

C. Hafner precious metal alloys > Counts, Data Facts

Alloy	DIN EN ISO NORM*	Type**	Colour	Content (%)										Alloy	Density (g/cm³)	Vickers Hardness (HV 5/30)			0.2% Yield Strength (MPa)			Elongation (%)			Softening 15 min (°C)	Hardening 15 min (°C)
				Au	Pt	Pd	Ag	Cu	In	Sn	Zn	Ir	Others			s	h	c/f	s	h	c/f	s	h	c/f		
Casting alloys																										
Biorplid® G	22674	2	deep yellow	82.5	4.0	–	7.5	5.0	–	–	1.0	–	Biorplid® G	17.5	110	165	130	180	280	260	41	23	25	750	500	
Orplid G1	22674	5	yellow	71.9	7.5	–	11.0	9.0	–	–	0.5	0.1	Orplid G1	16.0	150	230	230	340	640	610	35	20	23	800	450	
Orplid H	22674	5	yellow	70.0	3.9	2.0	13.0	9.5	–	–	1.5	0.1	Orplid H	15.4	170	260	250	385	640	600	20	9	12	700	400	
Orplid EH	22674	5	yellow	69.0	6.0	–	13.0	11.0	–	–	1.0	–	Orplid EH	15.5	175	270	270	450	650	620	25	6	10	750	450	
P3	22674	5	light yellow	49.0	0.5	5.5	33.0	10.0	–	–	2.0	–	P3	13.2	160	270	270	415	810	–	16	2	–	750	350	
Cehadentor® CF	22674	4	light yellow	50.1	–	10.1	29.7	–	8.0	–	2.0	0.1	Cehadentor® CF	13.3	150	210	200	300	460	440	19	8	9	700	400	
Cehadentor 2	22674	5	yellow	57.0	0.5	4.0	24.9	13.0	–	–	0.5	0.1	Cehadentor 2	14.2	170	260	260	335	745	700	30	6	10	750	450	
Elfenbeingold® G2	22674	5	light yellow	50.1	–	9.9	30.9	5.5	–	–	3.5	0.1	Elfenbeingold® G2	13.4	160	260	245	480	800	740	20	8	10	750	350	
Pangold®	22674	5	white	5.0	–	23.0	59.0	12.0	–	–	1.0	–	Pangold®	10.8	120	230	200	310	650	600	17	11	13	950	600	
Metal ceramic alloys for conventional ceramics																										
Biorplid Keramik	22674*	3	yellow	86.0	12.5	–	–	–	1.5	–	–	–	Biorplid Keramik	19.2	90	170	150	110	350	350	30	10	10	900	550	
Orplid Keramik 2	22674*	3	deep yellow	87.5	11.0	–	–	–	1.0	–	–	–	Fe 0.5	Orplid Keramik 2	19.1	90	175	175	150	360	345	24	13	15	900	600
Orplid Keramik 3	22674*	5	light yellow	84.0	8.2	4.7	0.5	0.1	2.4	–	–	0.1	Orplid Keramik 3	18.1	110	240	190	400	640	630	10	6	7	900	600	
Orplid Keramik 4	22674*	5	pale yellow	74.5	10.2	10.0	1.7	0.1	2.9	0.5	–	0.1	Orplid Keramik 4	17.8	150	260	200	220	535	520	23	5	8	900	600	
Orplid Keramik 5	22674*	5	yellow	86.2	11.5	–	–	–	–	–	1.5	–	Ru 0.4; Ta 0.3; Mn 0.1	Orplid Keramik 5	19.1	150	170	190	340	500	515	35	13	12	800	450
Orplid Keramik PF	22674*	5	light yellow	77.7	19.5	–	–	–	–	–	2.0	0.1	Ta 0.7	Orplid Keramik PF	19.1	110	220	220	380	560	530	25	15	17	900	550
Orplid Implant	22674*	5	white	75.0	–	19.0	1.0	0.4	2.0	2.0	0.5	0.05	Ru 0.05	Orplid Implant	16.1	125	240	220	297	605	585	35	14	19	800	550
Orplid Universal	22674*	5**	deep yellow	72.6	15.6	–	7.0	–	–	–	3.0	–	Rh 1.0; Ta 0.7; Mn 0.1	Orplid Universal	17.4	140	220	190	250	500	455	18	9	14	750	500
Cehadentor Keramik SF3	22674*	5	white	51.5	–	38.4	–	–	8.5	–	–	–	Ru 0.1; Ga 1.5	Cehadentor Keramik SF3	14.4	220	290	225	430	590	575	28	17	19	1100	600
Cehadent Keramik	22674*	5**	white	53.0	–	26.9	16.0	–	3.0	1.0	–	0.1	Orplid Universal	Cehadent Keramik	14.6	150	230	180	345	520	480	23	11	18	900	600
UNILIGHT Classic	22674*	5	white	–	–	61.5	24.5	–	2.0	9.9	2.0	–	Ru 0.1	UNILIGHT Classic	11.3	260	320	310	583	725	600	19	12	18	900	600
Pangold® Keramik N2	22674*	5	white	15.0	0.1	52.3	20.0	–	6.0	5.5	–	–	Ga 1.0; Re 0.1	Pangold® Keramik N2	12.1	240	310	265	545	685	620	9	4	6	950	600
Pangold Keramik N	22674*	5	white	0.1	–	54.7	35.0	–	3.0	6.0	–	–	Ga 1.0; Ru 0.2	Pangold Keramik N	10.7	160	245	190	450	590	580	9	7	8	950	600
Pangold Keramik SF2	22674*	5	white	1.5	–	78.3	–	11.5	–	–	–	0.2	Ga 8.5	Pangold Keramik SF2	10.9	290	360	320	640	940	920	21	5	7	900	600
Metal ceramic alloys with a high coefficient of thermal expansion for low melting point ceramics																										
Orplid C	22674*	4	yellow	75.0	9.1	–	12.5	–	–	–	2.0	0.1	Ta 0.4; Rh 0.9	Orplid C	17.0	115	205	165	210	455	435	18	10	15	750	500
Orplid CF	22674*	5**	light yellow	72.0	0.5	6.5	17.4	–	–	0.5	3.0	0.1	Orplid CF	15.4	140	220	220	310	560	490	27	17	20	700	450	
Orplid GK	22674*	5	yellow	73.8	9.0	–	9.2	4.4	1.5	–	2.0	0.1	Orplid GK	16.6	150	250	205	340	625	506	28	15	15	800	400	
Cehadentor CF2	22674*	3	light yellow	59.0	–	9.9	25.0	–	–	4.0	2.0	0.1	Cehadentor CF2	14.4	140	200	180	250	360	350	12	6	7	800	450	
UNILIGHT Plus	22674*	5	light yellow	40.0	–	15.0	35.9	–	9.0	–	–	0.1	UNILIGHT Plus	13.0	165	230	210/220	280	580	540	18	7	10	750	550	
UNILIGHT LFC	22674*	4**	white	–	–	37.9	53.0	–	2.0	2.0	5.0	0.1	UNILIGHT LFC	10.9	165	220	190	335	490	335	20	10	16	850	500	
Orplid wire		7	light yellow	65.0	10.0	–	17.0	8.0	–	–	–	–	Orplid wire	15.8	190	280	–	470	660	–	12	5	–	800	400	

*DIN EN ISO 22674
Also valid Norm:
DIN EN ISO 9693

**** Type**

- 0 Intended for low stress bearing single-tooth fixed restorations, e.g. small veneered one-surface inlays, veneered crowns. Note: Metallic materials for metal-ceramic crowns produced by electroforming or sintering belong to Type 0.
- 1 Intended for low stress bearing single-tooth fixed restorations, e.g. small veneered or unveneered one-surface inlays, veneered crowns.
- 2 Intended for single-tooth fixed restorations, e.g. small veneered one-surface inlays, veneered crowns.
- 3 Intended for multiple unit fixed restorations.
- 4 Intended for applications with thin sections that are subject to very high forces, e.g. removable partial dentures, clasps, thin veneered crowns, wide-span bridges or bridges with small cross-sections, bars, attachments, implant retained superstructures.
- 5 Intended for applications in which parts require the combination of high stiffness and strength, e.g. thin removable partial dentures, parts with thin cross-sections, clasps

** = hardened

Explanations for the abbreviations

- s = soft
- h = hardened
- c/f = after casting/firing

- = High Gold Alloys
- = Gold-Palladium Alloys
- = Gold-Silver Alloys

Delivery form
Casting cubes

C. HAFNER PRECIOUS METAL ALLOYS > GROWTH RATE

Alloy	Melting range (°C)	Pre-heating temperature (°C)	Casting/furnace temperature (°C)	Heating after melting (s)			CTE open flame	Solder 25-500/600 °C (µm/mK)	Alloy	Laser-/welding wire	Growth rate Growth weight (g)*													
				electric	inductive	open flame					0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	3.0	4.0	5.0	
Casting alloys								Casting alloys																
Biorplid® G	985-900	700	1120	15-20	5-8	5-8	—	Orplid Lote 825. 790. 760	Biorplid® G	yes	3.9	7.8	11.7	15.6	19.5	23.4	27.3	31.1	35.0	38.9	58.3	77.8	97.3	
Orplid G1	970-930	700	1100	15-20	5-8	5-8	—	Orplid Lote 910. CF 720	Orplid G1	yes	3.6	7.2	10.7	14.3	18.9	21.4	24.9	28.5	32.0	35.6	53.4	71.2	88.9	
Orplid H	935-895	700	1070	15-20	5-8	5-8	—	Orplid Lote 825. 790. 760	Orplid H	yes	3.5	6.9	10.3	13.7	17.2	20.6	24.0	27.4	30.8	34.3	51.4	68.5	85.6	
Orplid EH	925-890	700	1060	15-20	5-8	5-8	—	Orplid Lote 825. 790. 760	Orplid EH	yes	3.5	6.9	10.4	13.8	17.3	20.7	24.2	27.6	31.0	34.5	51.7	68.9	86.2	
P3	910-860	700	1060	15-20	15-10	5-8	—	Orplid Lote 825. 790. 760	P3	yes	3.0	6.0	8.9	11.9	14.8	17.8	20.7	23.7	26.6	29.6	44.4	59.2	73.9	
Cehadentor® CF	965-880	700	1100	15-20	5-8	5-8	—	Orplid Lote CF 870. CF 720	Cehadentor® CF	yes	3.0	6.0	8.9	11.9	14.8	17.8	20.7	23.7	26.6	29.6	44.4	59.2	73.9	
Cehadentor 2	905-870	700	1040	15-20	5-8	5-8	—	Orplid Lote 825. 790. 760	Cehadentor 2	yes	3.2	6.4	9.5	12.7	15.8	19.0	22.1	25.3	28.4	31.6	47.4	63.2	78.9	
Elfenbeingold® G2	970-910	700	1100	15-20	5-8	5-8	—	Orplid Lote 825. 790. 760	Elfenbeingold® G2	yes	3.0	6.0	9.0	12.0	14.9	17.9	20.9	23.9	26.8	29.8	44.7	59.6	74.5	
Pangold	1020-940	750	1200	20-30	5-10	5-10	—	Universal Lot 770	Pangold®	yes	2.4	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0	36.0	48.0	60.0	
Metal ceramic alloys for conventional ceramics								Before firing	After firing	Metal ceramic alloys for conventional ceramics														
Biorplid Keramik	1140-1075	800	1290	60-90	5-10	5-10	14.1/14.2	Orplid Keramik Lot 1050	Orplid Lote 760, 735	Biorplid Keramik	yes	4.3	8.6	12.8	17.1	21.4	25.6	29.9	34.2	38.4	42.7	64.0	85.4	106.7
Orplid Keramik 2	1125-1050	800	1280	60-90	5-10	5-10	14.1/14.2	Orplid Keramik Lot 1020	Orplid Lote 760, 735	Orplid Keramik 2	yes	4.3	8.5	12.8	17.0	21.2	25.5	29.8	34.0	38.2	42.5	63.7	84.9	106.2
Orplid Keramik 3	1195-1085	850	1350	90-120	5-10	5-10	14.3/14.5	Orplid Keramik Lot 1050	Orplid Lote 760, 735	Orplid Keramik 3	yes	4.1	8.1	12.1	16.1	20.1	24.2	28.2	32.2	36.2	40.3	60.4	80.5	100.6
Orplid Keramik 4	1280-1145	850	1440	120-180	10-15	10-15	14.1/14.3	Orplid Keramik Lot 1050	Orplid Lote 760, 735	Orplid Keramik 4	yes	4.0	8.0	11.9	15.9	19.8	23.8	27.7	31.7	35.6	39.6	59.4	79.2	98.9
Orplid Keramik 5	1100-1035	850	1250	60-90	5-10	5-10	14.1/14.3	Orplid Keramik Lot 1020	Orplid Lote 825, 735	Orplid Keramik 5	yes	4.3	8.5	12.8	17.0	21.2	25.5	29.8	34.0	38.2	42.5	63.7	84.9	106.2
Orplid Keramik PF	1165-1050	800	1320	90-120	5-10	5-10	14.0/14.1	Orplid Keramik Lot 1050	Orplid Lote 760, 735	Orplid Keramik PF	yes	4.3	8.5	12.8	17.0	21.2	25.5	29.8	34.0	38.2	42.5	63.7	84.9	106.2
Orplid Implant	1230-1115	850	1380	90-120	10-15	10-15	13.9/14.3	Orplid Keramik Lot 1020	Orplid Lot 760	Orplid Implant	yes	3.6	7.3	11.0	14.7	18.9	22.0	25.6	29.3	33.0	36.6	54.9	73.2	91.7
Orplid Universal	1070-995	750	1230	20-30	5-8	5-8	14.2/14.6	Orplid Keramik Lot C 970	Orplid Lot 735	Orplid Universal	yes	4.0	7.6	11.5	15.0	19.2	23.0	26.6	30.8	34.0	37.6	57.8	76.9	96.8
Cehadentor Keramik SF3	1310-1150	850	1460	120-180	10-15	10-15	13.8/13.9	Cehadentor Keramik Lot 1110	Orplid Lot CF 720	Cehadentor Keramik SF3	yes	3.2	6.4	9.6	12.8	16.0	19.2	22.4	25.6	28.8	32.0	48.0	64.0	80.0
Cehadent Keramik	1275-1210	850	1450	120-180	15-20	15-20	14.7/14.9	Cehadent Keramik Lot 1110	Orplid Lot CF 720	Cehadent Keramik	yes	3.2	6.5	9.7	13.0	16.2	19.4	22.7	25.9	29.2	32.4	48.6	64.8	81.0
CeHaLIGHT Classic	1260-1180	850	1430	120-180	10-15	10-15	14.2/14.5	Cehadentor Keramik Lot 1110	Orplid Lot CF 860	UNILIGHT Classic	yes	2.6	5.2	7.8	10.4	12.6	15.5	17.6	20.6	23.0	25.4	38.0	51.5	63.5
Pangold® Keramik N2	1265-1145	850	1420	120-180	10-15	10-15	14.1/14.2	Cehadentor Keramik Lot 1110	Orplid Lote 760, 735	Pangold® Keramik N2	yes	2.7	5.4	8.1	10.8	13.5	16.2	18.9	21.6	24.2	26.9	40.4	53.8	67.3
Pangold Keramik N	1260-1145	850	1410	120-180	10-15	10-15	14.9/15.1	Cehadentor Keramik Lot 1110	Orplid Lote 760, 735	Pangold Keramik N	yes	2.4	4.8	7.2	9.5	11.9	14.3	16.7	19.0	21.4	23.8	35.7	47.6	58.4
Pangold Keramik SF2	1165-1090	850	1350	60-120	5-10	10-15	14.1/14.2	Cehadentor Keramik Lot 1110	Orplid Lote 735, CF 720	Pangold Keramik SF2	yes	2.4	4.8	7.3	9.7	12.0	14.5	17.0	19.4	21.8	24.2	36.3	48.4	60.6
Metal ceramic alloys with a high coefficient of thermal expansion for low melting point ceramics								Before firing	After firing	Metal ceramic alloys with a high coefficient of thermal expansion for low melting point ceramics														
Orplid C	1060-955	700	1210	15-20	5-8	5-8	15.0/15.5	Orplid Keramik Lot C 970	Orplid Lot CF 720	Orplid C	yes	3.8	7.5	11.3	15.1	18.9	22.6	26.4	30.2	34.0	37.7	56.6	75.5	94.4
Orplid CF	1050-955	700	1200	15-20	5-8	5-8	16.4/16.9	Orplid Keramik Lot CF 950	Orplid Lot CF 720	Orplid CF	yes	3.5	6.9	10.3	13.7	17.2	20.6	24.0	27.4	30.8	34.3	51.4	68.5	85.6
Orplid GK	970-910	700	1120	15-20	5-8	5-8	16.2/16.6	Orplid Keramik Lot 880	Orplid Lot CF 720	Orplid GK	yes	3.7	7.4	11.1	14.7	18.4	22.1	25.8	29.5	33.2	36.9	55.3	73.8	92.2
Cehadentor CF2	1015-960	700	1170	15-20	5-8	5-8	17.2/17.5	Orplid Keramik Lot CF 950	Orplid Lot 735	Cehadentor CF2	yes	3.2	6.4	9.6	12.8	16.0	19.2	22.4	25.6	28.8	32.0	48.0	64.0	80.0
UNILIGHT Plus	1050-985	800	1200	20-30	5-8	5-8	16.6/17.0	Orplid Lot CF 870 Orplid Keramik Lot CF 950	Orplid Lot CF 720	UNILIGHT Plus	yes	2.8	5.5	8.0	10.9	13.5	16.5	18.8	20.9	24.8	27.0	41.0	55.5	70.8
UNILIGHT LFC	1100-1060	700	1280	90-120	10-15	10-15	16.1/16.7	Orplid Keramik Lot C 970	Orplid Lot CF 720	UNILIGHT LFC	yes	2.5	5.0	7.5	9.9	12.4	14.9	17.0	19.6	22.0	24.8	36.8	49.0	60.8

* Weights good for vacuum pressure casting. For centrifugal casting you need an additional 5 grams of alloy for the cone.

