# **Aluminum Filler Metals**

Aluminum brazing and soldering filler metals are used to join materials within the aluminum family of alloys. These materials are available in wire, strip, powder, paste (both corrosive and non-corrosive formulations) and preformed rings and shapes. Lucas-Milhaupt also offers aluminum flux-cored wire and rings.

Product	Solid	lus	Liqui	dus	Co	Nom ompos	ninal sition	AWS & International	
		°C	۴F	°C	AI	Cu	Si	Zn	Standards
AI 716 Available in wire and preforms. Wide melting range (less fluid) filler metal.	970	521	1085	585	86	4	10		BAISI-3
AI 718 Available in strip, wire, powder, paste and preforms. Most fluid of the aluminum filler metals.	1070	577	1080	582	88		12		BAISi-4
Al 719 Available as a powder or paste.	960	516	1040	560	76	4	10	10	
AI 802 Available as wire and preforms. High temperature solder for aluminum.	710	377	725	385	2			98	
AI 822 Available as wire and preforms. High strength, low temperature braze for joining aluminum to aluminum and aluminum to copper.	800	426	900	482	22			78	

#### **Carbide Brazing Alloys**

Lucas-Milhaupt offers several products for brazing carbide and diamond cutting tools. These materials typically include nickel or manganese (or both) to facilitate wetting of the carbide and increase bond strength. Many of these alloys are also available in a Tri-metal form. These Trimet<sup>®</sup> alloys consist of two layers of brazing filler metal clad onto a core of copper. This eases the stresses that arise due to the differences in thermal expansion between the carbide and base metal and is particularly important when joining carbides larger than one half inch.

Droduct	Solidus		Liqui	dus		Nomi	nal Co	AWS &			
Flouder	٩F	°C	°F	°C	Ag	Cu	Mn	Ni	Zn	Other	Standards
Braze 252 Economical filler metal for carbide, stainless steel and steel.	1305	707	1475	801	25	38	2	2	33		BAg-26
Braze 403 For carbides, steels and stainless steel; slow flow.	1240	670	1435	779	40	30		2	28		BAg-4
Braze 495 For low-temperature brazing of tungsten carbide and stainless steel.	1260	682	1290	698	49	16	7.5	4.5	23		BAg-22
Braze 505 Cd-free replacement for EF 3. Joins carbides and stainless steel. Fluid flow.	1220	659	1305	707	50	20		2	28		BAg-24
Easy Flo 3 Lowest melting filler metal for joining carbides and steels.	1170	632	1270	687	50	15.5		3	15.5	16 Cd	BAg-3
Hi-Temp 080 Economical, high strength filler metal for joining carbides to alloy steels.	1575	856	1675	912		54.85	12	8	25	0.15 Si	
Hi-Temp 095 High strength filler metal for joining carbides, steels and heat resistant alloys.	1615	879	1700	926	9.5	52.5	38				
Hi-Temp 548 Moderate strength, low melting copper based alloy for carbides, tool steels, etc.	1615	879	1685	917		55	4	6	35		
Trimet 245 Braze 495 on both sides of copper in 1-2-1 ratio.	1260	680	1290	700							
Trimet 258 Easy-Flo 3 on both sides of copper in 1-2-1 ratio.	1170	632	1270	687							
Trimet 259 Braze 505 on both sides of copper. Cd-free with higher strength and better flow qualities than Trimet 258.	1220	659	1305	707							

# **Copper Alloys**

These metals have excellent corrosion resistance and high electrical and thermal copper conductivity. Lucas-Milhaupt stocks many copper filler metals including oxygen-bearing, oxygen-free and specialty alloys in wire, strip, paste and powder form.

Product	Soli	dus	Liquidus		Nomin	al Con %	tion,	AWS & International	
	°F	°C	٩F	°C	Cu	Р	Sn	Zn	Standards
CDA 102 Joining of ferrous, Ni-base and Cu-Ni alloys. Free flowing.	1981	1082	1981	1082	99.95				
CDA 110 Joining of ferrous, Ni-base and Cu-Ni alloys. Free flowing for press fits.	1981	1082	1981	1082	99.99				BCu-1
CDA 510 Use on steels where brazing temperatures lower than Cu are needed.	1750	953	1920	1048	95	0.3	4.7		
CDA 521 Use on steels where brazing temperatures lower than Cu are needed.	1620	881	1880	1026	92	0.3	7.7		
CDA 681 Joining of Fe, Cu and Ni alloys. Fluid alloy.	1590	865	1630	887	60			40	RBCuZn-C
Certified OFHC For furnace brazing of steel, SS and Ni based alloys.	1981	1082	1981	1082	99.99				BVCu-1x

# **Copper/Phosphorus Alloys**

Fos Flo<sup>®</sup> alloys are Copper based filler metals that are self-fluxing on copper by virtue of their phosphorous content. Because of their self-fluxing nature, you save time and money by eliminating the steps necessary to flux a joint before brazing. However, copper alloys such as brass and bronze should be fluxed with Handy Flux or Sure Flo Brazing Flux to assure a sound braze joint.

The level of phosphorous also changes the fluidity and ductility of the material. The greater the percentage of phosphorous in the filler metal the more fluid the material will be. While this alloy is widely used in the air conditioning and plumbing industries, it is not for use on ferrous or nickel based materials because the joint will become brittle and may fail.

Fos Flo<sup>®</sup> alloys have many of the same characteristics of the Sil-Fos materials, except that they are free from silver, which significantly reduces the price of the material. Alloy forms available include wire, preforms and powder

Product		dus	Liquidus		Con	Nomina	AWS & International	
	٩F	°C	°F	°C	Cu	Р	Other	Standards
Fos-FIo 6 An economical filler metal with a wide melting range and moderate flow. For use where close fit-ups cannot be maintained and ductability is important. Recommended joint clearance is .003" to .005" (.076 mm to .127 mm).	1310	710	1570 (1375)	854 (746)	93.85	6.15		
Fos-FIo 670 Very free flowing alloy for tight fit-ups, Silver Free and low temp melting point.	1215	657	1270	687	87	6	7 Sn	
Fos-Flo 671 A low temperature Silver-free alloy; very free flowing. Available in paste and powder only.	1134	612	1260	682	85.3	6.2	7 Sn 1.5 Ni	
Fos-FIo 7 An economical, very fluid medium temperature filler metal for use with copper, brass and bronze. Withstands moderate vibration. Recommended joint clearance: .001" to .003" (.025 mm to .076 mm). Fast Flow.	1310	710	1460 (1350)	795 (730)	92.75	7.25		BCuP-2

#### **High Temperature Alloys**

These alloys are CU based filler metals with additions of nickel and/or manganese, and are ideally suited for the brazing of carbides, cast irons, steel and other ferrous alloys. This alloy is suited for brazing and heat treating combination operations.

Product	Solidus		Liqu	idus	Nominal Composition, %					
Floduct	٩F	°C	٩F	°C	Cu	Mn	Ni	Zn	Other	
Hi-Temp 080 Economical high strength filler metal for joining carbides to alloy steels.	1575	855	1675	915	54.85	12	8	25	0.15 Si	
Hi-Temp 095 High strength filler metal for joining carbides, steels and heat resistant alloys.	1615	880	1700	925	52.5	38	9.5			
Hi-Temp 548 Tough, moderate strength, low melting improved nickel silver filler metal for carbides, tool steels, stainless steels and nickel alloys.	1615	880	1685	920	55	4	6	35		
Hi-Temp 870 A free flowing, high melting filler metal with good high temperature strength, for brazing carbides, tool steels, stainless steels and nickel alloys.	1760	960	1885	1030	87	10			3 Co	

# **Nickel Filler Metals**

Nickel based materials are used for the joining of stainless steel and Ni based heat resistant alloys. Nickel based alloys are suited for brazing and heat treating combination operations.

Product	Solidus Liquidus					Norr	AWS &				
Product	٩F	°C	٩F	°C	в	Cr	Fe	Ni	Si	Other	Standards
Hi-Temp 720 Recommended for parts subjected to light stresses at elevated temperatures. Good corrosion and flow characterics.	1790	977	1900	1038	3.1	14	4.5	73.65	4	0.75 C	BNi-1, AMS 4775
Hi-Temp 721 Similar to Hi-Temp 720 but of particular interest where higher carbon content is not permissible. Slower slow than Hi-Temp 720.	1790	977	1970	1077	3.1	14	4.5	73.84	4.5	0.06 C	BNI-1A
Hi-Temp 820 Widely used low melting filler metal for furnace brazing aircraft parts, medical devices and other food handling components. Good flow generous fillets, low base metal penetration are characteristics of this filler metal.	1780	971	1830	999	3.1	7	3	82.34	4.5	0.06 C	BNi-2, AMS 4777
Hi-Temp 910 Flows freely and less sensitive to atmosphere dryness than the other filler metals. Better for tight/longer joints.	1800	982	1900	1038	3.1		1.5	90.84	4.5	0.06 C	BNi-3, AMS 4778
Hi-Temp 930 For stainless steels, Ni & Co base alloys with thin sectionsjet engine parts and chemical equpment. More sluggish and is better for wide gap applictions.	1800	982	1950	1066	1.85		1.5	93.09	3.5	0.06 C	BNi-4, AMS 4779
Hi-Temp 932 For stainless steels, Ni, & Co base alloys with thin sectionsjet engine parts and chemical equpment. For uses that demand high temp properties and good corrosion resistance at low processing temperatures.	1610	877	1610	877				88.94		11 P 0.06 max C	BN⊢6
Hi-Temp 933 Often used for brazing honeycomb structures, thin-walled tube assemblies, and for nuclear applications where boron can't be used. The addition of chromium gives it better high temperature and corrosion properties than Hi-Temp 932.	1630	888	1630	888		14		75.84		10.1 P 0.06 max C	BNi-7

#### Silver-Based Cadmium-Free Filler Metals

These alloys are low-temperature, free-flowing filler metals for joining similar and dissimilar metals (i.e. copper to steel). They produce very strong, ductile joints and are safe because they are cadmium-free. Lucas-Milhaupt offers numerous material

compositions for general purpose and specialty applications. The Braze family of alloys is available in strip, wire, powder, paste, preforms as well as clad tri-metal products and flux-cored wire.

Draduat	Solidus		Liquidus		N	ominal	Comp	1, %	AWS &	
Product	٩F	°C	°F	°C	Ag	Cu	Sn	Zn	Other	Standards
Braze 051 Brazing nichrome resistance elements, or simultaneous brazing and heat treating of steels.	1545	840	1615	880	5	58		37		
Braze 071 Used when heat treatment follows brazing, as a lower melting alloy than copper, or in vacuum systems.	1225	665	1805	985	7	85	8			
Braze 090 For copper base alloys such as in band instruments; or joint brazing/cyanide case hardening of steels.	1410	765	1565	850	9	53		38		
Braze 202 For simultaneous brazing and heat treating of steels.	1315	710	1500	815	20	45		35		
Braze 250 Low silver filler metal for joining ferrous and nonferrous alloys.	1250	675	1575	855	25	52.2		22.5		
Braze 252 Economical filler metal for tungsten carbide, stainless steel and steel.	1305	705	1475	800	25	38		33	2 Mn 2 Ni	BAg-26
Braze 255 Economical filler metal for ferrous and nonferrous joints not requiring high ductility or impact strength.	1270	690	1435	780	25	40	2	33		BAg-37

Braze 300 For steel and nonferrous alloys melting above 1450°F (790°C), nickel-silver knife handles, electrical equipment.	1250	675	1410	765	30	38		32		BAg-20
Braze 351 Intermediate temperature filler metal for use with ferrous and nonferrous materials.	1265	685	1390	755	35	32		33		BAg-35
Braze 380 Free flowing, cadmium-free filler metal used with ferrous and nonferrous base metals.	1200	650	1330	720	38	32	2	28		BAg-34, AMS 4761
Braze 401 For copper base alloys, mild steel, nickel and Monel, and where a narrow melt range is desired.	1245	675	1340	725	40	30		30		AMS 4762
Braze 402 A free-flowing medium temperature filler metal for ferrous and nonferrous alloys.	1200	650	1310	710	40	30	2	28		BAg-28
Braze 403 For tungsten carbides, and stainless steel food handling equipment allowing no cadmium.	1220	660	1435	780	40	30		28	2 Ni	BAg-4
Braze 404 For tungsten carbides and stainless steel.	1220	660	1580	860	40	30		25	5 Ni	
Braze 450 For ships' piping, band instruments, aircraft engine oil coolers, brass lamps.	1225	665	1370	745	45	30		25		BAg-5

Braze 452 Low temperature, free-flowing, Cd-free alloy.	1185	640	1260	680	45	27	3	25		BAg-36
Braze 495 For low-temperature brazing of tungsten carbides and stainless steels.	1260	680	1290	700	49	16		23	7.5 Mn 4.5 Ni	BAg-22
Braze 501 For steam turbine blading and heavily galvanized or tinned steel, aluminum brass tubing.	1250	675	1425	775	50	34		16		BAg-6
Braze 502; 503 (VTG) For applications similar to Brazes 720 and 721 except where better gap filling is needed.	1435	780	1600	870	50	50				BVAg-6b
Braze 505 For 300 series stainless steel food handling equipment with close joint clearances.	1220	660	1305	705	50	20		28	2 Ni	BAg-24, AMS 4788
Braze 541 Atmosphere furnace brazing for high temperature applications (up to 700°F/370°C), such as on jet engines.	1340	725	1575	855	54	40		5	1 Ni	BAg-13, AMS 4772
Braze 559 Same as Braze 541, but used where zinc fumes in the furnace are not permissible.	1420	770	1640	895	56	42			2 Ni	BAg-13a, AMS 4765
Braze 560 For food handling equipment requiring a low melting, cadmium-free alloy.	1145	620	1205	650	56	22	5	17		BAg-7, AMS 4763

Braze 580 A free flowing filler metal used in brazing tungsten carbide which is subsequently titanium nitrided.	1120	605	1345	730	57.5	32.5	7		3 Mn	
Braze 600 For Monel and other nickel alloys, and in place of Braze 650 on silverware.	1245	675	1325	720	60	25		15		
Braze 603; 604 (VTG) For vacuum tube seals, brazing of ferrous and nonferrous alloys without flux, for brazing marine heat exchangers exposed to salt water at elevated temperatures (where zinc is objectionable).	1115	600	1325	720	60	30	10			BAg-18, BVAg-18Gr2
Braze 630 On 400 series stainless steels for corrosion resistance to salt spray, chlorine solutions, etc.	1275	690	1475	800	63	28.5	6		2.5 Ni	BAg-21, AMS 4774
Braze 650 For silverware, iron and nickel alloys.	1240	670	1325	720	65	20		15		BAg-9
Braze 655 For brazing Invar, Kovar and similar alloys to copper in vacuum tubes; as jet engine rubbing seals.	1385	750	1560	850	65	28			5 Mn 2 Ni	
Braze 700 For silverware, when subsequent joints are made with Braze 650.	1275	690	1360	740	70	20		10		BAg-10
Braze 715; 716 (VTG) Filler metal and high conductivity, similar to Braze 720, but suitable for both ferrous and nonferrous alloys.	1435	780	1465	795	71.5	28			0.5 Ni	BVAg-8b

Braze 720; 721 (VTG) For nonferrous electronic components requiring highest electrical and thermal conductivity. The VTG grade has low volatile impurities, good for use in moderate temperature vacuum systems.	1435	780	1435	780	72	28			BVAg-8Gr2, BAg-8
Braze 750 On silverware for step brazing or enameling; for iron or nickel base alloys.	1365	740	1450	790	75	22	3		
Braze 852 Brazing stainless, Stellite, Inconel, complex carbides - for high-temperature service.	1760	960	1780	970	85			15 Mn	BAg-23
Braze 999 A VTG alloy for brazing ceramics to be used as semiconductors.	1761	960	1761	960	99.9				BAg-0, BVAg-0 Gr2
Lithobraze 720 For ferrous and nonferrous base alloys; especially thin sections of stainless steels.	1400	760	1400	760	71.7	28		0.3 Li	BAg-8a
Lithobraze 925 To join skins to honeycomb cores, particularly precipitation-hardening stainless steels.	1400	760	1635	890	92.5	7.3		0.2 Li	BAg-19
LM 721 Gr1 Same as BR 721 - highest purity for vacuum application.	1435	779	1435	779	72	28			BVAg-8 Gr1
Premabraze 616 (VTG) For ferrous and nonferrous alloys used in moderate temperature vacuum tubes and systems.	1155	625	1305	705	61.5	24		14.5 In	BVAg-29

#### Silver-Based Cadmium-Bearing Filler Metals

Easy-Flo<sup>®</sup> alloys are free-flowing filler metals that have been the standard in the industry for over 60 years. They are versatile, high-strength alloys that have the lowest melting point of all silver based brazing materials. These alloys have been used successfully on nearly all nickel, iron/steel and copper based alloys. The Easy Flo<sup>®</sup> alloy group has varying percentages of Silver, Copper, Zinc and Cadmium. Easy-Flo<sup>®</sup> alloys are available in strip, wire, powder, paste, preforms as well as clad trimetal products.

NOTE: These alloys contain cadmium and cadmium fumes are toxic. As a result, these materials should only be used in well-ventilated areas. For additional information, consult your MSDS information or contact our Technical Services Department.

Deaduat	Solidus		Liquidus			Nomina	1, %	AWS &		
Product	°F	°C	٩F	°C	Ag	Cd	Cu	Zn	Other	Standards
Braze 053 A high temperature solder for medium strength joints above that of soft solders. Use TEC flux.	640	340	740	390	5	95				
Braze 440 Low melting filler metal for brazing electrical contacts and molybdenum or copper-tungsten electrodes.	1100	595	1220	660	44	15	27	13	1 P	
Easy-Flo Same as Easy-Flo 45.	1160	625	1175	635	50	18	15.5	16.5		BAg-1a
Easy-FIo 25 Same as Easy-FIo 30, but used for most economical joints.	1125	605	1375	745	25	13.5	35	26.5		BAg-27
Easy-FIo 25HC Same as Easy-FIo 35, but used for more economical joints.	1180	640	1320	715	25	17.5	30	27.5		BAg-33
Easy-FIo 3 For 300 series stainless steels; for joining tungsten carbide, beryllium copper and aluminum bronze to steel.	1170	630	1270	690	50	16	15.5	15.5	3 Ni	BAg-3
Easy-FIo 30 Similar to Easy-Flo 35, but used for more economical joints.	1125	605	1310	710	30	20	27	23		BAg-2a
Easy-FIo 35 Similar to Easy-Flo 45, but used where joint clearances are large and fillets are desired.	1125	605	1295	700	35	18	26	21		BAg-2
Easy-FIo 45 Joining ferrous, nonferrous and dissimilar metals and alloys with close joint clearances.	1125	605	1145	620	45	24	15	16		BAg-1

# Silver/Copper/Phosphorus Alloys

Sil-Fos<sup>®</sup> alloys are Copper based filler metals that are self-fluxing on copper by virtue of their phosphorous content. Because of their self-fluxing nature, you save time and money by eliminating the steps necessary to flux a joint before brazing. However, copper alloys such as brass and bronze should be fluxed with Handy Flux or Sure Flo Brazing Flux to assure a sound braze joint.

While this filler metal is widely used in the air conditioning and plumbing industries, it is not recommended for ferrous or nickel based materials because the joint will become brittle and may fail. The Sil-Fos<sup>®</sup> Alloys vary in silver content from 18% to 2% and the percentage of silver and phosphorous does change the melt and flow characteristics of the filler metal. Sil-Fos<sup>®</sup> alloys are available in wire & rod, powder & paste, preformed rings and shapes. Some Sil-Fos<sup>®</sup> alloys are available in strip as well.

Product	Solid	dus	Liqui	dus	Cor	Nomina npositio	AWS & International	
	٩F	°C	٩F	°C	Ag	Cu	Р	Standards
Sil-Fos 15 For use where close fit-ups cannot be maintained and joint ductility is important. Recommended joint clearance: .002" to .005" (.051 mm to .127 mm). Slow flow. The only phos/copper silver filler metal available in strip or sheet form.	1190	645	1475 (1300)	805 (705)	15	80	5	BCuP-5
Sil-Fos 18 A ternary eutectic filler metal for joints where good fit-up can be maintained and low melting point is of prime importance. Clearance: .001" to .003" (.025 mm to .076 mm). Very fast flow.	1190	645	1190	645	18	74.75	7.25	
Sil-Fos 2 A filler metal with comparable characteristics to Fos-Flo 7. Recommended joint clearance: .001" to .005" (.025 mm to .127 mm). Medium flow.	1190	645	1450 (1325)	785 (720)	2	91	7	BCuP-6
SiI-Fos 2M Has ability to fill moderate gaps in poorly fitted joints. More ductile than Fos-Flo 7 or SiI-Fos 2. Intended for use on copper tube headers and similar applications where a sleeve fit is not practical. Recommended joint clearance: .002" to .005" (.051 mm to .127 mm). Slow flow.	1190	645	1495 (1350)	815 (730)	2	91.4	6.6	
Sil-Fos 5 Designed primarily for those applications where close fit-ups cannot be maintained. It has ability to fill gaps and form fillets without adversely affecting joint strength. Recommended joint clearance: .003" to .005" (.076 mm to .127 mm). Slow flow.	1190	645	1495 (1325)	815 (720)	5	89	6	BCuP-3
Sil-Fos 6 A very fluid filler metal for close fit-up work. Low melting range makes it ideal where temperature is a factor. Recommended joint clearance: .001" to .003" (.025 mm to .076 mm). Fast flow. Lowest melt and flow in the minimum silver class.	1190	645	1325 (1275)	720 (690)	6	86.75	7.25	BCuP-4
Sil-Fos 6M Recommended for use where close fit-up cannot be maintained. Has the ability to fill gaps and form fillets without affecting joint strength. Recommended joint clearance: .002" to .005" (.051 mm to .127 mm). Slow flow.	1190	645	1460 (1300)	795 (705)	6	88	6	

# **Soldering Alloys**

Soft solders are filler metals that melt and flow below 800° F. They are typically available in solid wire or cored with a rosin or acid flux. Soldering alloys are available in tin, lead, silver, copper, antimony and other compositions and can be fabricated into wire, strip, paste, powder or preformed shapes.

Draduat	Soli	dus	Liqu	idus	Nominal Composition, %					
Floudet	٩F	°C	٩F	°C	Ag	Pb	Sn	Zn	Other	
40 Sn/60 Pb Good for preforms. Use acid flux.	361	183	460	238		60	40			
50 Sn/50 Pb Good general purpose alloy. Use either rosin or acid flux.	361	183	421	216		50	50			
60 Sn/40 Pb Electronic solder.	361	183	374	190		40	60			
63 Sn/37 Pb Eutectic-highest strength of Tin/Lead alloy series.	361	183	361	183		37	63			
78.4 Cd/16.6 Zn/5 Ag (Br 056) High temperature solder - good strength.	480	249	600	316	5			16.6	78.4 Cd	
80 Au/20 Sn Low ductility alloy. Low vapor pressure alloy.	536	280	536	280			20		80 Au	
95 Cd/5 Ag (BR 053 TEC) High temperature solder - good strength.	640	338	740	393	5				95 Cd	
95 Sn/5 Sb For Cu to Cu. Good creep strength. Not for brass.	452	233	464	240			95		5 Sb	
96.4 Sn/3.6 Ag Clean 'N Brite Eutetic alloy. Wets Cu, Brass, Steel, SS.	430	221	430	221	3.6		96.4			
97.5 Pb/2.5 Ag Eutectic alloy - a homogenous alloy.	579	304	579	304	2.5	97.5				

# VTG/High Purity Silver, Gold, Palladium

These alloys are vacuum grade filler metals that have their compositions specifically controlled to fabricate joints exposed to high vacuum on electron devices. These alloys must be brazed in high purity atmosphere or vacuum. Premabraze<sup>®</sup> alloys consist of only certified "pure" materials, this metal is vacuum melted and cast to insure cleanliness.

Lucas-Milhaupt's pure metals are vacuum processed to ensure material cleanliness.Conformance to specification is assured by chemical analysis and other performance requirements. Several grades of these materials are available, from 3 nines to 5 nines pure.

Droduct	Solidus		Liquidus			AWS &					
Flouder	٩F	°C	٩F	°C	Ag	Au	Cu	Ni	Pd	Other	Standards
Braze 503 For electronic components where Cd and Zn are not desired.	1435	779	1600	870	50		50				BVAg-6b
Braze 604 For vacuum tube seals - joins ferrous and nonferous alloys.	1115	600	1325	720	60		30			10 Sn	BVAg-18
Braze 716 For atmosphere brazing of Nickel & Ferrous-based metals.	1435	780	1465	795	71.5		28	0.5			BVAg-8b
Braze 717 	0	0	0	0							
Braze 721 For joining nonferrous electric components in vacuum.	1435	780	1435	780	72		28				BVAg-8
Braze 999 A VTG alloy for brazing ceramics to be used in semiconductors.	1761	961	1761	961	99.9						BVAg-0
Gold Very ductile - Wets most metals. Several grades available.	1947	1064	1947	1064		99.99					
Lithobraze 720 For brazing in dry hydrogen or inert atmosphere - joins stainless.	1400	760	1400	760	71.7		28			0.3 Li	BAg-8a

Lithobraze 925 Recommended for furnace brazing of Stainless without flux.	1400	760	1635	890	92.5		7.3			0.2 Li	BAg-19
Lucanex Brazing Paste Blended with Ti for active metal brazing of ceramics.	0	0	0	0							
Palladium High temperature brazing of refractory metals. Several grades available.	2826	1552	2826	1552					99.99		
Platinum Very high temperature - Several grades available.	3216	1767	3216	1767						99.99 Pt	
Premabraze 051 Narrow melting range - good for step brazing.	1625	885	1643	895	5	75	20				
Premabraze 127 For Nickel, Mo, SS, Kovar®, and Mo-Mn metalized ceramics.	1785	974	1885	1029		35	62	3			BAu-3
Premabraze 131 For vacuum applications - joins SS, Inconel, Kovar®, Tungsten, etc.	1740	949	1740	949		82		18			BVAu-4, AMS 4787
Premabraze 180 Low penetration of substrates.	2246	1230	2255	1235					65	35 Co	
Premabraze 265 For SS, Cu, Kovar®, and non-Mo-Mn metallized ceramics.	1562	850	1662	900	65		20		15		

Premabraze 399 For Copper, Nickel, Kovar®, and Mo- Mn metallized ceramics.	1815	991	1860	1016		37.5	62.5			BAu-1
Premabraze 402 For Copper, Nickel, Kovar®, and Mo- Mn metallized ceramics.	1751	955	1778	970		50	50			
Premabraze 407 For Copper, Nickel, Kovar®, and Mo- Mn metallized ceramics.	1814	990	1850	1010		35	65			
Premabraze 408 Narrow melting range, useful in step brazing.	1535	835	1553	845	20	60	20			
Premabraze 409 For Cu, Ni, Mo-Mn - remains ductile. Low vapor pressure.	1670	910	1697	925		81.5	16.5	2		
Premabraze 500 High strength and good oxidation resistance, for joining Super Alloys.	2016	1102	2050	1121		50		25	25	BVAu-7, AMS 4784
Premabraze 540 Similar to Au-Ni - lower cost and density. Doesn't embrittle Kovar®.	1652	900	1740	950	54		21		25	BVAg-32
Premabraze 550 For corrosion resistance joints - Brazing stainless steel.	1520	827	1600	871	55		30	5	10	

Premabraze 580 For Nickel, Copper, Kovar® and Mo- Mn. Good for vacuum tight joints.	1515	824	1566	852	58		32		10		BVAg-31
Premabraze 616 For joining ferrous and nonferrous metals in moderate temp vaccum.	1155	625	1305	705	61.5		24			14.5 In	BVAg-29
Premabraze 631 Low melting, low vapor pressure. Joins ferrous and nonferrous metals.	1265	685	1346	730	63		27			10 In	
Premabraze 680 For Kovar® and Mo-Mn seals.	1485	807	1490	810	68		27		5		BVAg-30
Premabraze 700 For Super Alloys and stainless - high ductility and strength.	1845	1007	1915	1046		70		22	8		BAu-6, AMS 4786
Premabraze 800 Low ductility alloy - low vapor pressure.	536	280	536	280		80				20 Sn	
Premabraze 880 Low ductility alloy.	673	356	673	356		88				12 Ge	BVAu-7
Premabraze 901 Recommended for Ni, stainless steel, Mo, W and fast cycles on Ti.	1835	1002	1950	1065	90				10		
Silver Available in several grades including (99.9, 99.93, 99.95, 99.99).	1761	961	1761	961	99.99						