Survey of alloys tested by VITA in combination with VITA VMK Master®

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High Gold Content Alloys Alloy name	Manufacturer / Distribution[a)]	CTE [$10^{-6} \cdot K^{-1}$] * 25-600°C (25-500°C)	Cooling *	Cooling **
Adorbond P 200+	Ador	14,6 (14,3)	--	N
Adorbond P 400	Ador	14,3 (14,6)	--	N
Adorbond S	Ador	14,1 (13,5)	--	N
Argedent Bio Yellow PF	Argen	14,5 (14,3)	--	L
Argedent Yellow 2	Argen	14,5 (14,3)	--	L
Argedent 3	Argen	14,4 (14,1)	--	N
Ponto Lloyd P	Bego	14,0 (13,8)	N	N
Ponto Star Ti	Bego	14,2	N	N
Pontostar G [b)]	Bego	14,6	L	L
Pontostar H [b)]	Bego	14,0 (13,8)	N	N
PontoLloyd G	Bego	14,3 (14,1)	--	N
Bio PontoStar	Bego	14,4 (14,2)	--	L
Bio PontoStar XL	Bego	14,4 (14,2)	--	N
BioEthic [b)]	Cendres & Métaux	14,8 (14,5)	L	L
Esteticor Helvetica [b)]	Cendres & Métaux	14,8 (14,5)	L	L
Esteticor Ideal H [b)]	Cendres & Métaux	14,7 (14,5)	L	L
Esteticor Topas	Cendres & Métaux	14,1 (13,8)	N	N
Esteticor Vision [b)]	Cendres & Métaux	14,8 (14,5)	L	L
Esteticor Avenir [b)]	Cendres & Métaux	14,6 (14,3)	N	N
Esteticor Lumina PF [b)]	Cendres & Métaux	14,6 (14,2)	N	N
V-Gnathos PF	Cendres & Métaux	14,9 (14,6)	N	L
V-Gnathos Plus [b)]	Cendres & Métaux	14,6 (14,3)	L	L
V-Supragold [b)]	Cendres & Métaux	14,6 (14,3)	N	L
Biobond III	DeguDent	14,2 (13,9)	--	N
Degudent G [b)]	DeguDent	14,7 (14,5)	--	L
Degudent GS [b)]	DeguDent	14,6 (14,4)	--	L
Degudent H	DeguDent	14,4 (14,2)	--	L
Degudent U	DeguDent	14,0 (13,8)	--	N

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VITA Zahnfabrik • H. Rauter GmbH & Co.KG •
Spitalgasse 3 • D-79713 Bad Säckingen
www.vita-zahnfabrik.com

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High Gold Content Alloys Alloy name	Manufacturer / Distribution[a)]	CTE [$10^{-6} \cdot K^{-1}$] * 25-600°C (25-500°C)	Cooling *	Cooling **
Biorplid Keramik	Hafner	14,2 (14,1)	N	N
Orplid Keramik 2	Hafner	14,2 (14,1)	N	N
Orplid Keramik 3	Hafner	14,5 (14,3)	L	L
Orplid Keramik 4	Hafner	14,3 (14,1)	N	N
Orplid Keramik 5	Hafner	14,3 (14,1)	N	N
Bio Herador GG [b)]	Heraeus	(14,5)	L	L
Bio Herador SG [b)]	Heraeus	(14,5)	L	L
Herador C [b)]	Heraeus	(14,4)	L	L
Herador H	Heraeus	(13,9)	N	N
Herador NH	Heraeus	(13,9)	N	N
Herador PF [b)]	Heraeus	(13,7)	N	N
Herador S [b)]	Heraeus	(14,3)	L	L
Herador SG	Heraeus	(14,4)	L	L
Classic 4 [b)]	Jensen	14,4 (14,2)	--	N
Koos 960 Plus [b)]	Koos	14,5	N	N
Koos Bio 980	Koos	14,4	N	N
Koos Bioextra	Koos	14,6	N	N
Alphador Nr.1 [b)]	Schütz	(14,3)	L	L
Pagedor AM-H	Stähle[a)]	14,5 (14,3)	--	L
Wegold HG-Plus [b)]	Wegold	14,3 (14,1)	N	N
Wegold Biologic	Wegold	14,1 (14,0)	N	N
AGC-Galvanogold	Wieland	15,7 (15,5)	--	N
Porta Geo Ti [b)]	Wieland	14,3 (14,1)	--	L
Porta Impuls	Wieland	14,2 (14,0)	--	N
Porta P6	Wieland	14,2 (14,0)	--	N

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Gold Reduced Alloys

Alloy name	Manufacturer / Distribution[a)]	CTE [$10^{-6} \cdot K^{-1}$] * 25-600°C (25-500°C)	Cooling *	Cooling **
Adorbond G	Ador	14,3 (14,2)	--	N
Adornova Light	Ador	14,9 (14,7)	--	N
Argedent 65 SF	Argen	14,4 (14,1)	--	N
Argedent Euro	Argen	14,4 (14,1)	--	N
BegoCer G	Bego	13,9	N	N
BegoStar	Bego	14,2 (14,0)	--	N
BegoStar ECO	Bego	14,5 (14,2)	--	N
Degudor	DeguDent	14,0 (13,7)	--	N
Deva 4	DeguDent	13,8 (13,5)	--	N
Cehadentor Keramik SF 3	Hafner	13,9 (13,8)	N	N
Heraloy G	Heraeus	(13,9)	N	N
Olympia	Jelenko	(13,9)	N	N
Pagedor SW-I	Stähle[a)]	14,1 (13,9)	--	N
Porta SMK 82	Wieland	14,1 (13,9)	--	N

Palladium Base Alloys (Palladium Content up to 80%)

Alloy name	Manufacturer / Distribution[a)]	CTE [$10^{-6} \cdot K^{-1}$] * 25-600°C (25-500°C)	Cooling *	Cooling **
Argelite 75+6	Argen	14,5 (14,3)	--	L
Argelite 61	Argen	14,7 (14,5)	--	L
BegoPal	Bego	13,9 (13,7)	N	L
BegoPal 300	Bego	14,0 (13,8)	N	N
BegoPal S	Bego	14,6 (14,4)	L	N
Ceradelta 2	Cendres & Métaux	14,9 (14,5)	N	L
Degupal G	DeguDent	14,3 (14,1)	--	N
Pangold Keramik N	Hafner	15,1 (14,9)	L	L
Pangold Keramik N2	Hafner	14,2 (14,1)	N	N
Albabond B	Heraeus	(13,5)	N	N
Koos 300	Koos	14,6	N	N
Wegold MT	Wegold	13,8 (13,5)	N	N
Duo Pal 6	Wieland	14,3 (14,1)	--	N
Simidur S 2	Wieland	14,5 (14,2)	--	N

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Base Metal Cast Alloys Alloy name	Manufacturer / Distribution[a)]	CTE [$10^{-6} \cdot K^{-1}$] * 25-600°C (25-500°C)	Cooling *	Cooling **
Vera Bond	AalbaDent	14,0	--	N
Vera Bond V	AalbaDent	--	--	N
System Duro	Adentatec	14,1	--	N
System NH	Adentatec	14,0	--	N
System KN	Adentatec	14,0	--	N
System MM	Adentatec	14,1	--	N
Adorbond CN	Ador	14,0 (13,8)	--	N
Adorbond CC	Ador	14,0 (13,9)	--	N
Wirobond C	Bego	14,2 (14,0)	L	L
Wiron 99	Bego	14,0 (13,8)	N	N
Wiron light	Bego	14,1 (13,8)	--	N
Wirocer Plus	Bego	14,0 (13,8)	--	N
Wirobond SG	Bego	14,3 (14,1)	--	L
Wirobond 280[1)]	Bego	14,2 (14,0)	--	S[1)]
Gialloy CB-N	BK Giulini	14,1	--	N
Remanium CD	Dentaurum	(14,7)	L	L
Remanium Secura	Dentaurum	(14,4)	--	L
Remanium Star	Dentaurum	(14,1)	--	L
Remanium 2000+	Dentaurum	(14,0)	--	L
Remanium Star CL	Dentaurum	(14,1)	--	L
Kera N	Eisenbacher	14,1	--	N
Kera NH	Eisenbacher	14,1	--	N
Kera C	Eisenbacher	14,1	--	L
FINOBOND NF Superior	FINO[a)]	(14,4)	--	L
Finobond NF	FINO[a)]	14,4	--	L
Heraenium P	Heraeus	(13,8)	--	N
Coritec CoCr	Imes-Icore[a)]	--	--	L
I BOND NF	Interdent	14,0 (13,9)	--	N
I BOND 02	Interdent	14,0 (13,9)	--	N

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Base Metal Cast Alloys

Alloy name	Manufacturer / Distribution[a)]	CTE [$10^{-6} \cdot K^{-1}$] * 25-600°C (25-500°C)	Cooling *	Cooling **
Lukachrom C	Lukadent	14,0 (13,9)	--	N
Lukachrom N	Lukadent	14,4 (13,9)	--	N
Lukachrom FH	Lukadent	14,4 (14,7)	--	N
Magnum Ceramic Co	Mesa	14,6 (14,1)	L	N
Magnum Ceramic S	Mesa	14,1 (13,7)	N	N
Magnum Fulgens	Mesa	14,9 (14,4)	N	L
Okta-C	SAE Dental[a)]	(14,3)	--	L
SHERADENT	SHERA	14,5	--	L
Keramic CO NP 1	SODIDENT	14,1	--	N
Keramic NI NP 3	SODIDENT	14,1	--	N
Starbond COS	S&S Scheftner	14,0	--	N
Starbond NI	S&S Scheftner	14,0	--	N
KC	Success Dental Company[a)]	--	--	N
Max Bond Ruby	Success Dental Company[a)]	--	--	L

Base Metal Discs

Alloy name	Manufacturer / Distribution[a)]	CTE [$10^{-6} \cdot K^{-1}$] * 25-600°C (25-500°C)	Cooling *	Cooling **
Magia Cam	Dentale Kompetenz	14,6 (14,0)	--	L
Solera Cam[1)]	Dentale Kompetenz	14,5 (14,1)	--	S[1)]
Remanium Star	Dentaurum	(14,1)	--	L
Kera Disc[1)]	Eisenbacher	14,5	--	N[1)]
InCoris NP	infiniDent[a)]	--	--	S
DISKBOND NF	Interdent	--	--	S
NobelProcera Base Metal Alloy Cobalt Chromium	Nobel Biocare	(14,1)	--	L
Zenotec	Wieland	(14,4)	--	S

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Base Metal, laser sintered				
Alloy name	**Manufacturer / Distribution[a)]**	**CTE [$10^{-6} \cdot K^{-1}$] * 25-600°C (25-500°C)**	**Cooling ***	**Cooling ****
Wirobond C+	Bego	14,2 (14,0)	--	L
Remanium Star	Dentaurum	(14,1)	--	L
EOS CoCr SP2	EOS	14,2-14,5 (13,9-14,3)	--	L

Base Metal densely sintered				
Alloy name	**Manufacturer / Distribution[a)]**	**CTE [$10^{-6} \cdot K^{-1}$] * 25-600°C (25-500°C)**	**Cooling ***	**Cooling ****
Ceramill Sintron[1)]	Amann Girrbach	14,4 (14,1)	--	S[1)]
InCoris CC	Sirona[a)]	--	--	S

* according to the information of the alloy manufacturers
** based on sample tests performed by VITA
b) Crowns and bridges up to 3 units; as for bridges with a larger span length, please contact the alloy manufacturer with regard to the low heat resistance(low solidus point)
[a)] Distribution
-- there are no details from the alloy manufacturer available
[1)] only in combination with Non Precious Bonder

Cooling: N = normal S = slow

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VITA Zahnfabrik • H. Rauter GmbH & Co.KG •
Spitalgasse 3 • D-79713 Bad Säckingen
www.vita-zahnfabrik.com

Information on the use

Attention! Important information!

Information must be read prior to the use!

This survey only intends to provide help for the selection of alloys **without any obligation on the part of VITA**. **VITA Zahnfabrik will not assume any liability** for the safety and efficiency of the combination of VITA VMK Master and the alloys listed in the survey and for any damage resulting from lack of suitability of the alloy for processing with VITA VMK Master and from any product modifications or quality defects of the alloy in use. The same shall apply to damage resulting from improper handling or processing as well for damage resulting from inappropriate or faulty working instructions for the alloys for which VITA Zahnfabrik will not assume any liability either.

The information provided in this survey refers exclusively to the compatibility of the CTE of the listed alloy with VITA VMK Master for the fabrication of veneers. Any evaluation of the quality of the respective metal-ceramic bond shall not be made in this survey.

The results are exclusively based on sample testing of veneering. VITA Zahnfabrik has no influence on variations in quality in different charges of the alloys and product modifications by the manufacturers.
Prior to processing VITA VMK Master with one of the alloys listed in this survey, the user must verify the suitability of the alloy for processing with VITA VMK Master!

In the sample tests of firing results and thermal stability performed by VITA Zahnfabrik the alloys listed in this survey produced good results in combination with VITA VMK Master. We expressly point out that these tests **were only sample tests** (at least 6 single crowns and 1 three-unit bridge).

If perfect results were obtained in the tests, the respective alloys were included in our list.
Thermal fatigue resistance, however, also depends on the size of the object, structure, hardness, thermal conductivity of the alloy in use, percentage of old metal, casting quality and, in particular, on the firing procedure so that it can not be concluded that the use of the alloys listed will always ensure perfect results.

Additionally, the coefficient of thermal expansion (CTE) of all alloys listed was determined. In some cases the CTE values provided by the alloy manufacturers may differ from our measurement results. Our result of the CTE measurement formed the basis for the firing cycles in the tests performed by VITA Zahnfabrik. After firing, all restorations were assessed visually prior to thermal fatigue resistance testing. Then all restorations were tested for thermal fatigue resistance.

Experience gathered over numerous years has shown that the use of alloys with a CTE between 14 - 14.4, measured at 25-600 °C, allows to achieve very good results. If the CTE value of the alloy is higher, the temperature range between 900 °C to 700 °C must not be passed in less than three minutes during the cooling phase. However, this does not apply each alloy. In individual cases successful firing performed by VITA Zahnfabrik may differ from the recommendations of the alloy manufacturers.

If you have any questions or problems, please call the VITA Hotline, Tel.: (++49) 7761 / 562-222.

Any illustrations and written information are without obligation and not binding and do not include any undertaking as to characteristics.
This alloy list does not claim to be complete.

After the publication of this survey any previous versions become obsolete.

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