



MANUFACTURE



**SIMBON**  
INDUSTRIAL GROUP

BRAZING ALLOYS  
AND FLUXES

**SIMBON INDUSTRIAL  
GROUP**

[www.simbonsilver.ir](http://www.simbonsilver.ir)

## ABOUT US

The SIMBON Industrial Group is one of the largest manufacturers of Silver Brazing Alloys and Brazing fluxes in Middle East .

The manufacture of limited amount of silver brazing alloys has been carried since 1994. More than a quarter of a century of experience, this history, knowledge and experience, coupled with modern computer controlled manufacturing processes ensure that the production of all of our products is to the highest standards.

All SIMBON products are produced to the International En1044, AWS standards, with precise manufacturing controls both chemically and metallurgically. The SIMBON Quality Management System is registered to ISO 9001: 2015. At SIMBON, the manufacturing of alloys starts with the control of the raw

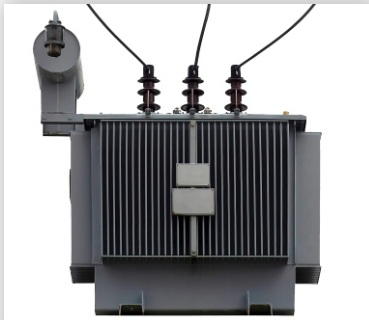
materials such as Silver, Copper and Zinc, as well as many other elements to provide a wide range of standard and special alloys.

Alloys are melted using electric induction melting and casting machine, The alloys are analytically and metallurgically controlled during and after casting to ensure that tight controls on alloy composition, impurity limits, metallurgical structure and physical properties are all maintained to ensure the alloys meet the customers' requirements.

SIMBON has a highly capable Technical team who can study and develop specific alloys to solve any technical issues. Our knowledge and experience are a guarantee of our quality and by working with customers, our research laboratory are constantly developing new products to anticipate future market requirements.



## Brazing Materials Consumers



Power Transformer ▲



Refrigerator ▲



Chandelier ▲



Bicycles ▲



Air Conditioning ▲



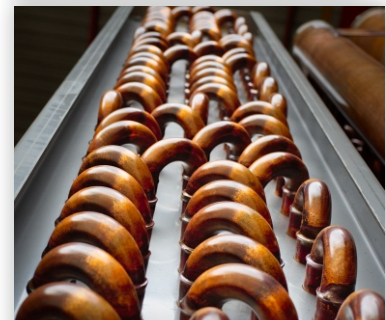
Automotive ▲



Tools ▲



Car Body Repair ▲



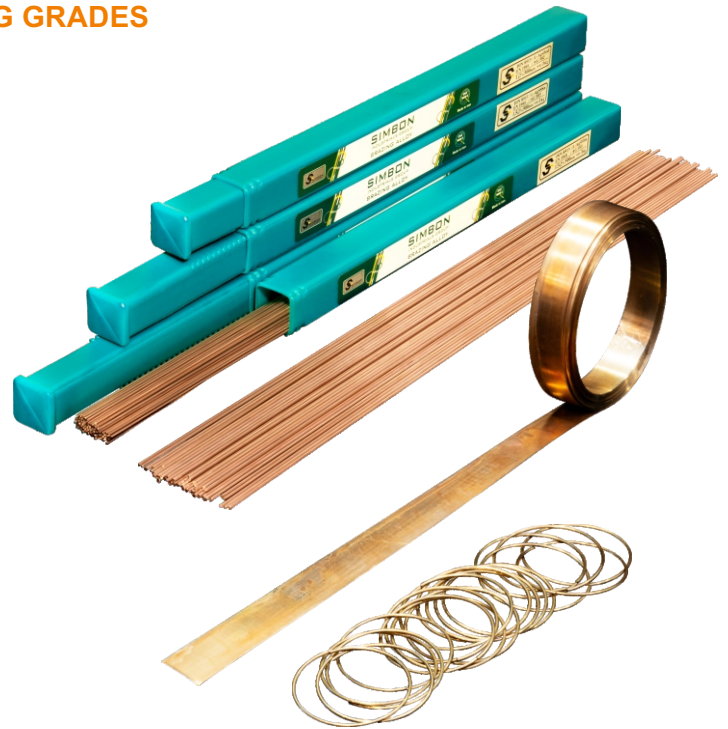
Heat Exchanger ▲

## SILVER BRAZING ALLOYS - CADMIUM BEARING GRADES

General-purpose, lowest temperature with short melting ranges, free flowing alloys that are versatile, easy to use having high strength.

This family of brazing alloy like high silver brazing alloys has excellent flow characteristics and mechanical properties. Being used successfully for the last many decades on nearly all ferrous and non ferrous alloys. Simbon offers these alloys in a wide range of compositions to suit specific applications. Available in Wires and Rods, Strips, Wire Flattening, Wire Preforms, Strip Preforms. With the help of the chart below, identify and compare alloys of our Silver Based Cadmium Bearing Alloys suited to your needs.

Note: These alloys contain cadmium and not to be used in the manufacture of food and drinking handling equipment and medical instruments. To be used only in well-ventilated areas. More detailed specifications to be provided on customer's demand.



### SILVER BRAZING ALLOYS - CADMIUM BEARING GRADES

Standards			Composition By Weight %				Melting range °C	Working temperature °C	Area of Application	Main parent Metals
DIN 8513 ISO 6377 (1995)	EN 1044 (1999)	ISO 17672 (2010)	Ag	Cu	Zn	Cd				
L-Ag50Cd B Ag50CdZnCu	AG 301	AG 350	50	15	17.5	17.5	620_640	640	For joints exposed to operating temperature up to 150°C	Steel, Precious metals, Copper and Copper alloys, Nickle and Nickle alloys, Tempered Cast Iron
L-Ag45Cd B Ag45CdZnCu	AG 302	AG 345	45	17	18	20	620_635	620		
L-Ag40Cd B Ag40ZnCdCu	AG 304	AG 340	40	19	21	20	595_630	610		
L-Ag34Cd B Ag34CuZnCd	AG 305	AG 336	34	22	24	20	610_680	640		
L-Ag30Cd B Ag30CuZnCd	AG 306	AG 330	30	28	21	21	600_690	680		
L-Ag25Cd B Ag30ZnAgCd	AG 307	AG 326	25	30	27.5	17.5	605_720	710		
L-Ag20Cd B Cu40ZnAgCd	AG 309	-	20	40	25	15	605_765	750		
L-Ag12Cd B Cu50ZnAgCd	-	-	12	50	31	7	620_825	800		

## COPPER PHOSPHORUS BRAZING ALLOYS

Self fluxing copper based brazing alloys containing phosphorus thereby facilitating brazing on copper to copper in air without the use of a flux. Use of flux recommended for copper alloys like brass and bronze. For improved ductility and electrical conductivity silver containing lower phosphorus alloys also available.

Widely used in refrigeration, air conditioning and plumbing industry. SIMBON offers these alloys in a wide range of compositions to suit specific applications available in Wires and Rods, Strips, Wire Flattening, Wire Preforms, Strip Preforms.

With the help of the chart below, identify and compare alloys of our Copper Phosphorus Alloys suited to your needs.

Note: Not suitable for brazing iron base parts.



### COPPER PHOSPHORUS BRAZING ALLOYS

Standards			Composition By Weight %				Melting range °C	Working temperature °C	Area of Application	Main parent Metals
DIN 8513 ISO 6377 (1995)	EN 1044 (1999)	ISO 17672 (2010)	Ag	Cu	P	Other				
L-Ag15P B Cu80AgP	CP 102	CuP 284	15	80	5	-	650_800	710	For joints exposed to operating temperature up to 150°C	Copper to Copper without flux
L-Ag5P B Cu89PAg	CP 104	CuP 281	5	89	6	-	650_810	710		-----
L-Ag2P B Cu92Ag	CP 105	CuP 279	2	91.8	6.2	-	650_810	710		For Copper alloys (Brass, Bronze, red brass, etc.) with flux
L-CuP8 B Cu92P	CP 201	CuP 182	-	92	8	-	710_740	710		-----
L-CuP7 B Cu93P	CP 202	CuP 181	-	92.8	7.2	-	710_790	720		Not for media containing sulfur. Not for Fe and Ni alloys
L-CuP6 B Cu94P	CP 203	CuP 179	-	93.8	6.2	-	710_880	730		
- B Cu86SnP	CP 302	CuP 385	-	86.25	6.75	7.0Sn	650_700	690		

## SILVER BRAZING ALLOYS - CADMIUM FREE GRADES

Cadmium-free silver brazing alloy is a kind of environmental friendly solder, suitable for brazing most ferrous metals except magnesium and aluminum.

Capable of low melting point, good fluidity, large wetting angle, strong filling capacity, suitable for high frequency welding, flame welding, resistance welding and other welding methods. It has many advantages, such as high strength, good toughness, good conductivity, etc.

Our cadmium-free alloys offer excellent performance characteristics and dependable results, while eliminating hazardous cadmium fumes.

Besides, this solder does not contain any heavy metal components, is environmentally friendly, pollution-free, and is suitable for all walks of life.



### SILVER BRAZING ALLOYS - CADMIUM FREE GRADES

Standards			Composition By Weight %				Melting range °C	Working temperature °C	Area of Application	Main parent Metals
DIN 8513 ISO 6377 (1995)	EN 1044 (1999)	ISO 17672 (2010)	Ag	Cu	P	Other				
L-Ag55Sn B Ag56CuZnSn	AG 102	-	60	23	14	3 Sn	620_685	650	Colour-equivalent joints on 18/8 steels	All Steels, Copper and Copper alloys, Nickle and Nickle alloys
L-Ag55Sn B Ag55ZnCuSn	AG 103	Ag 155	55	21	22	2 Sn	630_660	660		
L-Ag45Sn B Ag45CuZnSn	AG 104	Ag 145	45	27	25	3 Sn	640_660	670	For joints exposed to operating temperature up to 200°C	
L-Ag40Sn B Ag40CuZnSn	AG 105	Ag 140	40	30	28	2 Sn	640_700	690		
L-Ag34Sn B Cu36AgZnSn	AG 106	Ag 134	34	36	27	3 Sn	630_730	710		
L-Ag30Sn B Cu36ZnAgSn	AG 107	Ag 130	30	36	32	2 Sn	650_750	740		
L-Ag25Sn B Cu40ZnAgSn	AG 108	Ag 125	25	40	33	2 Sn	680_760	750		
- B Cu47ZnAgSn	---	---	18	47	33	2 Sn	780_810	800		
L-Ag44 B Ag44CuZn	AG 203	Ag 245	44	30	26	-	680_740	730		
L-Ag30 B Cu38ZnAg	AG 204	Ag 230	30	38	32	-	680_765	750		
L-Ag25 B Cu41ZnAg	AG 205	Ag 225	25	41	34	-	680_795	780		
L-Ag20 B Cu45ZnAgSi	AG 206	-	20	44.9	35	0.1 Si	690_810	810	Securing of diamonds	
L-Ag12 B Cu48ZnAg	AG 207	Ag 212	12	48	40	-	800_830	830	up to 200°C	
L-Ag5 B Cu55ZnAg	AG 208	Ag 205	5	55	40	-	830_870	860		

## BRASS BRAZING ALLOYS

Brass brazing alloys also called Copper-Zinc brazing alloys, could be divided into normal brass alloy and special brass alloy. Different from normal brass alloy, special brass alloy is a multi-component copper alloy composed with Sn, Mn, Ni, Fe, Si and other elements. Special brass alloys have better brazing properties than normal copper-zinc alloys. It could provide better brazing strength, higher corrosion resistance, more convenient brazing process, etc.

For example, the addition of Sn can reduce the melting point of common copper-zinc alloy, make brazing temperature lower and easier to operate; the addition of Mn can improve the strength of copper-zinc alloy, more suitable for the use of cemented carbide products.

Alloy often used with liquid flux dosed directly on the torch flame through the appropriate vaporizer. Used as filler or for reconstructing gear teeth, bearings, shafts, valve seats, steering joints, handlebars and bicycles.



### BRASS BRAZING ALLOYS

Standards			Composition By Weight %							Melting range °C	Working temperature °C	Area of Application	Main parent Metals
DIN 8513 ISO 6377 (1995)	EN 1044 (1999)	ISO 17672 (2010)	Zn	Cu	Sn	Si	Mn	Ni					
L-CuZn40 B Cu60Zn(Si)	CU 301	Cu 470& Cu470a	Rem	60	0.2	0.3	-	-	875-895	min 900 °C recommended	Brass type special ductile alloy for ferrous and cuprous metals	Copper and Copper alloys, Steel and Steel alloys	
L-CuZn40 B Cu60Zn(Sn)(Si)	CU 302	Cu 470& Cu470a	Rem	60	0.4	0.3	-	-	875-895				
L-CuZn40 B Cu60Zn(Si)(Mn)	CU 303	Cu471	Rem	60	0.2	0.25	0.15	-	875-900				
L-CuZn39Sn B Cu60Zn(Sn)(Si)(Mn)	CU 304	-	Rem	60	0.3	0.25	0.15	-	875-900				
L-CuNi10Zn42 B Cu48ZnNi(Si)	CU 305	-	Rem	48	0.2	0.25	0.2	10	890-920				
L-CuZn39Sn B Cu59ZnSn(Ni)(Mn)(Si)	CU 306	-	Rem	59	1.0	0.3	0.6	1	870-890				

## BRAZING FLUXES

Brazing fluxes are chemical compounds applied to the joint surfaces before brazing, can be classified as silver brazing flux powder/ paste, aluminum brazing flux powder corrosive and non corrosive, brass brazing flux powder/ paste and gas flux liquid.

They are all essential to use in the whole process of brazing/ soldering operation.

Heating a metal surface accelerates the formation of oxides, the result of chemical combination between the hot metal and oxygen in the air. This oxide layer has to be removed before brazing, and the formation of a new oxide layer has to be prevented or they will inhibit the filler metal from wetting and bonding to the surfaces.

Brazing Fluxes play a vital role in virtually all air brazing processes.

Use of the wrong flux or a poor application technique can have a dramatic effect on joint quality.





### Silver brazing flux

This is a white powder flux that's used for 90% of silver brazing applications. This flux is useful for brazing copper, brass, steel, stainless steel and nickel alloys. It has an active temperature range 550–800(°C). It can use with high silver brazing filler metals (EN1044 series) on the above base metals, and the phos-copper-silver on copper to brass.

DIN EN 1045 FH10, DIN 8511 F-SH1

Available in 50g,100g, 200g and 500g packaging.



### Brass brazing Flux

The Flux cleans the surface before brazing and ensures coating of the rod on the workpiece by preventing oxidation in high temperatures. It can be cleaned after brazing operation with mechanical methods such as wire brush, grinding, immersing while the workpiece is hot, and special cleaning solutions.

Usable for brazing of galvanized steels with using brass brazing rods.

Working temperature 750-1000(°C).

DIN EN 1045 FH21, DIN 8511 F-SH2.

Available in 200 g and 500 g packaging.



### Aluminum Brazing Flux (corrosive)

White powder, corrosive flux has been the standard for joining aluminum materials. Corrosive flux is water-soluble, containing both chloride and fluoride salts. Residues can be washed off the parts with a solution of nitric acid and water, and the resulting braze joint has a clean appearance.

The automotive industry commonly uses this flux on automotive under-the-hood assemblies where visual appearance is critical. Corrosive flux is also used in electrical/heat sink applications because non-corrosive flux residue acts as an insulator and cannot be easily removed.

Working range of 520-610(°C) Excellent dispensibility.

Use with aluminium silicon/Aluminum brazing alloys.

in accordance with DIN EN 1045 FL10, DIN 8511 F-LH1.

Available in 50g, 100g, 200g and 500g packaging.



### Aluminum Brazing Flux ( non corrosive )

Fine white powder consisting a mixture of the potassium fluoroaluminate salts of the general formula  $K_{1-3} Al F_{4-6}$ .

Melting point range of 565°C to 572°C, below the melting temperature of 577°C of the Al-Si brazing alloy. The particle size lies in the range of 2  $\mu m$  to 50  $\mu m$ .

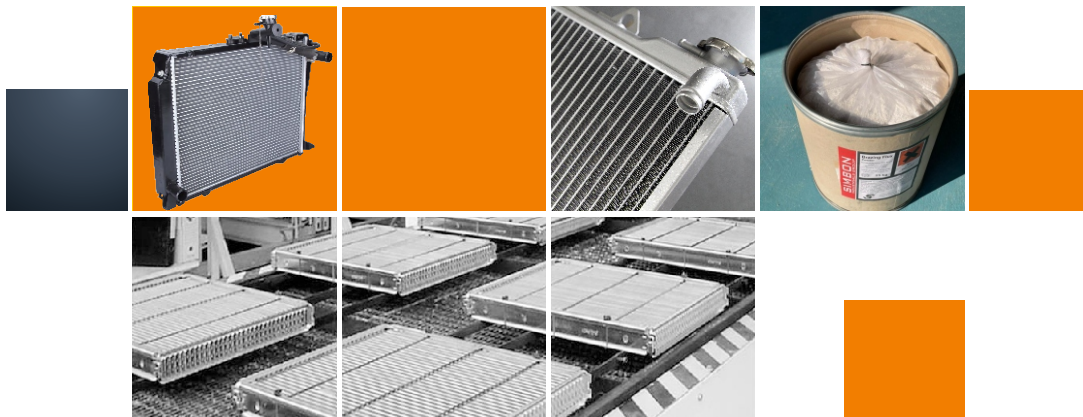
Simbon flux is non-hygroscopic and only very slightly soluble in water (0.2 % to 0.4 %). The flux does not react with aluminum at room temperature or at brazing temperature and only becomes reactive when molten (at least partially molten).

The flux leaves a mainly water insoluble residue which need not be removed.

Working range of 575-600(°C)

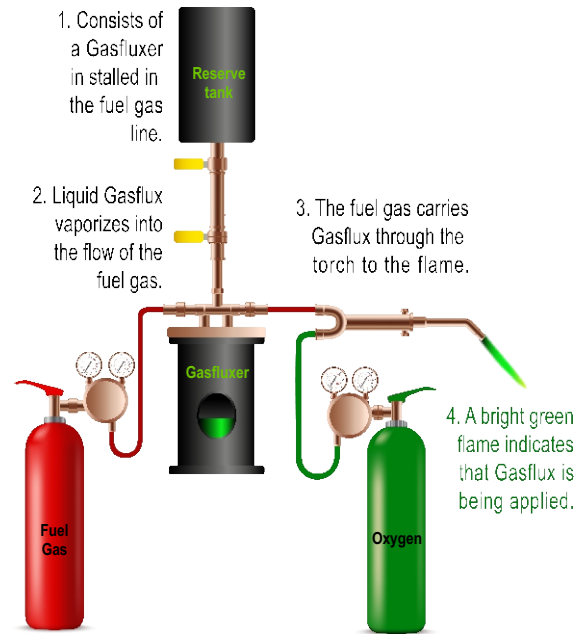
in accordance with DIN EN 1045 FL 20, DIN 8511 F-LH2

Available in 500g, 25 kg packaging.



## GASFLUX Liquid

Gasflux is a process that was designed in 1938 to improve torch brazing. Gasflux can be used with any fuel gas and can be used to join similar or dissimilar metals. Used with bronze, brass, silver, and copper silver phosphorus filler metals, Gasflux produces joints of optimum strength and outstanding appearance while reducing post braze cleanup costs. The result is increased productivity with reduced material and application cost. Gasflux introduces Boron (a commonly found chemical in such products as hand soap, eye wash and other products) into the flame via suspension in alcohol. This creates a de-oxidizing atmosphere during the brazing process, allowing the alloy to flow freely and keeping the part clean of oxides.

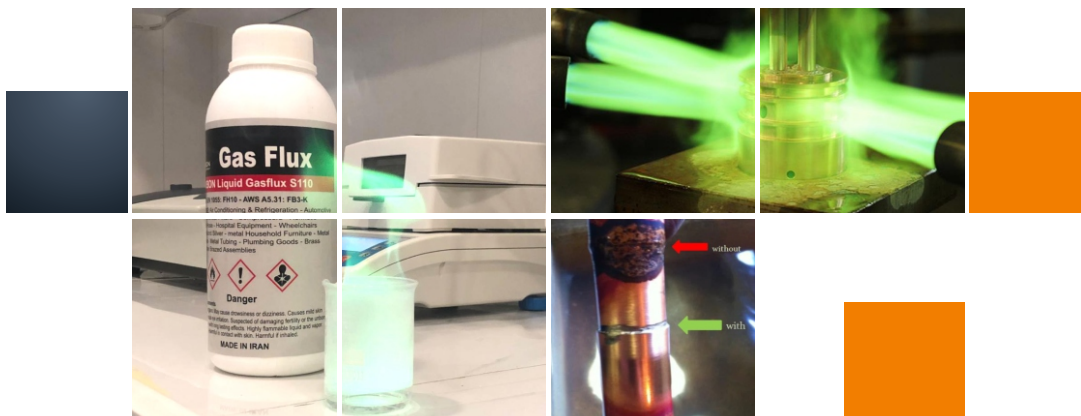


## BENEFITS OF USING GASFLUX:

- Optimum strength
- Reduced filler metal consumed
- Minimal post-braze cleaning
- Quicker brazing times
- Reduced leaks
- Reduce over-heating of the base metals

SIMBON Gasflux conforms to AWS/ANSI A5.31 under flux type FB3-k.

The above fluxes are available 4 liters, 10 liters and 20 liters packaging.





Simbon industrial group Private Limited

**Contact Us:**

**Address:** 4th floor, 17th plq, 6th alley, ghaem magham st, Tehran, IRAN

**Tel:** +982188750961-2

**WhatsApp:**

Sales dep: +98 902 848 2484

Technical dep: +98 902 974 8451

**Instagram:** simbon-brazing

**Web:** [www.simbonsilver.ir](http://www.simbonsilver.ir)

**Email Address:** [simbonsilver@gmail.com](mailto:simbonsilver@gmail.com)