FELDER seit 1979 LÖTTECHNIK

Product Information

FELDER-ISO-Tin® Lead Containing Electronic Solders

for machine soldering in atmospheric soldering systems and inert gas soldering systems

Item-No.: 1260/67/72/78/88 …

For FELDER electronic solders only purest tin and lead qualities as well as purest copper and silver qualities of certain countries of origin are used.
This preselection of extreme pure alloy components guarantees besides the costly alloy procedure always a constant high quality with a very low tendency towards dross formation.

Standard Alloys

Alloy	Melting range	Standard	Item-No.
Sn60Pb40E	183° C - 190° C	DIN EN ISO 9453	1260…
Sn63Pb37E	183° C (eutectic)	DIN EN ISO 9453	1278…
Sn64Pb36	183° C - 185° C	no standard alloy	1280…
Sn60Pb39Cu1	183° C - 190° C	DIN EN ISO 9453	1267…
Sn62Pb36Ag2	179° C	DIN EN ISO 9453	1272…

Other alloys are included in our standard delivery program.

Physical Characteristics (Sn63Pb37)

Melting range: 183° C (eutectic)
Density: 8,4 g/cm³
Tensile strength: 30 N/mm²

Advices

Each delivery is marked with a batch number. A certificate of analysis can be submitted on request. The analysis values will be ascertained with an optical emission spectrometer.

FELDER electronic solders can be mixed with all competitive solders of the same composition without restrictions and thus they can be added to existing solder bathes without any additional efforts!

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FELDER ISO-Tin®-electronic solder Sn63Pb37E shows lower values of impurities compared with national and international standards.

Typical Analysis (specifications in weight -%):

Element	FELDER	DIN EN 61190-1-3	DIN EN ISO 9453	QQ-S-571	ASTM B-32-83
Ag	<0,0026	0,05	0,10	0,015	0,015
Al	<0,0003	0,005	0,001	0,005	0,005
As	<0,0025	0,03	0,03	0,03	0,03
Au	<0,0005	0,05	0,05	*	*
Bi	<0,0055	0,10	0,05	0,25	0,25
Cd	<0,0005	0,002	0,002	0,001	0,001
Cu	<0,0016	0,08	0,08	0,08	0,08
Fe	<0,0061	0,02	0,02	0,02	0,02
In	<0,0021	0,10	0,10	*	*
Ni	<0,0007	0,01	0,01	*	*
Sb	<0,0305	0,5	0,05	0,2 - 0,5	0,5
Sn	62,7 - 63,5	62,5 – 63,5	62,5 - 63,5	62,5 - 63,5	62,5 - 63,5
Zn	<0,0004	0,001	0,001	0,005	0,005
Pb	Rest	Rest	Rest	Rest	Rest

* = not quantified

The solder baths should be tested periodically for harmful impurities.

Our modern laboratory with emission spectrometer is always available for control analysis of your soldering baths. Nearly all elements apart from tin and lead are impurities in the soldering bath. They have a negative influence on the wettability and can cause extreme bridge studs and oxide film.

Form of Delivery

Triangular rods	400 mm long, approx. 250 g/rod, 25,- kg/carton
1,- kg rods	330 mm x 20 x 20 mm, 25,- kg/carton
Blocks	545 x 47 x 20 mm, approx. 3,5 kg/block with hanging hole, palletized
Wire “Massiv”	∅ = 0,25 – 6,0 mm on different spools

Storage

Stored dry and dust-free the material (massive alloy) is durable for an unlimited period.

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Critical Values in the Solder Bath

Element	Chem. sign	Limit	Assessment
Aluminium	Al	0,002 %	Changes the oxide behaviour of the solder, closed oxide films are made, strong dross formation.
Antimony	Sb	0,500 %	Antimony is one of the elements which can cause hardly changes up to 0,5 % in the solder bath.
Arsenic	As	0,020 %	Arsenic causes de-wetting and deterioration of the strength for contents over 0,02 %.
Lead	Pb	Rest	± 1 % in the alloy can be tolerated.
Cadmium	Cd	0,002 %	Changes the oxide behaviour, dross formation.
Iron	Fe	0,010 %	Iron causes insoluble connections in the solder, worse solderability.
Gold	Au	0,050 %	Gold makes the melted solder viscous; the soldering connections are dull.
Indium	In	0,500 %	There are no disadvantages effects known concerning the values under 0,5 %.
Copper	Cu	0,300 %	Copper increases the viscosity of the solder bath. It can lead to sediments in the field of wave shaft and the formation of bridges as well as large soldering joint surfaces.
Nickel	Ni	0,010 %	Up to the limit there is no measurable influence on the soldering qualities.2
Palladium	Pd	0,002 %	Leads to dross formation.
Phosphorus	P	0,010 %	Phosphorus will be added partly to the deoxidation for the solder. If contents are above 0,01 % de-wetting appears.
Sulphur	S	0,010 %	Sulphur leads to bad wettability and to gritty look of the soldering joint surface.
Silver	Ag	0,100 %	Silver leads to the formation of dross and to a gritty surface of the soldering joint.
Bismuth	Bi	2%	If contents of 2-3 % occur there is no negative influence of the soldering qualities known. From 2 % bismuth the soldering joints look dull.
Zinc	Zn	0,002 %	Zinc can be looked at like aluminium and cadmium. It deteriorates the flowing and adhesion qualities noticeable. Formation of a solid coated oxide film, leads to the formation of bridge and studs and increases the dross formation.
Tin	Sn	62,5 – 63,5%	Variation of 0,5 - 1,0 % will not lead to soldering defects.

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