OPAQUE SETS

- Universal - 6 jars of powder 20 g each (OA2, OA3, OA3.5, OB2, OS2, OD2)
- Custom-made - 6 jars of 20g powder. (Colours to be specified by the user).

ULTRAPALINE DENTIN SETS

- Universal - 6 jars of powder 30 g each (DA2, DA3, DA3.5, DB2, DC2, DD2)
- Custom-made - 6 x 30g powder jars (User defined colors).

ULTRAPALINE OPAQUE-DENTINE SETS

- Universal - 6 jars of powder 30 g each (ODA2, ODA3, ODA3.5, ODB2, ODC2, ODD2);
- Custom-made - 6 x 30g powder jars (User defined colors).

ULTRAPALINE INTENSIVE DENTINE SETS

- Universal - 6 jars of powder 30 g each (White, Blue, Brown, Grey, Ochre, Red Gum);
- Custom-made - 6 x 30g powder jars (User defined colors).

SEPARATE COLORS OF DIFFERENT MATERIALS:

- Dentine, powder - 19 shades: (DA1, DA2, DA3, DA3.5, DA4, DB1, DB2, DB3, DB4, DC1, DC2, DC3, DC4, DD2, DD3, DD4, DBL1, DBL2, DBL3) - jar 30 g/100 g.
- Opaque-dentine, powder - 16 shades: (ODA1, ODA2, ODA3, ODA3.5, ODA4, ODB1, ODB2, ODB3, ODB4, ODC1, ODC2, ODC3, ODD4, ODD2, ODD3, ODD4) - jar 30 g.
- Opaque, powder - 17 shades: (OA1, OA2, OA3, OA3.5, OA4, OB1, OB2, OB3, OB4, OC1, OC2, OC3, OC4, OD2, OD3, OD4, OBL) - jar 20 g/100 g.
- Opaque, paste - 17 shades: (OA1, OA2, OA3, OA3.5, OA4, OB1, OB2, OB3, OB4, OC1, OC2, OC3, OC4, OD2, OD3, OD4, OBL) - syringe 4 g.
- Enamel, powder - 4 shades: (S57, S58, S59, S60) - jar 30 g/100 g.
- Translucent enamel, powder - 2 shades: (TS1, TS2) - 30 g jar.
- Cervical mass, powder - 4 shades: (CA, CB, CC, CD) - jar 30 g each.
- Transparent mass, powder - 4 shades: (T, OT, ST, OST) - 30 g jar.
- Mamelon mass, powder - 3 shades: (Light-Yellow, Light-Orange, Yellow-Orange) - 30 g jar.
- Opalescent mass, powder - 7 shades: (OST-A, OST-B, SO, SO-Blue, SO-Rosy, SO-Yellow, Opal) - 30 g jar.
- Intensive dentine, powder - 8 shades: (White, Yellow, Blue, Brown, Grey, Ochre, Red Gum, Dark Pink) - 30 g jar.
- Opaque crystals, powder - 3 shades: (Light, Medium, Dark) - 20 g jar.
- Glaze pigments, paste - 14 shades: (Yellow, Blue, Grey Blue, Red Gum, Light Ochre, Ochre, Grey Ochre, Light Brown, Brown, Dark Brown, Orange, White, Grey, Dark Pink) - 4 g each.
- Glaze pigments, powder - 14 shades: (Yellow, Blue, Grey Blue, Red Gum, Light Ochre, Ochre, Grey Ochre, Light Brown, Brown, Dark Brown, Orange, White, Grey, Dark Pink) - 5 g jar.
- Glaze, powder - 20 g/100 g jar.
- Glaze, paste - 4 g syringe.
- Modeling liquid for dentine and enamel (Ultrapaline Modeling liquid) - 50 ml/100ml/200 ml bottle.
- PREFORM Modelling liquid for dentine and enamel (Ultrapaline Modelling liquid PREFORM) - 50 ml / 100 ml / 200 ml bottle.
- Ultrapaline Modeling Liquid for Opaque - 50 ml/100 ml/200 ml bottle.
- Modeling Liquid for Glaze (Ultrapaline Modeling Liquid Glaze) - 50 ml/100 ml/200 ml bottle.
- The Ultrapaline colouration is universal.
- The Ultrapaline shade for dentine and enamel.