



VITA METAL CERAMICS



Working instructions

Date of issue: 07/03



VITA SYSTEM

3D-MASTER®

VITA

VITA VMK 95

METAL CERAMICS

Directions for use

VITA VMK 95

The basics of metal ceramics

VITA Metal Ceramics (VMK) utilizes the outstanding flexural tensile strength values of the alloys used while at the same time achieving the highest possible degree of aesthetics for the well-being of the patient. This means that the strength of the materials is due to the combination of materials on the metal substructure and that the result of the natural-looking restoration is determined by the quality of the ceramic used.

Physical properties

In addition to the manual skills of the dental technician, bending strength, solubility in acids (both are tested according to ISO 9693) and thermal stability are the decisive factors for the long-term success of a restoration. Just like these values, the particle-size distribution is also subject to strict quality control. It determines the application characteristics of the respective porcelain for the dental technician.

Alloys

Due to the difference in the main chemical components bonding alloys are always subdivided into the following categories:

- precious metal alloys
- reduced precious metal content alloys
- non-precious metal alloys.

When processing the various alloy types, the directions of the manufacturers of the alloys must be adhered to.

This means that the directions of the manufacturer of the alloys as well as the directions for use of the metal ceramic have to be adhered to. When these directions are observed, the production of metal ceramic work has become routine in most dental laboratories due to many years of practical experience.

Bonding system

With the large number of metal ceramic restorations that have been produced so far – in addition to other influencing factors – the perfect coordination of the coefficients of thermal expansion (TEC) of bonding alloys and porcelain has proved to be of utmost significance. The chances of long-term success of the restoration are very high if the metal ceramic material that is fired onto the metal alloy is under low compressive strain. This condition is achieved if the linear TEC of the metal alloy is only minimally above that of the porcelain. The TEC of the porcelain is variable within certain limits with the help of the temperature control of the respective firing process.

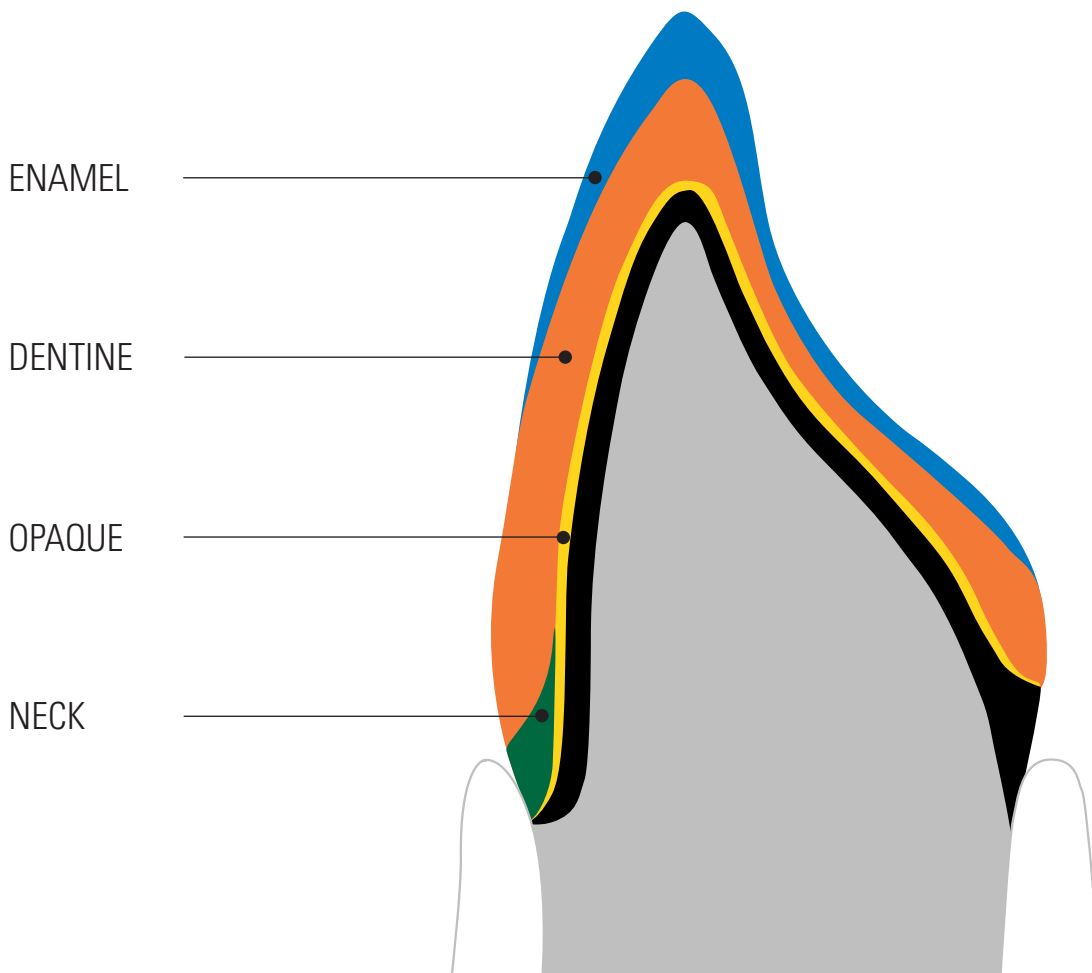
VITA VMK 95

Physical properties

Property	Unit of measure	Value
TEC (25-500°C) opaque	$10^{-6} \times K^{-1}$	13.5 - 13.8
Transformation range opaque	°C	approx. 575
CET (25-500°C) dentine	$10^{-6} \times K^{-1}$	13.3 - 13.7
Softening point dentine	°C	approx. 656
Transformation point dentine	°C	approx. 583
Solubility dentine ISO 9693	$\mu\text{g}/\text{cm}^2$	12
Density	g/cm^3	2.4
Flexural strength dentine	MPa (Nmm^{-2})	85
Average particle size dentine	μm (d_{50})	17.3
Adhesive bond	MPa (Nmm^{-2})	43
Modulus of elasticity	GPa	91
Hardness (Vickers) enamel	HV_{10}	470
Hardness natural enamel	HV_{10}	400 - 500

The technical and physical values given here refer to samples produced at VITA and to measuring equipment used by VITA.

Standard layering of VITA VMK 95 METAL CERAMICS



Information on framework design

In order to produce crowns that are to be veneered with porcelain or pontics, reduced-size anatomical forms must be modelled. The wall thickness of the framework must not be less than 0.4 mm to ensure that the minimum thickness of the metal framework amounts to 0.3 – 0.35 mm after finishing. When modelling, sharp edges, undercuts and deep grooves must be avoided.

Every effort should be made to achieve smooth transition zones. Sufficiently stable modelling of the approximal connections must be ensured. For extra stability (especially for large-span bridges) the palatal side of the pontics should be waxed-up with a thin metal collar or at least with inlay-like proximal reinforcements.

The directions of the manufacturer of the alloy regarding waxing-up, investing, casting, finishing, sandblasting and oxidation must be observed.

Classification of the VITA VMK 95 ceramics

VITA SYSTEM 3D-MASTER® - Classification of the enamel porcelains

1M1	1M2	2L1.5	2L2.5	2M1	2M2	2M3	2R1.5	2R2.5	3L1.5	3L2.5	3M1	3M2
EN2	EN2	EN2	EN2	EN2	EN2	EN2	EN2	EN2	EN2	EN2	EN2	EN2

3M3	3R1.5	3R2.5	4L1.5	4L2.5	4M1	4M2	4M3	4R1.5	4R2.5	5M1	5M2	5M3
EN2	EN2	EN3	EN2	EN2	EN2	EN3	EN3	EN2	EN3	EN2	EN3	EN3

VITAPAN® classical - Classification of the enamel porcelains

A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
EN1	EN1	EN1	EN2	EN2	EN2	EN2	EN2	EN2	EN2	EN2	EN1	EN1	EN2	EN2	EN2

VITA SYSTEM 3D-MASTER® - Classification of the cervical porcelains

1M1	1M2	2L1.5	2L2.5	2M1	2M2	2M3	2R1.5	2R2.5	3L1.5	3L2.5	3M1	3M2
–	25% N1 75% D*	–	50% N2 50% D	–	25% N2 75% D	50% N2 50% D	–	50% N2 50% D	–	50% N3 50% D	–	25% N3 75% D

3M3	3R1.5	3R2.5	4L1.5	4L2.5	4M1	4M2	4M3	4R1.5	4R2.5	5M1	5M2	5M3
25% N3 75% D*	–	50% N3 50% D	–	50% N4 50% D	–	25% N4 75% D	50% N4 50% D	–	50% N4 50% D	–	25% N5 75% D	50% N5 50% D

VITAPAN® classical - Classification of the cervical porcelains

A1 No Neck	A2 1 part N A / 1 part D*	A3 1 part N A / 1 part D	A3,5 Neck A	A4 Neck A	B1 No Neck	B2 1 part N B / 1 part D	B3 Neck B
B4 Neck B	C1 1 part N C / 1 part D	C2 1 part N C / 1 part D	C3 1 part N C / 1 part D	C4 1 part N C / 1 part D	D2 Neck D	D3 1 part N D / 1 part D	D4 1 part N D / 1 part D

D* = DENTINE of the corresponding shade

VITA VMK 95 MARGIN - Classification

VITA SYSTEM 3D-MASTER®	VITA SYSTEM 3D-MASTER®	VITAPAN® classical	VITAPAN® classical
1M1 50% MAR 1 + 50% MAR N	3M3 MAR 3	A1 MAR 2	D2 MAR 4
1M2 MAR 1	3R1.5 50% MAR 3 + 50% MAR N	A2 MAR 3	D3 MAR 4
2L1.5 50% MAR 2 + 50% MAR N	3R2.5 MAR 3	A3 MAR 3	D4 50% MAR 6 + 50% MAR N
2L2.5 MAR 2	4L1.5 50% MAR 4 + 50% MAR N	A3,5 MAR 4	
2M1 50% MAR 2 + 50% MAR N	4L2.5 MAR 4	A4 MAR 5	
2M2 MAR 2	4M1 50% MAR 4 + 50% MAR N	B1 MAR 1	
2M3 MAR 2	4M2 MAR 4	B2 MAR 2	
2R1.5 50% MAR 2 + 50% MAR N	4M3 MAR 4	B3 MAR 3	
2R2.5 MAR 2	4R1.5 50% MAR 4 + 50% MAR N	B4 MAR 4	
3L1.5 50% MAR 3 + 50% MAR N	4R2.5 MAR 4	C1 25% MAR 6 + 75% MAR N	
3L2.5 MAR 3	5M1 50% MAR 5 + 50% MAR N	C2 50% MAR 6 + 50% MAR N	
3M1 50% MAR 3 + 50% MAR N	5M2 MAR 5	C3 MAR 6	
3M2 MAR 3	5M3 MAR 5	C4 MAR 6	

Standard layering

1. Application of Wash Opaque



- **either: with powder opaque**

Mixing the Wash Opaque with a glass spatula and VITA OPAQUE FLUID.
Applying a thin "wash" layer of opaque to the framework.



- **or: with paste opaque**

After cleaning and drying the framework, apply VMK 95 PASTE WASH OPAQUE by massaging it thinly onto the surface of the framework.



- **or with SPRAY-ON 2000 method**

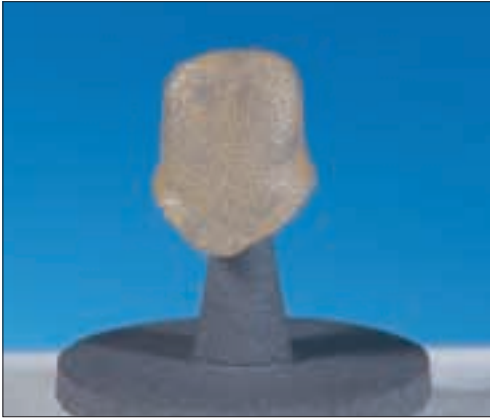
Spraying the opaque onto the framework.
See separate working instructions for VITA SPRAY-ON 2000.

Wash firing has three functions:

1. Burning out the organic residue through the thin opaque layer.
2. Producing the bonding oxides.
3. Sintering the porcelain and thereby creating a chemical bond.



- Applied opaque



- Appearance after 1st opaque firing.

Recommended firing cycle

Wash firing	Preh. Temp. °C	→	↗	Temp. approx. °C	→	VAC
powder	600	2.00	4.00	950	1.00	4.00
paste	500	6.00	6.00	950	1.00	6.00

The given values are to be seen only as a guideline for the user. Should the surface characteristics, transparency or the degree of lustre not correspond to the result expected under optimum conditions, the firing cycle should be adjusted accordingly. The decisive factor for the firing cycle is not the firing temperature displayed by the furnace, but the appearance and the surface characteristics of the object after firing.

2. Applying the OPAQUE

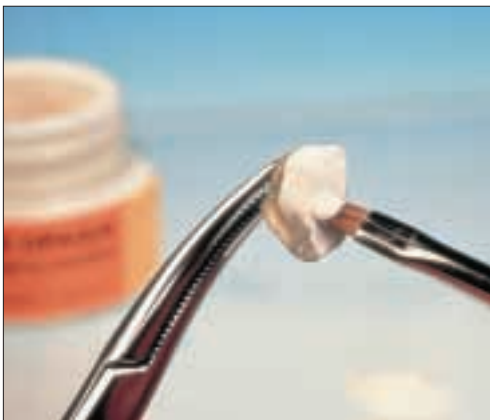
- **either: with powder opaque**

Mixing the OPAQUE with a glass spatula and VITA OPAQUE FLUID. Picking up the opaque and applying with lightly gyrating movements of the brush. Thus the material can be easily spread and does not drip into the interdental spaces.



- **or: with PASTE OPAQUE**

Apply the PASTE OPAQUE with a brush in a thin, homogeneous layer, covering the surface completely.



- **or: with SPRAY-ON 2000 method**

Mixing VMK 95 OPAQUE with SPRAY-ON LIQUID in the glass vessel provided and spraying the opaque on.





- Use a brush to apply a uniform, masking coat of opaque.



- Appearance after 2nd opaque firing.

Recommended firing cycle

Opaque firing	Preh. Temp.°C	→	↗	Temp. approx.°C	→	VAC
powder	600	2.00	4.00	930	1.00	4.00
paste	500	6.00	6.00	930	1.00	6.00

The given values are to be seen only as a guideline for the user. Should the surface characteristics, transparency or the degree of lustre not correspond to the result expected under optimum conditions, the firing cycle should be adjusted accordingly. The decisive factor for the firing cycle is not the firing temperature displayed by the furnace, but the appearance and the surface characteristics of the object after firing.

Pastes should be stirred with a glass or acrylic instrument before use. If after a long period of storage it is no longer possible to stir the VMK PASTE OPAQUE, the original consistency can be restored by adding a specific amount of PASTE OPAQUE LIQUID.

Keep screw threads at the neck of the glass containers clean in order to prevent these becoming stuck to the lid.

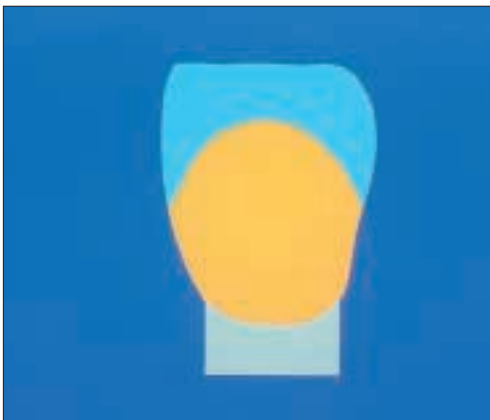
3. Dentine layering – single crown



- Mixing a portion of DENTINE with an instrument; applying it with a brush to the labial surface of the tooth. Excess moisture is absorbed using a paper handkerchief.



- The crown should be slightly longer to compensate for shrinkage.



- To reproduce VITA SYSTEM 3D-MASTER or VITAPAN classical shades, it is necessary to cover approximately 1/3 of the tooth with ENAMEL.





- The DENTINE is reduced analogous to the build-up technique and smoothed with a moist brush.



- The tooth is then completely built up with several portions of ENAMEL.

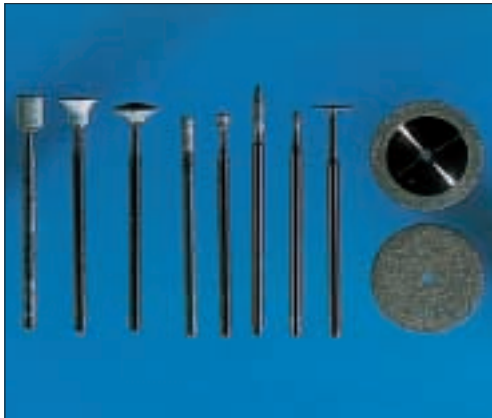


- The completed, fully constructed crown should be approximately 1.0 – 1.5 mm longer and somewhat thicker than it is intended to be after firing. For firing cycle see firing chart

Recommended firing cycle

Firing	Preh. Temp. °C	→	↗	Temp. approx. °C	→	VAC
Dentine firing	600	6.00	6.00	930	1.00	6.00

The given values are to be seen only as a guideline for the user. Should the surface characteristics, transparency or the degree of lustre not correspond to the result expected under optimum conditions, the firing cycle should be adjusted accordingly. The decisive factor for the firing cycle is not the firing temperature displayed by the furnace, but the appearance and the surface characteristics of the object after firing.



- Corrections can be made using green silicon carbide, cement-bonded or diamond-coated burs. Before glaze firing, however, the entire surface should be ground with one abrasive instrument as different abrasive materials result in different degrees of roughness and hence different degrees of surface gloss.



- The ground crown. The visible metal rim should only be polished after glaze firing. After grinding, the crown should be cleaned.



- If corrections are necessary, porcelain may be applied again and fired as before. Minor adjustments can be carried out directly with COR incisal or COR body add-on material.



- Glazed bridge.

Recommended firing cycle

Firing	Preh. Temp. °C	→	↗	Temp. approx. °C	→	VAC
Glaze firing with Fluid	600	4.00	4.00	930	1.00	0.00

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4. Dentine layering – bridge



- The DENTINE and ENAMEL porcelains are built-up analogous to single crowns. When building up bridgework, the interdental spaces should be separated down to the OPAQUE with an E21 separating scalpel.



- After completion of the first dentine firing, a small amount of DENTINE should be vibrated into the interdental spaces. The model is then insulated with VITA MODISOL for subsequent correction of the basal surface.



- Missing body is now compensated for with the respective porcelain and separated again.



- 2nd dentine firing

Recommended firing cycle

Firing	Preh. Temp.°C	→	↗	Temp. approx.°C	→	VAC
2 nd Dentine firing	600	6.00	6.00	930	1.00	6.00

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- Shows the bridge after the second dentine firing and final contouring. The entire surface should be ground with the same rotary instrument to obtain uniform surface roughness. Once the restoration has been cleaned again, it can be glazed.



- First apply the glaze to the entire surface. Excess glaze is removed with a dry brush until only a film of glaze remains.



- Shows the glazed bridge.

Recommended firing cycle

Firing	Preh. Temp.°C	→	↗	Temp. approx.°C	→	VAC
Glaze firing with Fluid	600	4.00	4.00	900	1.00	0.00

The given values are to be seen only as a guideline for the user. Should the surface characteristics, transparency or the degree of lustre not correspond to the result expected under optimum conditions, the firing cycle should be adjusted accordingly. The decisive factor for the firing cycle is not the firing temperature displayed by the furnace, but the appearance and the surface characteristics of the object after firing.

The firing result of dental ceramics depends to a great extent on the individual firing cycle of the user, i.e. on the type of furnace, the position of the temperature sensor, the firing tray as well as the size of the object to be fired. Our recommendations for the firing temperatures (irrespective of whether these are given orally, in writing or by means of practical instruction) are based on our own numerous experiences and tests. Nevertheless, the values indicated here can only be seen as a guideline for the user. Should the surface characteristics, transparency or the degree of lustre not correspond to the result expected under optimum conditions, the firing cycle should be adjusted accordingly. The decisive factor for the firing cycle is not the firing temperature displayed by the furnace, but the appearance and the surface characteristics of the object after firing.



Important:

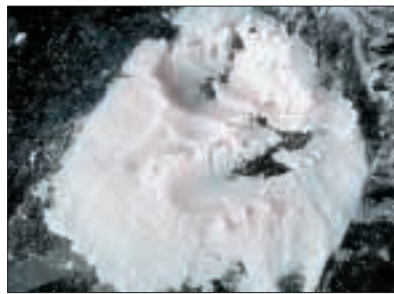
When sprayed on, the opaque must not be too dry.



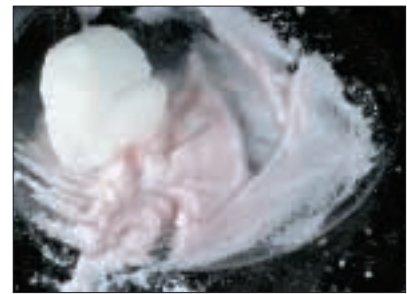
Recommended firing parameters must not be changed.



The porcelain consistency is too watery.



Porcelain too dry when stirred.



Optimum consistency of the porcelain.



Due to applying material that is too watery, the layers „merge” with each other.



Build-up of porcelain too dry.



Optimum consistency ensures simple building up of layers.



Insufficient quality of surface does not feature adequate resistance to plaque in the oral environment. Layers that are too wet and reduced drying time result in large cracks in the porcelain surface.



Perfect firing result.

Shooting



Furnace:

Thorough testing of the ceramic furnace represents the most important precondition to successful firing on of VITA VMK 95.

Preconditions:

- considerable amount of oxide deposits may cause weakening of the bond and discolouration of the porcelain (discolourations of the fireclay base)
- furnaces featuring large temperature fluctuations are not suitable
- damaged fireclay bases as well as contaminated furnace linings must be exchanged before firing

The firing result of dental ceramics depends to a great extent on the individual firing cycle of the user, i.e. on the type of furnace, the position of the temperature sensor, the firing tray as well as the size of the object to be fired. Our recommendations for the firing temperatures (irrespective of whether these are given orally, in writing or by means of practical instruction) are based on our own numerous experiences and tests. Nevertheless, the values indicated here can only be seen as a guideline for the user. Should the surface characteristics, transparency or the degree of lustre not correspond to the result expected under optimum conditions, the firing cycle should be adjusted accordingly. The decisive factor for the firing cycle is not the firing temperature displayed by the furnace, but the appearance and the surface characteristics of the object after firing.



A slight lustre (egg shell) of the porcelain surface confirms correct firing. If the porcelain appears to be milky and not homogeneous, the temperature is too low. Use steps of 10°C to approach the correct firing temperature.

VITA VMK 95 METAL CERAMICS

Problem	Cause	Elimination
<p>Opaque</p> <p>Formation of cracks in the PASTE OPAQUE</p>	<p>PASTE OPAQUE was applied too thickly</p>	<p>First apply WASH OPAQUE and fire, then apply again until opaque layer covers the object entirely</p>
	<p>Organic substances in the PASTE OPAQUE burnt out too rapidly</p>	<p>Extend predrying time</p>
<p>Formation of cracks in the OPAQUE</p>	<p>OPAQUE was applied too thickly or runs into recesses, e.g. fissures, collars</p>	<p>Apply more thinly and evenly; do not vibrate too strongly</p>
	<p>OPAQUE dried too quickly</p>	<p>Adjust predrying times and predrying temperature in accordance with firing chart</p>
<p>Formation of bubbles in the OPAQUE</p>	<ul style="list-style-type: none"> - Faulty casting - Contaminated metal surface - Sintering of Al₂O₃ in the metal surface 	<ul style="list-style-type: none"> - See working instructions of the manufacturer of the metal - Thorough cleaning of the metal surface - Reduction of blasting pressure
<p>Layering</p> <p>Surface reveals tear-ups</p>	<p>Layers were built up too dry</p>	<ol style="list-style-type: none"> 1. Layers need more moisture, do not blot or condense 2. If required, use VITA SPECIAL MODELLING FLUID 3. Lower predrying temperature to 500°C.
<p>Onion skin-like chippings after 2nd dentine firing</p>	<p>Layers were built up too dry</p>	<p>see above</p>
	<p>Surface not ground prior to 2nd dentine firing</p>	<ul style="list-style-type: none"> - Grind surface with stones or diamond-coated instruments or sandblast carefully
<p>Cracks</p>	<ul style="list-style-type: none"> - TEC was not adhered to - Incorrect design of framework 	<ul style="list-style-type: none"> - Cool down slowly from TEC 25- 600 °C ≥ 14.5 - see VITA Guide to metal ceramic framework design 908 E
<p>Cracks parallel to the tooth axis</p>	<p>Insufficient separating of the porcelain in the interdental spaces</p>	<p>Separate down to the opaque Note: Wet the scalpel slightly</p>

Shooting

Problem	Cause	Elimination
<p>Layering</p> <p>Lack of translucency / brilliance</p>	<ol style="list-style-type: none"> Excessive condensing Error in the vacuum system Firing temperature too low (incorrect) Predrying and/or heating time too short Use of oily modelling liquids Too much ENAMEL 	<ol style="list-style-type: none"> Do not condense or condense only slightly Test of vacuum pump Temperature check with silver sample Adhere to firing instructions Use original VITA liquids Adhere to recommended layering technique
Core shines through although OPAQUE DENTINE was used for thin walls	<ol style="list-style-type: none"> OPAQUE DENTINE only applied up to the incisal edge of the metal framework OPAQUE DENTINE applied too thinly 	<ol style="list-style-type: none"> Extending the cap with OPAQUE DENTINE Apply covering layer of OPAQUE DENTINE across the labial surface
Shade too pale	<ol style="list-style-type: none"> Insufficient amount of OPAQUE DENTINE applied Firing temperature for porcelain too high or too low 	<ol style="list-style-type: none"> Spread OPAQUE DENTINE across the entire labial surface Temperature check with silver sample
Shade too "glowing", too intense	<p>WASH OPAQUE applied too thickly</p> <p>Firing temperature for porcelain too high</p> <p>OPAQUE DENTINE shines through thin veneer</p>	<p>Apply WASH OPAQUE more thinly see working instructions</p> <p>Temperature check with silver sample</p> <p>Mixing ratio OPAQUE DENTINE / DENTINE 50:50 instead of pure OPAQUE DENTINE</p>
Runmarks in the porcelain	<p>Opaque residues in the water for the brush</p> <p>Water for the brush contaminated</p>	<p>Use fresh water after applying the opaque</p> <p>Use fresh water</p>
Black dots in the porcelain	<ol style="list-style-type: none"> Residues of protective foil that remained on the bottle Silicone residues of rubber polishers Porcelains became contaminated with metal/grinding dust 	<ol style="list-style-type: none"> Protective foil must always be removed completely Clean carefully Ensure that the "ceramic" working place is clean
Runmarks after glaze firing	Residues of grinding dust on the surface	Clean object carefully before glaze firing

ADDITIONAL SET

In addition to the STANDARD SET, additional porcelains are available for the individual layering technique.

TRANSLUCENT			CORRECTIVE		
T 1	milky	for whitish incisal areas, margins and triangular protuberances	COR 1	incisal	For minor corrections in the incisal area
T 2	opal	for ridges, wedges and covering the labial area	COR 2	body	For minor corrections in the body area
T 5	polar	layered under the enamel material to create bluish incisal areas			
DENTINE MODIFIER			MARGIN		
Dentine-effect porcelains can be washed or mixed into the dentine to create shade characterisations.			The MARGIN materials (MAR) were especially developed to create a perfect transition between crown and die in the area of the crown margin in case of a labially shortened metal coping. The MARGIN material applied can be hardened by heating. It is recommended to stabilize the shoulder with a hair-dryer or with radiated heat at the furnace opening.		
DM 2	golden glow	(dark yellow)	MAR N	Neutral MARGIN material for mixing MAR 1 - MAR 6	
DM 4	Sunflower	(ochre yellow)	MAR 1	The colours of the MARGIN materials have been matched with the VITA Toothguide 3D-MASTER and the VITAPAN classical shade guide. For determination of MARGIN materials see separate table (page 5).	
DM 6	dusty coral	(reddish-brown)	MAR 2		
DM 7	salmon	(pink)	MAR 3		
			MAR 4		
			MAR 5		
			MAR 6		
GINGIVA					
G 1	light flesh	for light gingival areas			
G 2	dark flesh	for dark gingival areas			
CERVICAL					
CE 3	gold	This material is applied to the dentine above the neck of the tooth extending into the approximal area to increase the illusion of depth.			

Individual layering



- In case of a shoulder preparation, the ceramic shoulder is prepared with the MARGIN materials. The MARGIN material is applied to the cervical area at the shoulder.



- Shows the adjusted shoulder after firing.



- In case of thin wall thicknesses, OPAQUE DENTINE is applied to the entire labial surface and NECK is additionally applied to reinforce the neck area.



- Just like in the standard layering technique the crown is now built up with DENTINE.



- TRANSLUCENT and ENAMEL material is applied to reduced dentine to obtain an increased effect of the DENTINE MODIFIER in the incisal area.



- By applying DENTINE MODIFIER "sunflower" in the incisal area, the creation of secondary dentine is imitated.



- Intermediate firing can be carried out to allow for simple shade control.

Recommended firing cycle

Firing	Preh. Temp. °C	→	↗	Temp. approx. °C	→	VAC
Dentine firing	600	6.00	6.00	930	1.00	6.00

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- TRANSLUCENT and ENAMEL porcelain applied to the incisal area. In this case the dentine body has also been completed and intensified with CERVICAL porcelain.



Recommended firing cycle

Firing	Preh. Temp. °C	→	↗	Temp. approx. °C	→	VAC
Dentine firing	600	6.00	6.00	930	1.00	6.00

The given values are to be seen only as a guideline for the user. Should the surface characteristics, transparency or the degree of lustre not correspond to the result expected under optimum conditions, the firing cycle should be adjusted accordingly. The decisive factor for the firing cycle is not the firing temperature displayed by the furnace, but the appearance and the surface characteristics of the object after firing.

- Shows the individually built-up crown after firing.

Firing Chart VITA VMK 95

Recommended firing cycle

Firing	Preh. Temp. °C	→	↗	Temp. approx. °C	→	VAC
Oxidation	Follow alloy manufacturer's instructions!					
Wash firing	600	2.00	4.00	950	1.00	4.00
PASTE WASH OPAQUE	500	6.00	6.00	950	1.00	6.00
OPAQUE firing	600	2.00	4.00	930	1.00	4.00
PASTE OPAQUE	500	6.00	6.00	930	1.00	6.00
MARGIN						
(Shoulder porcelain firing)	600	6.00	6.00	930	1.00	6.00
DENTINE firing	600	6.00	6.00	930	1.00	6.00
2 nd DENTINE firing	600	6.00	6.00	930	1.00	6.00
3 rd DENTINE firing	600	6.00	6.00	920	1.00	6.00
CORRECTIVE	600	4.00	6.00	900	1.00	0.00
Glaze firing	600	0.00	4.00	930	1.00	0.00
Glaze firing						
using Akzent Fluid	600	4.00	4.00	930	1.00	0.00
Glaze firing using Akz 25	600	4.00	4.00	900	1.00	0.00

To obtain an optimal metal/ceramic bond, the ceramic should be under slight compressive strain. A good result also depends on the size of the workpiece, the type, hardness and heat conducting properties of the alloy used, and particularly on the way each individual technician carries out the firing.

Our practical experience has shown that good results can be achieved when the thermal expansion coefficient of the alloy – measured between 25 °C and 600 °C – lies in the range of $14.0 - 14.4 \times 10^{-6} \times K^{-1}$ and that of the VITA VMK ceramic between $13.4 - 13.8 \times 10^{-6} \times K^{-1}$. With higher thermal expansion coefficients, it is often necessary to use a slow cooling programme in order to ensure that cooling from 900 °C – 700 °C is not faster than 3 minutes.

Presentation VITA VMK 95 in the VITA SYSTEM 3D-MASTER®



STANDARD SET 12 with POWDER OPAQUE *

Quantity	Content	Material
1	12 g	WASH OPAQUE
26	12 g	OPAQUE
26	12 g	DENTINE
5	12 g	NECK
2	12 g	ENAMEL
1	12 g	TRANSLUCENT
1	12 g	WINDOW
1	50 ml	OPAQUE FLUID
1	50 ml	MODELLING FLUID
1	pack	Firing supports A + B
1	pack	Firing trays G
1		Shade indicator VITA VMK 95 3D-MASTER with 112 laminae
2		VITA Toothguide 3D-MASTER
1		Working instructions

* VITA VMK 95 STANDARD SET 12 also available with PASTE OPAQUE



PASTE OPAQUE SET

Quantity	Content	Material
1	7 g	PASTE WASH OPAQUE
26	5 g	PASTE OPAQUE
1	15 g	PASTE OPAQUE LIQUID
1		Mixing spatula
1		Flat brush
1		Working instructions



OPAQUE DENTINE SET

Quantity	Content	Material
26	12 g	OPAQUE DENTINE
1		Working instructions



STARTER KIT 3M2 with Powder opaque*

Quantity	Contents	Material
1	12g	OPAQUE
1	12g	DENTINE
1	12g	NECK
1	12g	ENAMEL
1	15g	OPAQUE FLUID
1	50 ml	MODELLING FLUID
1	50 ml	VITA Toothguide 3D-MASTER
1		Working instructions

* VITA VMK 95 STARTER KIT 3M2 also available with paste opaque



ADDITIONAL SET

Quantity	Content	Material
3	12g	TRANSLUCENT
4	12g	DENTINE MODIFIER
7	12g	MARGIN
2	12g	CORRECTIVE
1	12g	CERVICAL
2	12g	GINGIVA
2		Shade sample blades
1		Working instructions



MARGIN KIT

Quantity	Content	Material
7	12g	MARGIN
1		Shade sample blade
1		Working instructions

COLOR OPAQUE

CO3, CO6, CO7 are available separately as 12g Powder and 5g Paste.

Presentation VITA VMK 95 classical

STANDARD SET

containing:

Material	VITAPAN classical with Powder opaque*	
	Set 12	SET 50
WASH OPAQUE	1 x 12g	1 x 12g
OPAQUE	16 x 12g	16 x 12g
DENTINE	16 x 12g	16 x 50g
ENAMEL	2 x 12g	2 x 50g
NECK	4 x 12g	4 x 12g
TRANSLUCENT	1 x 12g	1 x 12g
WINDOW	1 x 12g	1 x 12g
MODELLING FLUID	1 x 50ml	1 x 50ml
OPAQUE FLUID	1 x 50ml	1 x 50ml
VMK 95 Shade indicator	1	1
Firing trays G	1 set	1 set
Working instructions Nr. 905	1	1

* each also available with PASTE OPAQUE.

VITA VMK 95 classical 6-COLOR-SET [◇] with Powder opaque *

containing:

Contents	Material
1 x 12g	WASH OPAQUE
6 x 12g	OPAQUE
6 x 12g	DENTINE
2 x 12g	ENAMEL
1 x 12g	TRANSLUCENT T4
1 x 50ml	OPAQUE FLUID
1 x 50ml	MODELLING FLUID
1	Shade indicator
1	Working instructions

[◇] available in the VITAPAN shades A2/A3/A3,5/B2/B3 and D3

* each also available with PASTE OPAQUE

VITA VMK 95 classical PASTE OPAQUE SET

containing:

Contents	Material
1 x 7g	PASTE WASH OPAQUE
16 x 5g	PASTE OPAQUE
1 x 15ml	PASTE OPAQUE LIQUID
1	Flat brush
1	Mixing spatula
1	Working instructions

VITA VMK 95 classical OPAQUE DENTINE SET

containing:

Contents	Material
16 x 12g	OPAQUE DENTINE
1	Working instructions



VITA VMK 95 METAL CERAMIC powders consist of modified feldspar frits and admixtures of low proportions of colour frits melted into the shade-giving metal oxides. If used as the manufacturer intended no dangers are known to us for the user. In the case of dust formation use an extractor unit or the dust mask P2 (or grind when wet). Protective goggles should be worn when grinding the fired ceramic.

If used as the manufacturer intended there are no known dangers for the user with VITA MODELLING FLUID, VITA SPECIAL MODELLING FLUID, VITA MODELLING LIQUID EXTRA and VITA PASTE OPAQUE LIQUID. With regard to biocompatibility there are no known long-term effects of the ceramic.

The following products are subject to compulsory labelling:



VITA OPAQUE FLUID

Caustic

Gives rise to chemical injuries

- Store under lock and key and keep away from children.
- Do not eat or smoke while working
- In case of contact with the eyes, immediately rinse thoroughly with water and consult a physician.
- Do not allow this material to penetrate into the sewage system; dispose of this product and its container in the waste disposal for hazardous waste.
- Wear suitable protective clothing, protective gloves and goggles/face mask when working.
- In case of accident or unwellness consult physician immediately (if possible show this label).



VITA SPRAY-ON INDICATOR LIQUID

Highly flammable

- Store container tightly closed in a well-ventilated place.
- Keep away from sources of ignition – do not smoke.
- Do not eat or drink when working.
- In case of accident or unwellness consult physician immediately (if possible show this label).
- Avoid exposure – obtain special instructions before using.
- Dispose of this product and its container as hazardous waste.



VITA SPRAY-ON LIQUID

Highly flammable

- Store container tightly closed in a well-ventilated place.
- Do not inhale gas/smoke/vapour/aerosol.
- In case of inadequate ventilation wear respiratory protective equipment.
- In case of accident or unwellness consult physician immediately (if possible show this label).
- Avoid exposure – obtain special instructions before using.
- Dispose of this product and its container as hazardous waste.

For detailed instructions see the Material Safety Data Sheets!

The following products are certified and bear the CE mark

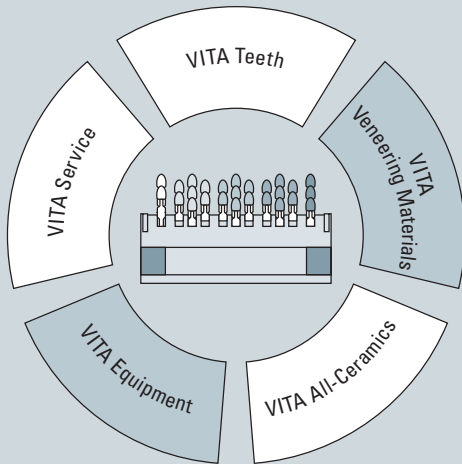
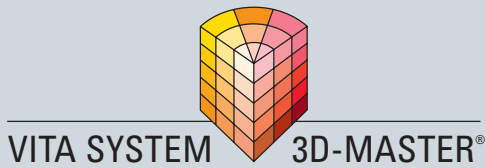
CE 0124

VITA VMK 95

VITA Akzent



VITA VMK 95 Metal Ceramic is available in the VITA SYSTEM 3D-MASTER® and VITAPAN® classical system. Shade compatibility is guaranteed with all VITA materials.



With the unique VITA SYSTEM 3D-MASTER® all natural tooth shades are systematically determined and completely reproduced.

Please note: Our products should be used according to the working instructions. We cannot be held liable for damages resulting from incorrect handling or usage. The user is furthermore obliged to check the product before use with regard to its suitability for the intended area of applications. We cannot accept any liability if the product is used in conjunction with materials and equipment from other manufacturers which are not compatible or not authorized for use with our product. Furthermore, our liability for the correctness of this information is independent of the legal ground and, in as far as legally permissible, is limited to the invoiced value of the goods supplied excluding turnover tax. In particular, as far as legally permissible, we do not assume any liability for profit loss, for indirect damages, for consequential damages or for claims of third parties against the purchaser. Claims for damages based on fault liability (culpa in contrahendo, breach of contract, unlawful acts, etc.) can only be made in the case of intent or gross negligence. The VITA Module Box is not a compulsory component of the product. Date of issue of these directions for use: 07/03

CE 0124

VITA

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