REGULAR YELLOW ALLOYS

* Certified by the American Dental Association Council on Dental Materials, Instruments & Equipment HN – High Nobel: at least 40% gold and at least 60% noble metal content N – Noble: at least 25% noble metal content S – Soft; H – Hard, heat treated

Alloy Name	Product Number	Applications	Insurance Category	Type	Color Ref.	Metal Content % Au	Pt	Pd	Ag	Cu	In	Zn	Other <1%	Vickers Hardness S / H	Brinell Hardness S / H	Elongation % S / H	Yield PSI S / H	Yield MPa S / H	Ultimate Tensile PSI S / H	Ultimate Tensile MPa S / H	Melting Range (˚F)	Melting Range (˚C)	Burnout Temp (˚F)	Burnout Temp (˚C)	Casting Temp (˚F)	Casting Temp (˚C)	Hardening (heat treating) ˚F (˚C)	Min.	Specific Gravity (density) g/cm³	Suggested Solder
Sterngold S	1126386	E	HN	I	①	83 .00		0.95	12.00	4.00			Zn, Ru	80 / –	65 / –	35 / –	15,000 / –	103 / –	50,000 / –	345 / –	1730-1760	945-960	1300	704	1900	1040			16.61	615 Fine
Sterngold 1*	1127781	A, E, G	HN	II	②	77.00		0.95	13.63	7.87			Zn, Ir	105 / –	86 / –	36 / –	31,000 / –	214 / –	59,000 / –	407 / –	1695-1760	925-960	1300	704	1900	1040			15.90	615 Fine
Sterngold 10	1126245	A, C, E, G	HN	III	③	62.00		1.00	26.50	10.00			Zn	112 / 219	97 / 190	16 / 2	24,000 / 51,000	165 / 351	46,300 / 75,000	319 / 517	1560-1670	849-910	1300	704	1820	994	650 (343)	30	14.27	615 Fine
Sterngold B	1127575	A, C, E G	HN	III	②	73.00	2.20	2.80	15.00	6.50			Sn, Ir	165 / –	145 / –	16 / –	60,900 / –	420 / –	81,200 / –	560 / –	1688-1814	920-990	1300	704	1994	1090			16.00	615 Fine
Sterngold 2	1127472	A, E, G	HN	II	②	74.25		3.80	9.95	11.00		1.00	Ru	138 / –	120 / –	37 / –	32,000 / –	220 / –	61,000 / –	421 / –	1640-1760	893-960	1300	704	1910	1043			15.44	615 Fine
Sterngold 20	1125935	A, E, G	HN	II	④	59.50		4.00	25.00	11.00			Zn	140 / –	122 / –	30 / –	35,000 / –	241 / –	57,000 / –	393 / –	1605-1700	873-927	1300	704	1850	1010			14.19	615 Fine
Apollo	1124525	A, C, E, G, I, J	N	IV	③	46.00		6.00	39.50	7.47		1.00	Ir	135 / 230	119 / 215	30 / 13	50,000 / 84,000	345 / 579	65,000 / 100,000	448 / 690	1600-1725	870-940	1300	704	1900	1040	660 (350)	15	12.70	615 Fine
Solaro® 3	01050007	A, C, E, G, I, J	HN	IV	③	56.00	0.40	5.00	25.00	11.80		1.70	Ir	175 / 260	175/255	30/10	50,763 / 87,022	350/600	142,137 / -	980	1598-1715	870-940	1166-1256	630-680	1985-2075	1085-1135	752 (400)	15	13.70	S.G. 750
Aurofluid® 2 PF	01050010	A, C, E, G, I, J	HN	III	③	78.05	0.99		11.50	8.50		0.94	Ir	125 / 135	116/131	40/30	31,709 / 46,412	260/320	61,641 / -	425	1643-1760	895-960	1166-1256	630-680	2030-2120	1110-1160	482 (250)	15	15.90	S.G. 750
Sterngold 3	1126956	A, C, E, G, I, J	HN	IV	②	68.75	2.90	3.30	12.40	12.35			Zn	150 / 255	125 / 218	35 / 7	40,000 / 71,500	276 / 493	71,000 / 112,000	490 / 772	1690-1720	920-940	1300	704	1850	1010	650 (343)	30	15.20	615 Fine
Bio-H	1067006	A, C, E, G, I, J, K	HN	V	①	71.90	4.10		10.40	11.45				180 / 265	160 / 230	37 / 8	50,760 / 92,820	350 / 640	68,200 / 108,800	470 / 750	1600-1690	870-920	1300	704	1870	1030	650 (343)	30	16.10	615 Fine
Sterngold 100	1126040	A, C, E, G, I, J, K	HN	V	②	60.00		4.00	22.00	12.50		1.00	In	179 / 280	148 / 255	38 / 5	52,068 / 113,100	359 / 780	67,150 / 129,100	463 / 890	1481-1616	805-880	1300	704	1868	1020	650 (343)	30	14.00	500 Fine
Tiffany	1125031	A, C, E, G, I, J	N	IV	③	50.00		2.95	26.00	17.00	3.00	1.00	Ru	180 / 255	160 / 218	28 / 16	62,000 / 99,000	428 / 683	68,000 / 108,000	469 / 745	1500-1600	815-870	1300	704	1750	955	650 (343)	30	13.20	500 Fine

REGULAR WHITE ALLOYS

Alloy Name	Product Number	Applications	Insurance Category	Type	Color Ref.	Metal Content % Au	Pt	Pd	Ag	Cu	In	Zn	Other <1%	Vickers Hardness S / H	Brinell Hardness S / H	Elongation % S / H	Yield PSI S / H	Yield MPa S / H	Ultimate Tensile PSI S / H	Ultimate Tensile MPa S / H	Melting Range (˚F)	Melting Range (˚C)	Burnout Temp (˚F)	Burnout Temp (˚C)	Casting Temp (˚F)	Casting Temp (˚C)	Hardening (heat treating) ˚F (˚C)	Min.	Specific Gravity (density) g/cm³	Suggested Solder
Sterngold 66	1180229	A, C, E, G, J	N	IV		2.00		26.97	54.50	13.50	2.00	1.00		190 / 260	160 / 225	10 / 4	61,000 / 94,500	421 / 652	72,000 / 16,000	497 / 800	1690-1760	920 -960	1900	1040	2084	1140			10.50	Chrome 2

CERAMIC YELLOW ALLOYS (physical properties after the ceramic cycle)

S¹ – After ceramic firing cycle

Alloy Name	Product Number	Applications	Insurance Category	Type	Color Ref.	Metal Content % Au	Pt	Pd	Ag	In	Cu	Zn	Sn	Ga	Others <1%	Thermal Expansion µm/m-k (20-500˚C)	(20-600˚C)	Vickers Hardness S¹ / H	Brinell Hardness S¹ / H	Elongation % S¹ / H	Yield PSI S¹ / H	Yield MPa S¹ / H	Ultimate Tensile PSI S¹ / H	Ultimate Tensile MPa S¹ / H	Melting Range (˚F)	Melting Range (˚C)	Burnout Temp˚F	Burnout Temp˚C	Casting Temp˚F	Casting Temp˚C	Hardening (heat treating) ˚F (˚C)	Min.	Specific Gravity (density) g/cm³	Suggested Pre-Solder	Suggested Post-Solder
2713	1069010	B, E, G	HN	I	②	90.00	10.00									14.22	14.46	N/A	N/A	29 / –	N/A	N/A	26,500 / –	182 / –	1960-2100	1071-1149	1450	788	2325	1274			19.51	MF-Y	Chrome 2
Majestic II	1068752	B, D, I	HN	IV	①	85.45	8.00	2.50	1.00	2.50					Ir	14.22	14.60	200 / –	170 / –	13 / –	68,168 / –	470 / –	84,100 / –	580 / –	1928-2165	1070-1185	1450	788	2372	1300			18.50	MF-Y	Chrome 2
Auramic 2	1068640	B, D, I	HN	IV	②	86.45	1.90	8.55	0.50	1.20			1.20			15.02	15.20	218 / –	190 / –	5.5 / –	55,575 / –	383 / –	74,100 / –	511 / –	2150-2205	1177-1207	1450	788	2335	1290			17.61	MF-Y	Chrome 2
Bio-C	1068001	B, D, E, G	HN	IV	③	77.70	19.50					2.00			Ir, Sn	14.00	14.20	245 / 255	200 / 205	9 / 6	83,300 / 110,400	643 / 761	108,200 / 128,000	746 / 827	1975-2155	1080-1180	1450	788	2425	1330			19.10	n/a	Chrome 2
V-Gnathos Plus	01050032	B, D, E, G	HN	IV	③	85.40	11.70			0.10		1.50			Ir, Rh, Fe, Mn, Nb	14.30	14.50	210 / 205	208 / 203	6 / -	78,320 / -	540	78,320 / 84,121	540 / 580	1877-2174	1025-1190	1562	750	2534	1390			18.80	S.G. 1030	S.G. 750

CERAMIC WHITE ALLOYS (physical properties after the ceramic cycle)

Alloy Name	Product Number	Applications	Insurance Category	Type	Color Ref.	Metal Content % Au	Pt	Pd	Ag	In	Cu	Zn	Sn	Ga	Others <1%	Thermal Expansion µm/m-k (20-500˚C)	(20-600˚C)	Vickers Hardness S¹ / H	Brinell Hardness S¹ / H	Elongation % S¹ / H	Yield PSI S¹ / H	Yield MPa S¹ / H	Ultimate Tensile PSI S¹ / H	Ultimate Tensile MPa S¹ / H	Melting Range (˚F)	Melting Range (˚C)	Burnout Temp˚F	Burnout Temp˚C	Casting Temp˚F	Casting Temp˚C	Hardening (heat treating) ˚F (˚C)	Min.	Specific Gravity (density) g/cm³	Suggested Pre-Solder	Suggested Post-Solder
Est. Implant® 58	01000030	B, D, I	HN	IV		58.50		28.85	8.00				4.50		Ru, Ir	13.80	14.00	240 / 260	229 / 255	12 / 13	108,053 / 118,931	745 / 820	64,541 / 88,473	445 / 610	2219-2381	1215-1305	1562	850	2651	1455			15.10	S.G. 1055	S.G. 750
V-Deltaloy	01050001	B, D, I	HN	IV		54.20		31.04	4.83	8.99				0.90	Ir, Ru	14.10	14.30	250 / 255	240 / 250	7 / -	92,099 / -	635 / -	102,252 / -	705 / -	2039-2363	1115-1295	1562	850	2642	1450			14.70	S.W. 1100	S.G. 750
Galaxy	1065225	B, D, I	HN	IV		51.50		38.40		8.50					Ru	13.90	14.10	230 / –	180 / –	20 / –	82,000 / –	566 / –	115,000 / –	793 / –	2325-2375	1275-1300	1500	815	2500	1371			14.50	Galaxy	Chrome 2
Atlas	1060000	B, D, I	HN	V		40.00		39.40	10.00	8.80				1.40		14.10	14.40	260 / 290	225 / 280	15 / 9	78,300 / 79,800	540 / 550	116,000 / 121,800	800 / 840	2050-2300	1120-1260	1450	788	2550	1400			12.80	MF-Y	Chrome 2
Esteticor® Accurte40	01000112	B, D, I, K	HN	V		40.00		36.80	13.30	9.50				3.20	Ru	14.10	14.40	230 / 250	223 / 240	5 / 15	92,099 / 103,702	635 / 715	70,343 / 71,068	485 / 490	2210-2363	1210-1295	1562	850	2642	1450			13.60	S.W. 1125	S.G. 750
Cerapall® 2	01050011	B, D	N	IV		2.00		78.50		4.50	6.10	0.10	2.00	5.50	Ru	13.50	13.90	280 / 305	271 / 300	34 / -	85,572 / -	590 / -	124,732 / -	860 / -	2129-2345	1165-1285	1562	850	2642	1450			11.40	S.W. 1125	S.G. 750
V-Delta Special	01050028	B, D, I	N	IV		52.50		25.54	17.00	1.00	0.20	0.20	3.50		Ir, Ru	14.60	14.80	200 / 250	199 / 240	7 / 11	78,969 / 80,495	510 / 555	102,252 / -	750 / -	2111-2309	1155-1265	1562	850	2642	1450			14.40	S.W. 1125	S.G. 750
Ceradelta® 2	01050033	B. D, I, K	N	IV				61.45	24.45	2.00		2.00	10.00		Ru, B	14.20	14.60	315 / 265	308 / 262	9 / -	78,320 / -	540 / -	110,229 / -	760 / -	2120-2309	1160-1265	1562	850	2642	1450			11.30	S.W. 1120	S.G. 750
Pegasus	1069906	B, D, I	N	V		6.00		75.00	6.50	6.00					Ru	14.30	14.50	250 / 265	203 / 230	32 / 30	81,900 / 87,000	565 / 600	107,300 / 113,000	740 / 779	2095-2265	1145-1240	1450	788	2455	1345	1100 (600)	30	11.40	MF-Y	Chrome 2
V-Delta SF	01050017	B, D, I	N	IV		51.50		38.40		8.50				1.50	Ru	13.60	13.90	225 / 245	216 / 233	25	76,144 / -	525 / -	114,580 / -	790 / -	2210-2390	1210-1310	1562	850	2642	1450			14.50	S.W. 1125	S.G. 750
Ceradelta®	01050020	B, D, I, K	N	IV				57.45	32.00	6.00		1.00	2.00	1.50	Ru	14.60	14.90	250 / 305	240 / 300	13	81,946 / -	565 / -	113,129 / -	780 /	2075-2327	1135-1275	1562	850	2642	1450			11.30	S.G. 1120	S.G. 750
Columbus	1069900	B, D, I, J, K	N	V		1.80		75.70		8.00	7.50			6.30	Sn, Ru, B	14.10	14.30	290 / 315	280 / 290	19 / 16	145,700 / 160,000	1005 / 1103	174,100 / 190,000	1201 / 1310	2100-2155	1150-1180	1450	788	2355	1290	1292 (700)	40	11.20	MF-Y	Chrome 2
Vista	1060005	B, D, I, J, K	N	V				60.55	28.10	6.60			2.50		Ru	14.50	14.70	310 / –	300 / –	13 / –	107,600 / –	742 / –	144,500 / –	997 / –	2065-2325	1130-1275	1500	815	2500	1371			11.20	MF-Y	Chrome 2
V-Classic	01050023	B, D, E, G, I	HN	IV		75.00		19.00	1.00	2.00	0.44	0.50	2.00		Ir, Ru	14.00	14.30	250 /2 50	240 / 240	15 / -	82,672	570 / -	106,603 / -	735 / -	2075-2318	1135-1270	1562	850	2642	1450			16.40	S.W. 1125	S.G. 750

NON-PRECIOUS CERAMIC ALLOY

PB – Predominantly Base: nobel metal content is less than 25%

Alloy Name	Product Number	Applications	Insurance Category	Type	Metal Content % Ni	Cr	Mo	Co	Be	Fe	Si	Al	Nb	Ta	Others	Thermal Expansion µm/m-k (20-500˚C)	(20-600˚C)	Vickers Hardness	Brinell Hardness	Elongation %	Yield PSI	Yield MPa	Ultimate Tensile PSI	Ultimate Tensile MPa	Melting Range (˚F)	Melting Range (˚C)	Burnout Temp˚F	Burnout Temp˚C	Casting Temp˚F	Casting Temp˚C	Specific Gravity (density) g/cm³	Suggested Pre-Solder	Suggested Post-Solder
Beta	5052225	B, D, I, J, K	PB	V	76.00	14.00	6.00		1.80			2.00			<1.00	14.00	14.40	240	215	12-15	80,000	552	165,000	1138	2250-2355	1230-1290	1600	870	2500	1371	7.8	MF-Y	Chrome 2
Delta	5052227	B, D, I, J, K	PB	V		31.50	5.00	59.50			2.00				2.00	14.30	14.80	280	270	9	65,000	448	111,000	766	2265-2465	1240-1350	1600	870	2700	1480	8.8	MF-Y	Chrome 2
Omega	5052228	B, D, I	PB	V	54.00	22.00	9.00			4.00			4.00	4.00	3.00	14.10	14.40	240	200	6-7	52,000	359	84,000	579	2225-2250	1220-1230	1600	870	2500	1371	8.6	MF-Y	Chrome 2
Alpha	5052226	B, D, I, J, K	PB	V	72.00	15.00	9.00		1.80			2.00			<1.00	13.60	14.00	200	170	9-12	80,000	552	130,000	897	2200-2300	1205-1260	1600	870	2500	1371	7.8	MF-Y	Chrome 2

Sterngold

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Order online at www.sterngold.com

Ceramic Presoldering

(Yellow) Gold Solders	Melting Range	
S.G. 1030, #010822-1	1814-1886˚F	990-1030˚C
S.G. 1055, #010888-1	1868-1931˚F	1020-1055˚C
S.G. 1120, #01050030-1	1904-2048˚F	1040-1120˚C
S.G. 1180, #010819-1	1940-1976˚F	1060-1080˚C

(Yellow) MF-Y Solder	Melting Range	
1 DWT Strip, #1245001	2020-2075˚F	1104-1132˚C
5 DWT Wire, #1245006	2020-2075˚F	1104-1132˚C

(White) White Solders	Melting Range	
S.W. 1100, #010918-1	1850-2012˚F	1010-1100˚C
S.W. 1125, #01050031-1	1841-2057˚F	1005-1125˚C

CERAMIC PRESOLDERS

Wherever possible, select a pre-solder the high end of whose melting range is at least 100F (56C) below the low end of your casting alloy's melting range.

MF-Y YELLOW PRESOLDER

Though we offer several ceramic presolders, MF-Y solder is by far the most popular. It flows magnificently and bonds beautifully to both noble and base alloys. In fact, unless you need a white solder or want a silverless solder to compliment your silverless alloy, we suggest MF-Y for virtually all ceramic metals.

REGULAR SOLDERS (POST-SOLDERS)

Wherever possible, select a solder the high end of whose melting range is at least 100˚F (56C) below the low end of your casting alloy's melting range.

CHROME 2 SOLDER

Chrome 2 is by far our most popular regular gold solder. Originally developed for connecting gold clasps to chrome frameworks (thus its name), it is excellent for any type of C&B soldering. It flows better than any other solder we've ever used, and offers an exceptionally low melting range.

Solders for Regular Soldering – 1 Dwt Strip

Yellow Solders	Melting Range	
500 Fine, #1245011	1300-1400˚F	704-754˚C
585 Fine, #1245901	1360-1460˚F	738-793˚C
615 Fine, #1246201	1405-1475˚F	763-801˚C
S.G. 750, #010895-1	1283-1382˚F	695-750˚C
S.G. 880, #010878-1	1535-1616˚F	835-880˚C

White Solders		
Chrome 2, #1245811	1215-1300˚F	657-704˚C

Color Reference Key

① Dark Gold ③ Light Gold ⑤ Lightest
② Gold ④ Yellow

The color reference is based on the amount of whitening alloys (i.e. Platinum group) with a known light source.

PROTECTED ELECTROSOLDER

Specifically developed for electrosoldering, each laminated strip features solder on one side and pure gold on the other. The thick 2 Dwt strip and heavy gold layer prevent the bubbling and spitting often encountered during electrosoldering procedures.

Solder for Electrosoldering - 2 Dwt Strip

	Melting Range	
White Electrosolder #1245801	1365-1465˚F	740-796˚C

Sigma Soldering Fluxes

These are highly active fluoride fluxes in a non-contaminating water base formulation. Fluoride flux works great with previous metals. It also removes the invisible chromium oxide on non-precious castings – oxides conventional borax fluxes can't touch.

Signa-Lo Flux (#5204201) for Crown-and-Bridge and Post-Ceramic Soldering

Sigma-High Flux (#5204200) for Pre-Ceramic Soldering

IDENTALLOY

Alloy Classification

The ADA Council on Dental Materials has defined the composition required for metals to be considered High Noble, Noble, or Predominantly Base.

High Noble – Noble metal content of 60% or greater. At least 40% must be gold.

Noble – Noble metal content of at least 25%.

Predominantly Base – Noble metal content is less than 25%. (Noble metals include gold, platinum and palladium.)

Symbols of Assurance

When you see these Identalloy symbols, you are assured of receiving a certified Identalloy alloy.

HIGH NOBLE HN — Typical Insurance Codes
2750 single crown — porcelain
6240 bridge pontic — porcelain
6750 bridge retainer — porcelain

NOBLE — Typical Insurance Codes
2752 single crown — porcelain
6242 bridge pontic — porcelain
6752 bridge retainer — porcelain

BASE PB — Typical Insurance Codes
2751 single crown — porcelain
6241 bridge pontic — porcelain

Sterngold is an IDENTALLOY Licensee.

Alloy Applications

A	Single Crowns (Metal)
B	Single Crowns (PFM)
C	Bridges (Metal)
D	Bridges (porcelain bonded)
E	Inlays
G	Onlays
I	Cast plastic attachments
J	Cast posts
K	Cast partial Frames

CROWN & BRIDGE ALLOYS

Yellow Alloy for Crown and Bridge Restorations

Sterngold S - High Noble Type I 1128386
Premium soft gold for inlays. Micro-fine grain structure. Clinically proven for over 40 years. A deep gold color alloy, Sterngold S makes extremely burnishable inlays. High gold content (83%). As with all Type I alloys, we do not recommend it for high stress applications.

Sterngold 1* - High Noble Type II 1127781
Premium alloy with excellent gold color. Micro-fine grain. Harder than Sterngold S, it is better suited for MOD inlays. Casts into a highly aesthetic inlay and burnishes well.

Sterngold 10 - High Noble Type II (annealed); Type III-IV (hardened) 1126245
A lower cost gold for MOD inlays. Finishes to a pleasing light gold color. Excellent choice for MOD inlays, crowns and bridges. Produces more castings at lower per unit cost due to a lower specific gravity and gold content.

Sterngold B - High Noble Type III 1127575
A strong casting gold with a rich gold color. Excellent for all crown and bridge work subject to normal occlusal stresses and for all inlays.

Sterngold 2 - High Noble Type III 1127472
Premium yellow alloy that casts with a slight reddish tinge. Micro-fine grain. Combining the strength of a Type III alloy with a high elongation factor, it can be used for both bridges and burnishable inlays.

Sterngold 20 - High Noble Type III 1125935
Excellent economy in a high noble, yellow gold. While only 59.5% gold, it holds up well in the mouth. Very clean looking after divesting. A favorite of dental technicians and dentists for almost half a century.

Apollo - Noble Type III 1124525
Good tarnish resistance with only 46% gold content. A moderately priced workhorse alloy for crown and bridge work.

Solaro® 3 - High Noble TypeIV 01050007
Medium-gold casting allow, extra hard. Indicated for crowns and bridges, inlays, onlays, milling and cast partial frames.

Aurofluid® 2PF - High Noble Type III 01050010
High-gold casting alloy, hard, palladium free. Indicated for crowns and small span bridges, inlays and onlays.

Sterngold 3 - High Noble Type III (annealed); Type IV (hardened) 1126956
Rich gold color. Micro-fine grain. Offering the best combination of both physical and working properties of any Sterngold Type IV alloy, Sterngold 3 is an excellent selection for difficult restorations such as pin-ledge anterior splints. Margins finish easily without the shredding encountered with some hard alloys. Its rigidity and freedom from warpage make it the alloy of choice for gold removable partial denture frameworks.

Sterngold 100™ - High Noble Type IV 1126040
Finishes to a pleasing gold color. If you are looking for a gold color Type IV alloy to use as your laboratory's standard for crown and bridge cases this is a good candidate. Low in cost and burnishable, it has survived the test of time for over 50 years. With its low specific gravity, you get more castings per ounce.

Tiffany - Noble Type IV 1125031
One of our most popular Type IVs. Light gold color. An alloy with only 50% gold, yet easy to cast. Extremely low tarnish and corrosion rates.

White Alloy for Crown and Bridge Restorations

Sterngold 66 - Noble Type III 1180229
Super economical alloy with 3% gold. This versatile alloy has proven itself in millions of units for over 40 years.

* Certified by the American Dental Association

Bio Alloys

Sterngold's Bio Alloys have been developed for patients who are allergic to conventional dental alloys. To permit restorations which are as inert as possible in the mouth, Bio Alloys maximize gold and platinum content. These are the two most noble, and least orally reactive, elements. Further, Bio Alloys limit the use of other elements to the minimum necessary for adequate physical properties.

Bio-H - High Noble Crown and Bridge Alloy Type IV 1127006
Bio-H is extra hard. When heat treated its Vickers value is 290. It also has good yield strength. Can be used for bridges and removable partial denture frameworks.

Bio-C - High Noble Ceramic Alloy Type IV 1068001
Greater noble metal content than Bio-4, 98+% gold and platinum. Too low a yield strength for long-span bridges. Use Bio-C for crowns and short-span bridges only.

2713 - High Noble Ceramic Alloy Type I 1069010
This is the most noble alloy we offer — 90% gold and 10% platinum. It is used for single tooth castings; inlays, onlays, full metal crowns, and porcelain veneer crowns. Do not use 2713 for fixed partial dentures, as its yield strength is too low.

CERAMIC ALLOYS

Yellow Alloy for Porcelain Veneered Restorations

Majestic II™ - High Noble Type IV 1068752
Premium, deep gold color alloy. Micro-fine grain. Developing less oxide than most hard ceramic alloys, it cleans easily prior to porcelain application. Its rich gold color looks good near tissue and blends well with yellow crown and bridge alloys. It can be used with most porcelains. If you prefer a yellow ceramic metal, this is an excellent choice.

Auramic 2 - High Noble Type IV 1068640
Our hardest yellow ceramic alloy. Because its Vickers number is 218, Auramic 2 is the best yellow ceramic alloy to use in ERA˚ Partial Denture Attachment cases. Plastic pattern attachments must be cast in hard alloys to prevent excessive wear.

V-Gnathos Plus - High Noble Type IV 01050032
High-gold, extra hard for porcelain bonding - palladium free. Indicated for porcelain to metal applications, crown and bridges.

White Alloy for Porcelain Veneered Restorations

Est. Implant® 58 - High Noble Type IV 01000030
High precious metal content for all metal ceramic restorations especially for implant work.

V-Deltaloy - High Noble Type IV 01050001
Medium gold for porcelain bonding extra hard crowns and bridges.

Galaxy - High Noble Type IV 1065225
Silver free gold-palladium alloy eliminates "greening" effect in porcelain. Micro-fine grain. Galaxy is compatible with most porcelains and burnishes well. However, like other silver free white alloys, there may be potential for checking when used with porcelains possessing an exceptionally high thermal expansion coefficient.

Atlas - High Noble Type V 1060000
Medium-gold palladium alloy. Metro is the strongest high noble ceramic alloy that we offer. It solders well and does not exhibit the brittleness some technicians report in other medium-gold ceramic alloys.

Estheticor® Accurate 40 - High Noble Type V 01000112
Medium-gold for porcelain bonding platinum and copper-free crowns, bridges, milled work.

Cerapall® 2 - Noble Type IV 01050011
Palladium-based dental alloy for porcelain bonding extra hard and silver-free for porcelain to metal crowns, bridges and milled work.

V-Delta Special - Noble Type IV 01050028
Medium-gold dental alloy for porcelain to metal, crowns and bridges as well as milled work.

Ceradelta® 2 - Noble Type IV 01050033
Palladium-based extra hard dental alloy for procelain to metal crowns and bridges, implants and milled work.

Pegasus™ - Noble Type V 1069906
A 6% gold alloy that produces a clean, very light oxide. Requiring no special pre-coat or acid cleanup, Pegasus˚ casts exactly like a premium alloy. Forms accurate castings with no brittleness. Its high yield strength makes it ideal for long spans, and its relatively high thermal expansion makes it compatible with most of the major porcelain brands.

V-Delta SF - Noble Type IV 01050017
Palladium-based extra hard silver free dental alloy for procelain to metal crowns and bridges and milled work.

Ceradelta® - Noble Type IV 01050020
Palladium-based extra hard dental alloy for porcelain to metal crowns and bridges and milled work.

Columbus - Noble Type V 1069900
1.8% gold and 75.7% palladium. No silver. Columbus has low elongation and a very high yield strength. Contains gallium to regulate thermal expansion and make it compatible with a wide range of porcelains.

Vista - Noble Type V 1060005
Palladium-silver alloy. More porcelain fused to metal restorations have been fabricated using Vista than any other precious Sterngold alloy. Millions of units in the mouth testify to its popularity. It casts and polishes like a conventional ceramic gold. We recommend that Vista be used with Sterngold's Color Coupler (#5204010) to keep porcelain shades true.

V-Classic - High Noble Type IV 01050023
High-gold extra hard dental alloy for porcelain to metal work for inlays, onlays, crowns and bridges and milled work.

NON-PRECIOUS CERAMIC ALLOY

Beta - Predominantly Base Type V 5052225
Beta is an easy-to-cast non-precious alloy. Unlike many non-precious alloys, Beta requires no metal conditioner or bonding agent, and it polishes to a high shine. It bonds well to all major brands of porcelain. Beta is a nickel chrome alloy and should never be specified for patients allergic to nickel.

Delta – Predominantly Base Type V 5052227
Delta is a nickel and beryllium free alloy. Although this chromium/cobalt alloy has a slightly higher casting temperature, and is a bit harder, it is amazingly similar to Beta.

Omega – Predominantly Base Type V 5052228
For those who would like to stay with the traditional nickel/chromium formula, but are concerned with beryllium content, Omega is the ideal choice. Other than somewhat lower yield and tensile numbers it is hard to tell Omega from Beta.

Alpha – Predominantly Base Type V 5052226
You will notice that the composition and physical property numbers for Alpha are almost the same as Beta. The one exception is the thermal expansion. Alpha was formulated with a slightly lower CTE so that it will work better with the Vita porcelains.

How to Choose the Dental Alloy Which Meets Your Needs

For the purposes of this International Standard, a metallic material is classified according to its mechanical properties by a Type number, of which there are six. Examples of the applications for which these Types are intended are as follows:

Type 0: Intended for low stress bearing single-tooth fixed prostheses, e.g. small veneered one-surfaced inlays, veneered crowns; NOTE- Metallic materials for metal-ceramic crowns produced by electroforming or sintering belong to Type 0.

Type 1: For low stress bearing single-tooth fixed prostheses, e.g. veneered or unveneered one-surface inlays, veneered crowns;

Type 2: For single tooth fixed prostheses, e.g. crowns of inlays without restriction on the number of surfaces;

Type 3: For multiple unit fixed prostheses;

Type 4: For appliances with thin sections that are subject to very high forces, e.g. removable partial dentures, clasps, thin veneered single crowns, full arch fixed dental prostheses or those with small cross-sections, bars, attachments, implant retained superstructures;

Type 5: For appliances in which parts require the combination of high stiffness and proof stress, e.g. thin removable partial dentures, parts with thin cross-sections, clasps.

Note 1- The higher application type can include lower application types.
Note 2- Multiple unit and full-arch, fixed dental prostheses are also referred to as bridges.

The ADA Council on Dental Materials, Instruments, and Equipment has determined the composition required for metals to be considered High Noble, Noble, or Predominantly Base.

High Noble – Nobel metal content of 60% or greater. At least 40% must be gold.

Noble – Noble metal content of at least 25%.

Predominantly Base – Noble metal content is less than 25%.

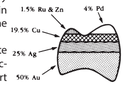
(Nobel metals include gold, platinum and palladium.)

General type classifications are one guide to use in selecting dental golds, but referring to the properties of the alloys themselves on the Sterngold alloy chart can be most revealing. Moreover, physical and mechanical properties can help your selection of an alloy from among alloys within the same general class.

How to read an alloy properties chart.

The real test of an alloy is how it performs – first in the laboratory – then in the mouth.

Nevertheless, a minute spent reading the manufacturer's alloy properties chart can give you a good idea of what to expect of a new alloy before you place your order. Unfortunately, many technicians and dentists either ignore the chart altogether, or they skip over some of the import parts. So this presentation is sort of a "Reader's Guide" to the alloy properties chart.



Is the noble content all you care about?

Composition - what it tells you and what it doesn't.

Most manufacturers list the gold (Au), platinum (Pt), palladium (Pd), and sometimes silver (Ag) content of their alloys.

Though an alloy's nobility alone won't guarantee tarnish resistance, the sum of its gold, platinum and palladium content gives you a rough idea as to how well the alloy will resist discoloration. For example, you'd expect a Stern 3 crown, with AU, PT and Pd totaling 75%, to perform better in a particularly tarnish prone mouth than a Stern 66 crown which is 33% noble.

Other than tarnish resistance the alloy's nobility doesn't tell you all that much about physical properties. That's why we list such characteristics as hardness, yield strength, percent elongation and melting range.


Hardness and strength - the difference. Hardness tells you how much occlusal faceting to expect.


Strength suggest performance under stress

A

Alloy	Brinell Hardness	Yield Strength
Bio-H	250	88,750 psi
Tiffany	217	102,000 psi

In dentistry, hardness is measured using two tests: Vickers and Brinell. Hardness indicates resistance to indentation, so it tells you whether an occlusal surface will facet as the patient chews.

Many people confuse hardness with strength, which indicates how an alloy will perform when a restoration is loaded. If you're looking for an alloy that will resist permanent distortion in a long span bridge, pay particular attention to the "yield strength." The higher the number, the greater the metal's tendency to spring back to its original shape after bending.

As you can see in Table A, our Tiffany alloy gives you a much higher yield strength than Bio-H alloy even though Bio-H is harder. ***Remember:*** "hardness" means resistance to **permanent** distortion.

Some alloys list two numbers for hardness and also two values for yield strength, related to the softened ("S" on the chart) or hardened ("H" on the chart) state of the alloy. With sufficient copper content gold crown and bridge alloys can be heat treated, a laboratory technique which lets you switch the alloy back and forth between its hard condition and its soft condition at will. This useful property allows easier burnishing in the soft state and greater yield strength in the hardened state. Check the manufacturer's instructions for specific alloys.

How burnishable will the alloy be?

As we had said, for long spans you want a high yield strength. For extensive burnishing, on the other hand, you want a low yield strength. The lower the yield strength the easier it will be to adjust the margins. The alloy's elongation tells you how far you'll be able to stretch the metal before it begins to crack. So, a premium inlay alloy like Stern S combines high elongation (29%) with low yield strength (17,500 psi).

To get a rough idea as to how easy a metal will be to burnish divide its elongation by its Brinell hardness. If the result is 0.35 or more the alloy is highly burnishable – great for inlays. If the result is between 0.20 and 0.35 you'll be able to adjust the margins, but not much more. And less than 0.20, you couldn't adjust the margin with a jack-hammer. Forget burnishing altogether.

For example, Stern S has an elongation of 29% and a Brinell hardness of 64. so, dividing 29 by 64 gives 0.46, indicating high burnishability.

How the melting range affects your solder?

All dental alloys melt over a range, so the chart presents the melting temperatures as two numbers. The lower, called the solidus, is the temperature at which the alloy begins to melt. The metal still looks solid but molecular changes have started to occur. The higher temperature is called the liquidus. As you might guess, it's the lowest temperature at which the alloy is completely molten.

Is your solder compatible with our alloy? First check the melting range.

If you have ever had distortion when you solder a bridge there's a good change that your solder's liquidus was too close to the bridge's solidus. In other words, by the time your solder was hot enough to flow the bridge had started to melt. To avoid this distortion allow approximately 100˚F between your solder's liquidus and the casting alloy's solidus.

If you do much pre-ceramic soldering, you'll want a ceramic metal with a good high solidus. This way, there's virtually no chance the high temperature soldering procedure will cause the metal to sag – even if you overheat the bridge slightly. A laboratory that solders its copings might be more likely to choose Vista (with a melting range of 2065-2325˚F) than our Majestic II (with a melting range of 1928-2165˚F).

Specific gravity - how many castings per ounce?

Obviously, the lighter the metal, the more units you'll get per ounce. An alloy's specific gravity lets you roughly estimate the relative number of units you can expect from each ounce of alloy. For example, an alloy that has a specific gravity around 20 as compared to one with a specific gravity around 10 would require twice the weight of alloy to cast the same crown. In general, the less the specific gravity of an alloy, the more pieces you can cast per ounce, and thus, the lower the per unit cost.

A special note about ceramic properties.

Of course, with ceramic alloys you're interested in how the crown or bridge will perform after its been fired. The elongation, hardness and strength of an alloy can change dramatically in your porcelain furnace. So, if you don't find a note on the chart specifically stating that the tests were performed after the ceramic cycle, call the manufacturer and ask their technical department.

666104 Rev. E

alloys
for dentistry

alloy and physical properties chart

Sterngold

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