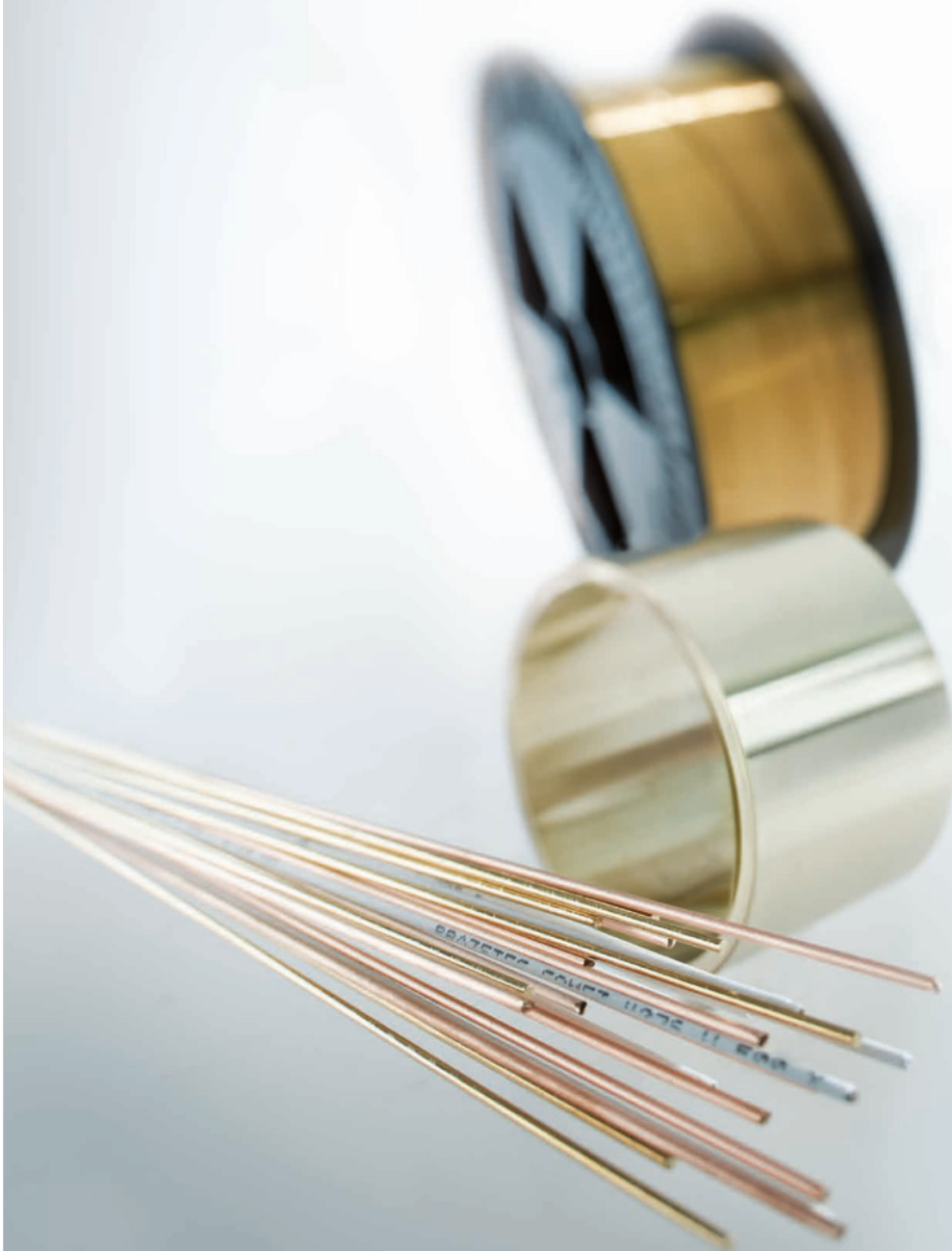






BRAZETEC Silver Brazing Alloys





/ BRAZETEC Silver Brazing Alloys, Cadmium Free

The silver brazing alloys shown on this page are generally capable of being used for operating temperatures from -200 °C to +200 °C. They can be used with any type of steel, copper and copper alloy, also nickel and nickel alloy. Other brazing alloys are available on request or can be customised.


Name	Composition by Weight-%				Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp. min.	Density	ISO 17672	Shear Strength acc. to DIN EN 12797 min.	Available Forms			
	Ag	Cu	Zn	Misc.	in °C	in °C	in °C	in g/cm³		in MPa on S 235				
BrazeTec 5662	56	19	17	5 Sn/3 Ga	605 – 630	–	630	9.3	–	150	•	•	–	–
BrazeTec 5600	56	22	17	5 Sn	630 – 655	620 – 655	655	9.4	Ag 156	150	•	•	•	•
BrazeTec 5507	55	21	22	2 Sn	650 – 670	630 – 660	670	9.3	Ag 155	150	•	•	•	•
BrazeTec 4576	45	27	25.5	2.5 Sn	645 – 695	640 – 680	695	9.1	Ag 145	150	•	•	•	•
BrazeTec 4076	40	30	28	2 Sn	665 – 725	650 – 710	725	9.0	Ag 140	150	•	•	•	•
BrazeTec 3476	34	36	27.5	2.5 Sn	655 – 745	630 – 730	745	8.9	Ag 134	150	•	•	•	•
BrazeTec 3076	30	36	32	2 Sn	675 – 760	665 – 755	760	8.8	Ag 130	150	•	•	–	•
BrazeTec 2576	25	40	33	2 Sn	680 – 775	680 – 760	775	8.8	Ag 125	150	•	•	–	•
BlueBraze 2410	24	43.7	20	0.3 Si	690 – 750	–	750	8.4	–	150	•	•	–	•
BrazeTec 4404	44	30	26	–	675 – 735	675 – 735	735	9.1	Ag 244	150	•	•	•	•
BrazeTec 3075	30	38	32	–	700 – 775	680 – 765	775	8.8	Ag 230	150	•	•	•	•
BrazeTec 2500	25	40	35	–	715 – 790	700 – 790	790	8.7	Ag 225	150	•	•	–	•
BrazeTec 2009	20	44	35.8	0.15 Si	730 – 810	–	810	8.6	Ag 220	150	•	•	–	•

Most alloys can be supplied with 0.15% Si

/ BRAZETEC CoMet – Brazing Rods, Cadmium Free & Flux Coated

BrazeTec offers the following cadmium free brazing alloys from its comprehensive range of products under the name of CoMet (coated metal) as flux coated rods as well. These are naturally free from harmful solvents, plastics and boric acid. The flux is equivalent to the type FH 10 in accordance with DIN ISO 18496 and is boracic acid free. The respective instructions for the use of cadmium free brazing alloys are effective for its application. The silver content by weight of the coated brazing rod is lower than the silver content of a bare brazing rod because of the flux coating. The content of the bare brazing rod of course meets the composition found in cadmium free brazing alloys. BrazeTec CoMet coated rods are available with different thickness ratio of flux coating and core wire in the range of 1.3-2.4 as standard according to customer requirements. Other brazing alloys with flux coating are also available on request.

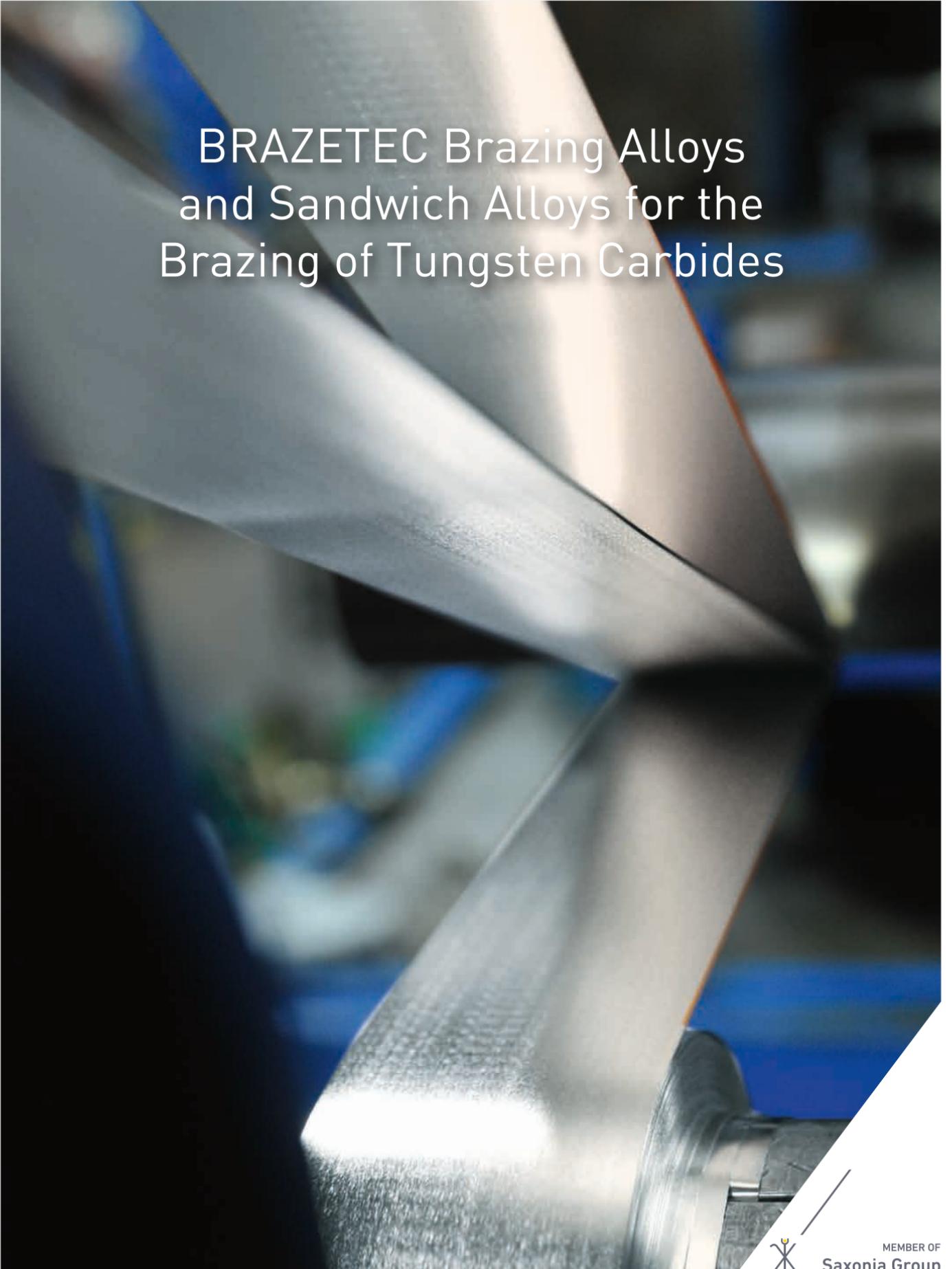


Name	Melting Range acc. to DSC	Brazing Temp. min.	Available Forms
	in °C	in °C	
BrazeTec CoMet 5600 U	630 – 655	655	•
BrazeTec CoMet 4576 U	645 – 695	695	•
BrazeTec CoMet 4404 U	675 – 735	735	•
BrazeTec CoMet 4076 U	665 – 725	725	•
BrazeTec CoMet 3476 U	655 – 745	745	•
BrazeTec CoMet 3076 U	675 – 760	760	•
BlueBraze CoMet 2410 U	690 – 750	750	•
BrazeTec CoMet 2009 U	730 – 810	810	•

Most alloys can be supplied with 0.15% Si

 Wire
  Rods
  Strip
  Preforms
  Flux coated brazing rods

BRAZETEC GmbH / Konrad-Zuse-Straße 13 / 63755 Alzenau / Germany
Tel.: +49 6023 5071-0 / info@brazetec.de / www.brazetec.de



BRAZETEC Brazing Alloys
and Sandwich Alloys for the
Brazing of Tungsten Carbides



/ BRAZETEC Brazing Alloys for the Brazing of Tungsten Carbides

The mentioned BRAZETEC brazing alloys are suitable for the brazing of tungsten carbides and hard to wet materials such as wolfram,

molybdenum, tantalum and chrome. The strength achieved is dependent upon the base material.

Name	Composition by Weight-%						Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp. min.	Shear Strength ¹⁾ min.	Density	ISO 17672	Notes on Application	Available Forms			
	Ag	Cu	Zn	Mn	Ni	Misc.	in °C	in °C	in °C	in MPa	in g/cm³						
BrazeTec 6488	64	26	–	2	2	6 In	730 – 780	–	770	150	9.6	–	TiN-coatable	•	•	•	•
BrazeTec 5081	50	20	28	–	2	–	670 – 730	660 – 715	700	230	9.2	Ag 450	–	•	•	•	•
BrazeTec 4900	49	16	23	7.5	4.5	–	680 – 705	680 – 705	690	250	8.9	Ag 449	–	•	•	•	•
BrazeTec 4900 A	49	27.5	20.5	2.5	0.5	–	670 – 720	–	710	240	8.9	–	–	•	•	•	•
BrazeTec 2700	27	38	20	9.5	5.5	–	690 – 850	680 – 850	800	250	8.7	Ag 427	–	•	•	•	•
BrazeTec 21/80	–	86	–	12	2	–	970 – 1,005	–	990	200	8.8	–	zinc-free alloys suitable for furnace brazing	•	•	•	•
BrazeTec 21/68	–	87	–	10	–	3 Co	980 – 1,020	–	1,020	200	8.8	–	–	•	•	•	•

Measured according to BRAZETEC standard, compound 1.2210 & K10

/ BRAZETEC Sandwich Alloys for the Brazing of Tungsten Carbides

BRAZETEC has developed a sandwich alloy brazing system that can compensate for internal stresses caused by the different thermal expansion coefficients during cooling. We recommend the sandwich brazing alloy BrazeTec 49/Cu^{plus} for applications that require an especially high degree of shear strength. A Nickel intermediate

layer allows a stabilisation of the joint in combination with higher shear strength. The strength to be achieved is dependent upon the strength of the base material. Specific ratios of layer thicknesses are available on request.

Name	Composition ¹⁾ by Weight-%						Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp. min.	Shear Strength ²⁾ min.	Density	Notes on Application	Available Forms	
	Ag	Cu	Zn	Mn	Ni	In	in °C	in °C	in °C	in MPa				
BrazeTec 49/Cu	49	27.5	20.5	2.5	0.5	–	670 – 720	–	710	150	9.0	intermediate copper layer	•	•
BrazeTec 49/Cu ^{plus}	49	27.5	20.5	2.5	0.5	–	670 – 720	–	710	180	9.0	modified intermediate layer	•	•
BrazeTec 49/NiN	49	27.5	20.5	2.5	0.5	–	670 – 720	–	710	150	9.0	nickel net sandwich brazing alloy	•	•
BrazeTec 49/CuNiFe	49	27.5	20.5	2.5	0.5	–	670 – 690	–	690	150	9.0	intermediate CuNiFe layer	•	•
BrazeTec 64/Cu	64	26	–	2	2	6	730 – 780	–	770	150	9.6	suitable for TiN coating, intermediate copper layer	•	•
BrazeTec Cu/NiN	–	100	–	–	–	–	1,085	1,085	1,100	200	8.9	nickel net sandwich brazing alloy	•	•

¹⁾ The data on the composition of sandwich brazing alloys refer only to the brazing layer. ²⁾ Measured according to BRAZETEC standard, compound 1.2210 & K10

 Wire
  Rods
  Strip
  Preforms
  Flux coated brazing rods

/ BRAZETEC BlueBraz

Less silver: up to 21 percent less in weight!

By substantially reducing the silver content in our innovative BrazeTec BlueBraz brazing alloys, you achieve permanent cost reduction up to 20%¹. You become less dependent on silver price fluctuation in the market of precious metals and thus get more planning stability when calculating the cost of your materials.

Comparable processing properties:

Construction, processes and processing remain unchanged. During the development of BrazeTec BlueBraz, apart from reducing silver content, the top priority was retaining the important properties of materials of standard brazing alloys. The functionality of BrazeTec BlueBraz has been confirmed in extensive tests and experiments. For you as customer, this means that neither constructions nor processes must be changed...

Name	Composition by Weight-%						Melting Range acc. to DSC approx.	Brazing temp. approx.	Shear strength ¹ min.	ISO 17672	AWS 5.8
	Ag	Cu	Zn	Mn	Ni	In	in °C	in °C	in MPa		
BrazeTec BlueBraz 2810	28	39	20	10	1	2	680–760	710	250	–	–
BrazeTec BlueBraz 28/Cu	28	39	20	10	1	2	680–760	710	150	–	–
BrazeTec BlueBraz 28/Cu ^{plus}	28	39	20	10	1	2	680–760	710	180	–	–

¹ depends on the product, the amount and the silver price ¹ Measured according to BrazeTec standard, compound 1.2210 & K10

BRAZETEC GmbH
Konrad-Zuse-Straße 13
63755 Alzenau
Germany

Tel. +49 6023 5071-0

info@brazetec.de
www.brazetec.de





BRAZETEC Brazing Alloys for Special Applications



/ BRAZETEC Brazing Alloys for Special Applications

BraceTec 7200 and BrazeTec 6009 brazing alloys can be brazed in air with flux as well as in a protective atmosphere furnace without flux. BrazeTec 6009 is used with flux BrazeTec special h for the brazing of stainless steel. The brazing processes in a vacuum should

not exceed 900 °C for both brazing alloys to avoid the evaporation of silver. The furnace brazing temperature is governed in accordance with the base material.

Name	Composition by Weight-%					Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp. min.	Density	ISO 17672	Notes on Application	Available Forms			
SilverBrazing Alloys	Ag	Cu	Sn	Si	Zn	in °C	in °C	in °C	in g/cm³						
BrazeTec 7200	72	28	–	–	–	780	780	780	10.0	Ag 272	metallized ceramic	•	•	•	•
BrazeTec 7291	72	–	–	–	28	710 – 730	–	730	8.43	–	any steel; suitable for aggressive media	•	•	•	•
BrazeTec 6009	60	30	10	–	–	600 – 720	600 – 730	720	9.8	Ag 160	stainless steel	•	•	•	•
BrazeTec 8500	85	15	–	–	–	–	960 – 970	960	9.4	Ag 485	any steel; suitable for aggressive media	•	•	•	•

Brass Brazing Alloys	Cu	Zn	Ni	Si	Mn	in °C	in °C	in °C	in g/cm³						
BrazeTec 60/40	60	39.55	–	0.3	0.15	870 – 900	870 – 900	900	8.4	Cu 670	galvanized steel pipes	•	•	•	•
BrazeTec 48/10	48	41.8	10	0.2	–	890 – 920	890 – 920	920	8.4	Cu 773	steel pipe frames	•	•	–	•

 Wire
  Rods
  Strip
  Preforms





BRAZETEC Brazing Alloys for Copper and Copper Based Materials





/ BRAZETEC Brazing Alloys for Copper and Copper Based Materials

These brazing alloys can be used at operating temperatures from -70°C to $+150^{\circ}\text{C}$. The phosphorous containing brazing alloys on this page were especially developed for the joining of copper with copper or of copper alloys (brass, bronze, red brass). The use of an additional flux is not necessary when brazing copper to copper due to its phosphorous-content but should be used with copper alloys. These brazing alloys should not be used in the brazing of materials that contain sulphur. These brazing alloys are not suitable for steels and nickel alloys due to brittle-phase-generation. BrazeTec S 2 and BrazeTec S 94 are in line for use according to the DVGW recommendations.

Name	Composition by Weight-%				Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp. min.	Density	ISO 17672	Tensile Strength acc. to DIN EN 12797 min.	Available Forms			
	Ag	Cu	P	Sn	in $^{\circ}\text{C}$	in $^{\circ}\text{C}$	in $^{\circ}\text{C}$	in g/cm^3		in MPa on Cu				
BrazeTec S 18	18	75	7	–	645	645	650	8.3	CuP 286	100	•	•	–	–
BrazeTec S 15	15	80	5	–	645 – 800	645 – 800	700	8.3	CuP 284	100	•	•	•	•
BrazeTec S 5	5	89	6	–	645 – 815	645 – 835	710	8.2	CuP 281a	100	•	•	•	•
BrazeTec S 2	2	91.7	6.3	–	645 – 845	645 – 825	740	8.1	CuP 279	100	•	•	•	•
BrazeTec S 94	–	93.8	6.2	–	710 – 860	710 – 890	760	8.1	CuP 179	100	•	•	–	•
BrazeTec S 93	–	93	7	–	710 – 820	710 – 820	730	8.1	CuP 180	100	•	•	–	•
BrazeTec S 92	–	92.2	7.8	–	710 – 780	710 – 770	720	8.0	CuP 182	100	•	•	–	–
BrazeTec S 86	–	86.2	6.8	7	640 – 720	650 – 700	700	8.0	CuP 386	100	•	–	–	–

 Wire
  Rods
  Strip
  Preforms





BRAZETEC Active Brazing Alloys and Active Brazing Paste



/ BRAZETEC Active Brazing Alloys

A minimal brazing temperature of 850 °C is necessary in order to achieve a bond with ceramics using BRAZETEC Active Brazing Alloys. Higher brazing temperatures can improve the wetting behaviour. Pure Argon [4.8] or vacuum (<10⁻³mbar) is used as the protective

brazing atmosphere. The temperature for a vacuum brazing should with CB4 should not be higher than 900 °C and for CB 2 and 6 not higher than 1,000 °C to avoid the evaporation of silver.

Name	Composition by Weight-%				Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp. min.	Density	Notes on Application	Available Forms			
	Ag	Cu	In	Ti	in °C	in °C	in °C	in g/cm ³					
BrazeTec CB 2	96	–	–	4	970	–	1,000	10.3	ceramic, ceramic/metal-connections, graphite, diamond, sapphire, ruby	•	•	•	•
BrazeTec CB 4	70.5	26.5	–	3	780 – 820	–	850	9.9		•	•	•	•
BrazeTec CB 6	98.4	–	1	0.6	950 – 960	–	1,000	10.3	silicon nitride	•	•	•	•

/ BRAZETEC Active Brazing Paste

BRAZETEC active brazing pastes have a high metal content, which is optimised for the application of the product.

Materials with different Ti-contents are also available on request.

Name	Composition by Weight-%				Melting Range acc. to DSC	Brazing Temp. min.	Notes on Application	Available Forms
	Ag	Cu	In	Ti	in °C	in °C		
BrazeTec CB 10	64.8	25.2	–	10	780 – 805	850	ceramic, ceramic/metal-connections, graphite, sapphire, ruby	• •
BrazeTec CB 11	90	–	–	10	970	1,000		• •
BrazeTec CB 12	55.1	39.9	–	5	780 – 855	>900	ceramic, ceramic/metal connections, PCD, CBN applications	• •
BrazeTec CB 17	59.1	27.2	12.5	1.2	605 – 720	780 – 800		• •

 Wire
  Rods
  Strip
  Preforms
  Can
  Cartridge