

Cerasolzer

Active Solder Alloy



General Information

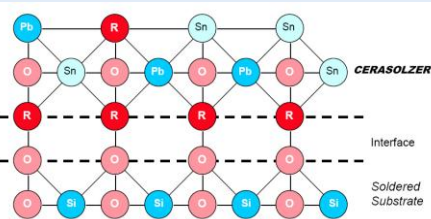
CERASOLZER is used in manufacture of electrical parts, to contact electrical / electronical materials and flat glass / metalized glasses because it provides a unique bonding technique that can take the place of commonly used silver baking, indium soldering, molybdenum-manganese and resin (flux) bonding methods.

Glass, Ceramic, Aluminum and Stainless Steel are commonly known as non-solderable materials with conventional soldering systems. Heating is not enough to overcome this obstacle.

Ultrasonic vibrations in conjunction with heat cause the required effect and delivers the technical break through. This principle is based on the scientifically recognized "Ultrasonic Cavitation Phenomenon" which is caused by strong ultrasonic penetration.

The active-solder alloy's CERASOLZER together with an ultrasonic activated soldering system enables to solder on 'hard-to-solder' materials **flux free**.

Chemical Model



When quartz glass is soldered, the metallic oxides (R/O, which are components of Cerasolzer) unite chemically with the SiO₂ of the glass.

- 1 Vacuum window on steel
- 2 El. contacts glass / alu / copper
- 3 Mech. joining of titanium on sapphire
- 4 Soldering of glassfibre

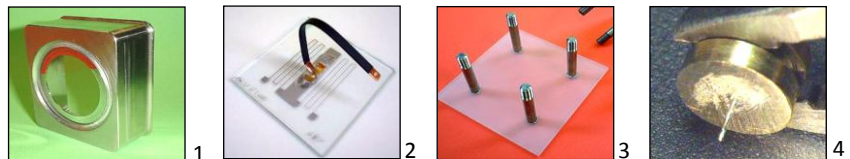
Features

- Flux free
- Corrosion free
- Soldering temperatures between 150° - 290°C
- Wetting ability to glass + ceramics

Solderable Substrates

- Alumina
- Ceramics
- Electroconductive ITO coated glass
- Optical glasses
- Silica, Silicaglass
- All kind of glasses
- Thermal conductive material
- Titanium
- Crystal, Crystallised glass
- Magnitic sintered metal
- Tantalum, Tin, Titanium
- Zync

The complete list is available at www.cerasolzer.com



Adhesive Mechanism

There are different targets, which can be accomplished by using ultrasonic energy in a pool of molten solder on a substrate:

1. The oxides can be removed from the substrate permitting the solder to react with the substrate, i.e. bond.
2. The liquid metal can be forced into the tiny crevices, cracks and micropores of the substrate and thereby seal them and provide a greatly increased surface of the solder for bonding purposes.
3. The ultrasonic vibration presses out gas bubbles of the liquid solder and produces a shrink hole free joint. This is very interesting for applications in high-vacuum.

CERASOLZER contains a small amount of elements such as Zn, Ti, Si, Al, Be and Rare Earth, which have a strong chemical affinity with oxygen. These metals are thought, during the bonding process, to combine with oxygen in air to form oxide, which is chemically bound to the surface of glass, ceramic etc.

Technical Specifications

Description	Ø Wire	Units	Melting Temperature
# CS186	1,6 mm	150gr / 1000 gr	186°C
# CS224	1,6 mm	150gr / 1000 gr	224°C
# CS246	1,6 mm	150gr / 1000 gr	246°C
# CS297	1,6 mm	150gr / 1000 gr	297°C
RoHS-conform (lead free)			
# GS200ALU	1,6 mm	150gr / 1000 gr	200°C
# GS155	1,0 mm	30gr / 150 gr	155°C
# GS182	1,0 mm	30gr / 150 gr	182°C
# GS217	1,0 mm	150gr / 1000 gr	217°C
# GS220	1,6 mm	150gr / 500 gr	220°C