



FELDER

— seit 1979 —

LÖTTECHNIK

DELIVERY PROGRAM
ELECTRONIC

The technology for soldering in electronic production.



High-quality joints from Oberhausen

FELDER GMBH has been producing first-class products since 1979. Our product range and services are perfectly orientated to the needs of our customers, making us the perfect partner in our specialist field: the development and production of solders, solder pastes and fluxes for soldering and brazing as well as anodes and solder wires for flame spraying. The delivery program is just as diverse as the areas of application. Whether for the hot air levelling of PCBs, the cable assembling, the assembly production or also for the surface technology - with our soldering technology products we work to the best of our ability and grow every day in line with our assignments.

In 1986 our company moved to the current location in Oberhausen. Our production halls and warehouses were modernized in 1991 and 2005 and doubled in 2013/2014 to a total of 7000 m². In recent decades we have emerged as the innovative market leader. The economic success and the consistently growing clientele acknowledges the work that we do.

As one of the leading manufacturers of solders and fluxes in Europe, our products are naturally subject to continual quality control in our modern laboratory and comply with a high standard of quality according to the guidelines of ISO 9001. Aspects concerning the environment are also strictly monitored and certified according to ISO 14001.

Careful advice and customised problem solutions are part of our philosophy. Our extensive range of products makes us a very capable partner for industry and trade. By maintaining this high quality standard, FELDER GMBH secures its market position for the future.

We look forward to working together with you.

FELDER GMBH

Löttechnik

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ISO-Tin® basic electronic solders

From pure metals of first melting.

For use in wave, selective and dip solder baths.

Format	Dimension
ca. 0,250 kg triangular rods	10 x 10 x 10 x 400 mm
ca. 1,000 kg rods	330 x 20 x 20 mm
ca. 3,500 kg blocks with suspension eyelet	545 x 47 x 20 mm

Also as solid wire on spools for automatic feeding and available as cone / pellets for first filling.



Product	Alloy	EN ISO 9453:2014	Melting range	Rec. solder wave temperature
Sn96,5Ag3,0Cu0,5	Sn96,5Ag3,0Cu0,5	Sn96,5Ag3Cu0,5	217 - 219 °C	≥ 255 °C
Sn95,5Ag3,8Cu0,7	Sn95,5Ag3,8Cu0,7	Sn95,5Ag3,8Cu0,7	217 °C eutektic	≥ 255 °C
Sn96,5Ag3,5	Sn96,5Ag3,5	Sn96,5Ag3,5	221 °C eutektic	≥ 260 °C
Sn99,3Cu0,7	Sn99,3Cu0,7	Sn99,3Cu0,7	227 °C eutektic	≥ 270 °C
Sn63Pb37	Sn63Pb37E	Sn63Pb37E	183 °C eutektic	≥ 250 °C

For our **FELDER ISO-Tin® basic electronic solders**, we only use materials of the highest purity in our melt. Our special manufacturing process ensures minimal dross formation even during soldering processes in a normal atmosphere.

For use in selective soldering systems with wettable nozzles, we also offer a guaranteed phosphorus-free version. (Phosphorus is suspected of accelerating the passivation of the solder nozzles).

Each delivery is provided with a batch number. A certificate of analysis is available on request. The analytical values are determined with an emission spectrometer. Our lead-free solders comply with the RoHS directive and thus also the ElektroG. We will be pleased to provide you with a declaration of conformity.

All lead-free **FELDER ISO-Tin® basic electronic solders** basic electronic solders are of course also available as copper-free refillable solders.

Please note the application advantages of our NiGe-doped electronic solders. Please ask for our detailed product information.

Desoxidation tablets

Phosphorus doped solder additive to reduce dross formation
Especially for wave and dip soldering systems without protective gas equipment
Phosphorus content 0.8 % P

Content	Format	Alloy (according to EN 9453:2014)
0,250 kg cans	pressed pellets	Sn60Pb40P (Sn60Pb40)
0,250 kg cans	pressed pellets	Sn99,9P (Sn99,9)



Nickel and germanium concentrates

For the adjustment and correction of the nickel and germanium contents in correspondingly doped solders as well as for the conversion from lead-free basic electronic solders to our NiGe solders.

Content	Format	Alloy
5,000 kg cartons	rods 10x150 mm	Sn99Ge1
5,000 kg cartons	rods 10x150 mm	Sn97Ni3

ISO-Tin®.

High temperature solders and high melting point solders

from pure metals of first melting

for immersion tin plating in transformer construction and in cable assembly

Format	Dimension
ca. 0,250 kg triangular rods	10 x 10 x 10 x 400 mm
ca. 1,000 kg rods	20 x 20 x 300 mm

Also available as solid wire on spools for automatic feeding.



Product	DIN EN ISO 9453:2014	Melting range	Soldering temperatures
Sn96Cu4Ni	-	227 - 335 °C	≤ 500 °C
Sn95Cu5	-	227 - 350 °C	≤ 500 °C
Sn97Cu3	Sn97Cu3	227 - 310 °C	≤ 450 °C

RoHS-compliant high lead content solders with > 85 % lead content

Pb93Sn5Ag2	Pb93Sn5Ag2	296 - 301 °C	> 500 °C
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Of course, we also manufacture alloys according to your specifications and factory standards.

For solder baths with continuous operating temperatures up to 570 °C!

Enamelled copper wires with high-temperature resistant enamel finishes are used in transformer construction. These enamels require melting temperatures of up to 570 °C. Our high-melting solders are specially adjusted to this demanding process and are high temperature stable. According to RoHS and ElektroG, high lead content solders with a lead content of more than 85 % may still be used without restriction in electronics production, because there is no applicable lead-free alternative to these solders. We will be happy to provide you with a declaration of conformity.

Pure tin cone for electroplating

Sn99,9

For the production of chemical Sn-surfaces in the production of printed circuit boards and for the galvanic tinning in the electronics industry and metalworking industry.

Format	Dimension
Cones	20 x 25 mm
Cones	23 x 35 mm
Cones	30 x 35 mm



In use, our cones are characterised by their excellent sliding properties. This prevents tilting in the titanium basket and achieves a high bulk density. Through a new production process in the manufacturing of our pellets, we have succeeded in achieving a longer operating life for the same application quantity.

Sn100Ni+®

Sn99Ag+® • Sn98Ag+® • Sn96Ag+® • Sn95Ag+®



Electronic solders

ISO-Tin® NiGe-electronic solders

From pure metals of first melting

For use in wave, selective and dip solder baths.

Format	Dimension
ca. 0,400 kg rods	330 x 20 x 10 mm
ca. 1,000 kg rods	330 x 20 x 20 mm
ca. 3,500 kg blocks with suspension eyelet	545 x 47 x 20 mm

Also as solid wire on spools for automatic feeding and available as cone / pellets for first filling.

HASL-solders

ISO-Tin® NiGe-HASL-solders

From pure metals of first melting

For hot air tinning in the production of printed circuit boards.

Format	Dimension
ca. 0,400 kg rods	330 x 20 x 10 mm
ca. 1,000 kg rods	330 x 20 x 20 mm
ca. 3,500 kg blocks with suspension eyelet	545 x 47 x 20 mm

Also as solid wire on spools for automatic feeding and available as cone / pellets for first filling.

The alloys of the Sn100Ni+ family are well known for their good soldering properties, the glossy solder joints and the reduction of copper deposition. NiGe solder alloys have proven their reliability in many tests.

	Product	Alloy	EN ISO 9453:2014	Melting range	rec. solder wave temperature	Application
Wave soldering	Sn100Ni+®**	Sn99,3Cu0,7AgNiGe	Sn99,25Cu0,7Ni0,05	227 °C eutektic	≥ 265 °C	wave soldering selective soldering immersion soldering
	Sn100Ni+®-Refill**	Sn99,9NiGe	-	Refill for Sn100Ni+®		
	Sn99Ag+®**	Sn99Ag0,3Cu0,7NiGe	-	217 - 227 °C	≥ 260 °C	
	Sn98Ag+®**	Sn98Ag1,2Cu0,7NiGe	-	217 - 222 °C	≥ 255 °C	
	Sn96Ag+®**	Sn96,5Ag3,0Cu0,5NiGe	-	217 - 219 °C	≥ 255 °C	
	Sn95Ag+®**	Sn95,5Ag3,8Cu0,7NiGe	-	217 °C eutektic	≥ 255 °C	
HASL-Tinning	HAL-Sn100Ni+®**	Sn99,3Cu0,7AgNiGe	Sn99,25Cu0,7Ni0,05	227 °C eutektic	≥ 277 °C	hot air tinning
	HAL-Sn100Ni+®-Refill	Sn99,9NiGe	-	Refill for HAL-Sn100Ni+® (acc. Cu-content)		
	HAL-Sn99Ag+®**	Sn99Ag0,3Cu0,7NiGe	Sn99Cu0,7Ag0,3(NiGe)	227 °C eutektic	258 - 268 °C	
	HAL-Sn99Ag+®-Refill	Sn99,7Ag0,3NiGe	-	Refill for HAL-Sn99Ag+® (acc. Cu-content)		

** Fuji-Patent: DE-Patent-No. 19816671G2; US-Patent-Nr. 6.179.935B1; Japan-Patent-Nr. 3296289

All electronic solders are of course also available as copper-free REFILL solders. Our lead-free solders comply with the RoHS directive and therefore also with the ElektroG. We will be happy to provide you with a declaration of conformity.

Please note the application advantages of our NiGe-doped electronic solders. Please ask for our detailed product information.

SN100-403C



Electronic solders

ISO-Tin® SN100-403C

From pure metals of first melting

For use in wave, selective and dip solder baths.

Format	Dimension
ca. 0,250 kg triangular rods	10 x 10 x 10 x 400 mm
ca. 1,000 kg rods	330 x 20 x 20 mm
ca. 3,500 kg blocks with suspension eyelet	545 x 47 x 20 mm

Also as solid wire on spools for automatic feeding and available as cone / pellets for first filling.

HASL-solders

ISO-Tin® SN100-403CL

From pure metals of first melting

For hot air tinning in the production of printed circuit boards.

Format	Dimension
ca. 0,250 kg triangular rods	10 x 10 x 10 x 400 mm
ca. 1,000 kg rods	330 x 20 x 20 mm
ca. 3,500 kg blocks with suspension eyelet	545 x 47 x 20 mm

Also as solid wire on spools for automatic feeding and available as cone / pellets for first filling.

The alloys of the SN100-403C family are well known for their good soldering properties, the glossy solder joints and the reduction of copper deposition. The SN100-403C solder has proven its reliability in many tests.

	Product	Alloy	EN ISO 9453:2014	Alloy No.	Melting range	rec. solder wave temperature	Application
wave soldering	SN100-403C *	SnCu07NiGe0,0055	Sn99,25Cu0,7Ni0,05	403	227 °C eutektic	≥ 265 °C	wave soldering selective soldering immersion soldering
	SN100-403Ce *	SnNiGe0,0055	-		Refill for SN100-403C	≥ 265 °C	
	SN100-403CS *	SnCu07NiGe0,01	Sn99,25Cu0,7Ni0,05	403	227 °C eutektic	≥ 265 °C	
	SN100-403CeS *	SnNiGe0,01	-		Refill for SN100-403CS	≥ 265 °C	
HASL-Tinning	SN100-403CL *	SnCu07NiGe0,0055	Sn99,25Cu0,7Ni0,05	403	227 °C eutektic	≥ 277 °C	hot air tinning
	SN100-403CLe *	SnNiGe0,0055	-		Refill for SN100-403CL	≥ 277 °C	
	SN100-403CLe(+) *	SnNi0,15Ge0,0055	-		Refill for SN100-403CL	≥ 277 °C	
	SN100-403CLS *	SnCu07NiGe0,01	Sn99,25Cu0,7Ni0,05	403	227 °C eutektic	≥ 277 °C	
	SN100-403CLeS *	SnNiGe0,01	-		Refill for SN100-403CLS	≥ 277 °C	
	SN100-403CLeS(+) *	SnNi0,15Ge0,01	-		Refill for SN100-403CLS	≥ 277 °C	

* manufactured according to NIHON SUPERIOR patent: DE patent no. 69918758; European patent no. 0985486

Our lead-free solders comply with the RoHS directive and therefore also the ElektroG. We will be happy to provide you with a declaration of conformity. Please note the application advantages of our NiGe-doped electronic solders. Please ask for our detailed product information.

Solder wire ISO-Core®

“Ultra-Clear“ • “Clear“ • “RA-Clear“



Flux-filled lead-free soft solder wires

Flux residues according to DIN EN 61190-1-1 / IPC J-STD-004
Highly qualified solder wires for manual and automatic soldering in electrical engineering, Electromechanics and electronics. Standard flux ratio 2.2 % / 3.5 %
Thermally stable • splash-free • optimum wetting • crystal-clear residues

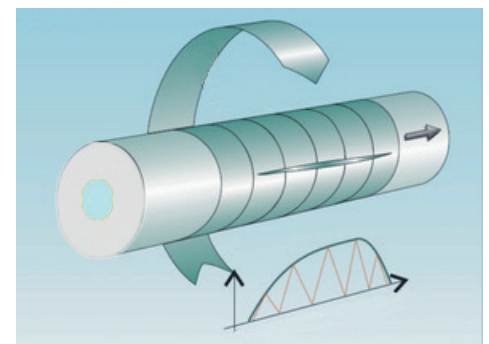
ISO-Core	IPC J-STD-004	EN ISO 9454-1	halogen content	resistance test (demanded <8,0 log Ohm)	Type
Ultra-Clear	RELO	1231	0 %	passed - > 11,0 log Ohm	No-clean
Clear	REL1	1222	< 0.15 %	passed - > 11,0 log Ohm	No-clean
RA-Clear	REM1	1223	< 1.2 %	passed - > 10,0 log Ohm	No-clean

Alloy	DIN EN ISO 9453:2014	DIN EN 61190-1-3	Melting range
Sn95,5Ag3,8Cu0,7	Sn95,5Ag3,8Cu0,7	Sn95,5Ag3,8Cu,7	217°C eutektic
Sn96,5Ag3Cu0,5	Sn96,5Ag3Cu0,5	Sn96,5Ag3Cu,5	217 - 219°C
Sn99,3Cu0,7	Sn99,3Cu0,7	Sn99Cu,7	227°C eutektic
Sn100Ni+ / SN100 ⁻⁴⁰³ C	Sn99,25Cu0,7Ni0,05	Sn99,25Cu,7Ni,05	227°C eutektic

Ø in mm	0,25 • 0,50 • 0,75 • 1,00 • 1,50 • 2,00 • 3,00
Spools in kg	0,10 • 0,25 • 0,50 • 1,00 • 5,00 • 10,00

Other alloys, diameters and coil sizes on request.

100% inline monitoring



Solder wire ISO-Core®

“Ultra-Clear“ • “Clear“ • “RA-Clear“

High-quality lead-free solder wires for manual and automatic soldering in electrical engineering, electromechanics and electronics. The flux is characterized by **high temperature resistance** and does **not splash** during melting. An **optimal wetting** as well as **values of propagation above the norm** are making these lead-free solder wires to top products among tubular solders.

The new flux formulations „Ultra-Clear“, „Clear“, „RA-Clear“ are based on synthetic resins (free of rosin) and have been perfectly adapted to the new requirements of lead-free soldering technology:

- **High wetting speed and spreading on all surfaces** commonly used in electronics
- **No (painful) flux splashes** on the assembly, plant components or hands
- **Crystal-clear flux residues** to optimize the optical impression
- **Minimum outgassing and neutral odour** reduce workplace pollution
- **Easy removable small residues on soldering tips** - these can be removed with conventional means (FELDER Tinner, remove soldering sponge, metal wool)
- **100MΩ-test passed** - can also be used in assembly production
- **Service life of the soldering iron tips is noticeably extended**

100% inline monitoring • 100% consistent quality

The installation of the new monitoring unit results in outstanding advantages for the product quality:

- Identification of flux interruptions and flux fluctuations
- Optimization of production through continuous inline measurements
- Identification of air inclusions and other wire anomalies
- Continuous monitoring of the wire diameter in 2 axes
- Measuring accuracy is higher by a factor of 10 than the tolerance of the DIN / IPC specifications
- Identification of alloy deviations
- In case of deviations from the standard measured variable, the faulty wire is sorted out

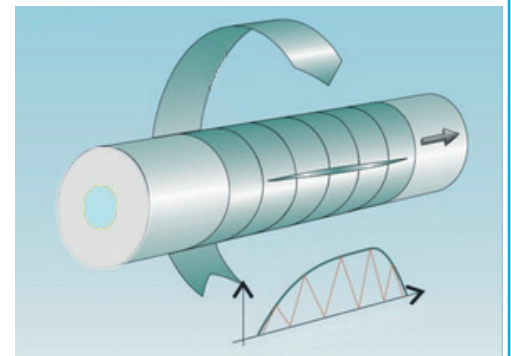
Thus the FELDER-ISO-Core® solder wire is always ready for use:

- Hand and repair soldering
- Automated soldering (robot soldering)

CONCLUSION:

We guarantee product quality without flux interruptions

- **100% flux filled**



Solder wire ISO-Core® “RA“, „RA-05“

Flux-filled, halogen-containing activated soft solder wire

Flux according to DIN EN ISO 9454-1, 1123; DIN EN 61190-1-1 / IPC J-STD-004, ROM1
Standard solder wire for manual soldering in electrical engineering,
Standard flux content 2.5 %

Halogenide content 1.0%; also available as RA-05 with a halogenide content < 0.5% and thus as ROL1 according to IPC J-STD-004!

Ø in mm 0,25 • 0,50 • 0,75 • 1,00 • 1,50 • 2,00 • 3,00

Spools in kg 0,10 • 0,25 • 0,50 • 1,00 • 5,00 • 10,00



Alloy	DIN EN ISO 9453:2014	DIN EN 61190-1-3	Melting range	lead-free/-containing
Sn95,5Ag3,8Cu0,7	Sn95,5Ag3,8Cu0,7	Sn95,5Ag3,8Cu,7	217 °C eutektic	lead-free
Sn96,5Ag3,0Cu0,5	Sn96,5Ag3Cu0,5	Sn96,5Ag3Cu,5	217 - 219 °C	
Sn97Ag3	Sn97Ag3	Sn97Ag3	221 - 224 °C	
Sn99,3Cu0,7	Sn99,3Cu0,7	Sn99,3Cu,7	227 °C eutektic	
Sn97Cu3	Sn97Cu3	Sn97Cu3	227 - 310 °C	
Sn100Ni+ / SN100 ⁻⁴⁰³ C	Sn99,25Cu0,7Ni0,05	Sn99,25Cu,7Ni,05	227 °C eutektic	
Sn99Ag+	Sn99Cu0,7Ag0,3(NiGe)	Sn99Cu,7Ag,3(NiGe)	217 - 227 °C	
Sn60Pb40	Sn60Pb40E	Sn60Pb40	183 - 190 °C	lead-containing
Sn60Pb38Cu2	Sn60Pb39Cu1	Sn60Pb38Cu02	183 - 190 °C	
Pb50Sn50	Pb50Sn50	Sn50Pb50	183 - 215 °C	
Pb60Sn40	Pb60Sn40	Sn40Pb60	183 - 238 °C	
Pb93Sn5Ag2	Pb93Sn5Ag2	Sn05Pb93Ag02	296 - 301 °C	

Other alloys, diameters and coil sizes on request.

Solder wire ISO-Core® “EL“

Flux-filled, halogen-free activated soft solder wire

Flux according to DIN EN ISO 9454-1, 1131; DIN EN 61190-1-1 / IPC J-STD-004, ROLO.
No-clean standard solder wire for manual soldering in electronics,
Standard flux content 3.5 %.

Ø in mm 0,25 • 0,50 • 0,75 • 1,00 • 1,50 • 2,00 • 3,00

Spools in kg 0,10 • 0,25 • 0,50 • 1,00 • 5,00 • 10,00



Alloy	DIN EN ISO 9453:2014	DIN EN 61190-1-3	Melting range	lead free/-containing
Sn95,5Ag3,8Cu0,7	Sn95,5Ag3,8Cu0,7	Sn95,5Ag3,8Cu,7	217 °C eutektic	lead-free
Sn96,5Ag3,0Cu0,5	Sn96,5Ag3Cu0,5	Sn96,5Ag3Cu,5	217 - 219 °C	
Sn97Ag3	Sn97Ag3	Sn97Ag3	221 - 224 °C	
Sn99,3Cu0,7	Sn99,3Cu0,7	Sn99,3Cu,7	227 °C eutektic	
Sn97Cu3	Sn97Cu3	Sn97Cu3	227 - 310 °C	
Sn100Ni+ / SN100 ⁻⁴⁰³ C	Sn99,25Cu0,7Ni0,05	Sn99,25Cu,7Ni,05	227 °C eutektic	
Sn99Ag+	Sn99Cu0,7Ag0,3(NiGe)	Sn99Cu,7Ag,3(NiGe)	217 - 227 °C	
Sn60Pb40	Sn60Pb40E	Sn60Pb40	183 - 190 °C	lead-containing
Sn60Pb38Cu2	Sn60Pb39Cu1	Sn60Pb38Cu02	183 - 190 °C	
Pb50Sn50	Pb50Sn50	Sn50Pb50	183 - 215 °C	
Pb60Sn40	Pb60Sn40	Sn40Pb60	183 - 238 °C	
Pb93Sn5Ag2	Pb93Sn5Ag2	Sn05Pb93Ag02	296 - 301 °C	

The qualities „EL“ and „ELR“ have been tested by Siemens (Certification Body CT Berlin) on the surface resistivity value (SIR) and electrochemical migration. Both tests passed!

Halogenide-free activated FELDER electronic solder wires according to DIN EN ISO 9454-1, 1231 or 2231

(Alloys, diameters and coil sizes on request)

ISO-Core® “ELR“ Low-residue no-clean SMD solder wire, specially adapted to the requirements of post-soldering work on SMD-assembled assemblies. Standard flux content 1.0 %.
Flux according to DIN EN ISO 9454-1, 2231; DIN EN 61190-1-1 / IPC J-STD-004, ORLO

ISO-Core® “ELS“ Like our ISO-Core® “ELR“, but based on synthetic resins. Standard flux content 1.0 %.
Flux according to DIN EN ISO 9454-1, 1231; DIN EN 61190-1-1 / IPC J-STD-004, RELO

FELDER-special solder wire

(Alloys, diameters and coil sizes on request)

ISO-Core® “LASER-RA“ Special low-residue solder wire for use in laser soldering systems. The flux core is highly temperature resistant and thus perfectly adapted to the demanding requirements of the laser soldering process (fast soldering cycle, high soldering temperature). Standard flux content 2.5 %.

ISO-Core® “EWL“ Electronic solder wire with water-soluble flux based on organic acids, halogenide-containing activated. Especially for assemblies that are potted or painted. In contrast to conventional no-clean flux residues, the complete removal of the residues prevents interaction with the paint or casting compound. Standard flux content 2.5 %.
Flux according to DIN EN ISO 9454-1, 2123; DIN EN 61190-1-1 / IPC J-STD-004, ORM1

Application matrix - FELDER- ISO-Core® comparison of electronic solder wires

Eigenschaft	ISO-Core Clear	ISO-Core Ultra-Clear	ISO-Core RA	ISO-Core LASER-RA	ISO-Core EL	ISO-Core ELR	ISO-Core ELS	ISO-Core EWL
EN ISO 9454-1 / J-STD-004	1222 / REL1	1231 / RELO	1123 / ROM1	1223 / REM1	1131 / ROLO	2231 / ORLO	1231 / RELO	2123 / ORM1
Flux content (standard) %	2.2 / 3.5	1.5 / 2.2	2.5	2.5	3.5	1.0	1.0	2.5
No-Clean	•	•			•	•	•	
Lead-free	•	•	•	•	•	•	•	•
Lead-containing			•		•	•	•	•
High lead containing (> 85 %)	•		•		•			
Residues easily removable	•	•	•	•	•	•	•	•
Water washable								•
Halogenide-free		•			•	•	•	
Synthetic resins	•	•		•			•	
Hand soldering	•	•	•		•	•	•	•
Rework (Flux ≤1.5 %)	•	•				•	•	
Automatic soldering	•	•		•				•
Laser-soldering	•	•		•				
Water clear residues	•	•						
No flux splashes	•	•		•				

Other flux-filled FELDER solder wires

In addition to the FELDER ISO-Core® electronic soldering wires, we offer further special soldering wires, e.g. for soldering steel and stainless steel (ISO-Core® “VA“) or aluminium (ISO-Core® “AL“) an (further information on these soldering wires can be found on the corresponding leaflet).



ISO-Cream® no-clean SMD-solder pastes

Homogeneous, ready-to-use and low-odour mixture of metal powder, binding agents, solvents, fluxes and thixotropic agents.
Cans á 250 g and 500 g, SEMCO cartridges á 6 and 12 oz,
Dispenser cartridges 5, 10, 30 ccm, ProFlow - cartridges

“Active-Clear“ Homogeneous, ready-to-use and low-odour mixture of metal powder, binding agents, solvents, fluxes and thixotropic agents.
Cans á 250 g and 500 g, SEMCO cartridges á 6 and 12 oz,
Dispenser cartridges 5, 10, 30 ccm, ProFlow - cartridges

“Clear“ Halogenide-free version of our ISO-Cream® “Active-Clear“, based on synthetic resins (colophony-free), clear inconspicuous residues, minimal void formation, Processing period at least 72 hours, halogenide-free (<0.01%), RELO

“EL 42/58“ No-Clean SMD solder paste for temperature sensitive components e.g. LEDs, low peak temperature (approx. 170 °C) in the Soldering process, solderable under normal and inert gas atmosphere, high contour stability, halide content < 0.15 % (ROL1)



Lead-free alloys	Melting range
Sn96,5Ag3Cu0,5*	217 - 219 °C
Sn100Ni+® / SN100-403C® Sn99,25Cu0,7Ni0,05	227 °C eutektic
Sn95,5Ag4Cu0,5*	217 °C eutektic
Sn96,5Ag3,5	221 °C eutektic
Bi58Sn42	138 °C eutektic

Other alloys on request.

Lead-containing alloys	Melting range
Sn62Pb36Ag2	179 °C eutektic
Pb93Sn5Ag2	296 - 301 °C

Grain sizes		
Type 2	Standard	45 - 75 µm
Type 3	Fine-Pitch	25 - 45 µm
Type 4	Fine-Pitch	20 - 38 µm
Type 5	Ultra-Fine-Pitch	15 - 25 µm
Types 6-8	On request	

Property	ISO-Cream Clear	ISO-Cream Active-Clear	ISO-Cream EL 42/58	ISO-Cream EL 3202	ISO-Cream EL 3203	ISO-Cream RA 2601
EN ISO 9454-1 / 61190-1-1	1231 / RELO	1222 / REL1	1122 / ROL1	1122 / ROL1	1122 / ROL1	1123 / ROM1
No Clean	•	•	•	•	•	•
Residues easily removable	•	•	•	•	•	•
Stencil printing	•	•	•	•	•	•
Dispenser	•	•	•	•	•	•
Jetprint	•	•	•	•	•	•
Stamp printing / Pin in Paste	•	•	•	•	•	•
ProFlow	•	•	•	•	•	•
Vapour phase	•	•	•	•	•	•
Stickiness > 48 Std.	•	•	•	•	•	•
Lead-free	•	•	•	•	•	•
Lead containing	•	•	•	•	•	•
High lead containing (Pb > 85 %)	•	•	•	•	•	•

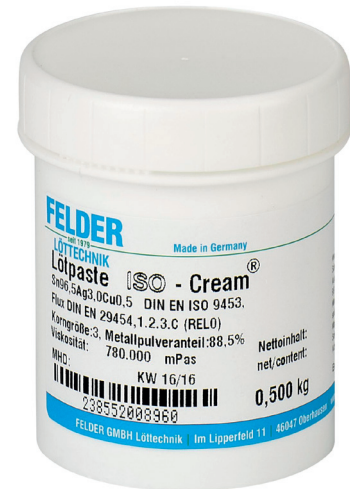


Made in Germany

SMD-special soft solder paste

Homogeneous, ready-to-use and low-odour mixture of metal powder, binding agents, solvents, fluxes and thixotropic agents.

ISO-Cream® "RA 2601" Flux according to DIN EN ISO 9454-1, 1123 or DIN EN 61190-1-1, ROM1. Especially for poorly wettable soldering partners. The flux residues on the soldered circuits should be removed.



Description	Content
Cans	0,250 and 0,500 kg
Cartridges	6 and 12 oz as well as ProFlow™-cartridges
Dispenser cartridges	5, 10 and 30 ccm
Other containers available on request.	

SMD and BGA repair fluxes

Paste-like rework flux for soldering, desoldering and also dilution of ISO-Cream® "Clear" and "Active-Clear"

Description	Content
Dispenser cartridges	5, 10 and 30 ccm
Cans	100 g
Other containers available on request.	



Product	Viscosity	Flux
ISO-Flux® Clear	250 - 350 Pa s	Pasty flux type 1231 (DIN EN ISO 9454-1), RELO (DIN EN 61190-1-1 / J-STD-004)
ISO-Flux® Active-Clear	250 - 350 Pa s	Pasty flux type 1222 (DIN EN ISO 9454-1), REL1 (DIN EN 61190-1-1 / J-STD-004)

For soldering SMD components onto PCBs.

The FELDER SMD and BGA repair fluxes ISO-Flux® Clear and Active-Clear have been tested for their activation and temperature stability. The system has been adapted to the requirements of modern assembly production and thus optimized for the solder systems Sn/Ag, Sn/Ag/Cu and Sn/Cu. Crystal clear flux residues, ideally suited for hot-air and iron-on soldering.

Other FELDER repair fluxes (for soldering processes containing lead)

ISO-Flux® "EL 3201-B" and "EL 3202-A" (flux type 1122 according to DIN EN ISO 9454-1 or ROL1 according to DIN EN 61190-1-1 / J-STD-004) are suitable for metal-free soldering of SMD components on PCBs. It is excellently suited for the solder systems Sn/Pb, Sn/Pb/Ag. The corresponding FELDER SMD solder pastes (EL 3201 and EL 3202) can also be diluted with these fluxes.



ISO-Flux® electronic flux

Fluxes for demanding electronics production

For mechanical soldering of electronic assemblies.

FELDER ISO-Flux® electronic fluxes are especially suitable for the highly qualified production of commercial electronics. They also achieve best soldering results with circuits with mixed components (THT/SMT). All FELDER electronic fluxes can be used in both lead-free and lead-containing soldering processes.

Container size Packaging form

1,000 l	bottle
5,000 l	can
25,000 l	can

Other container sizes available on request.



Product	DIN EN ISO 9454-1	DIN EN 61190-1-1	Solid matter	Field of application
ELS 3320	2231	ORLO	2,7 %	wave soldering, selective soldering, lead-free, halogen- and resin-free, no-clean
ELS 3320-22	2231	ORLO	2,2 %	like ELS 3320, but with minimized solids content
ELR 3420	2231	ORLO	3,5 %	wave soldering, selective soldering, for all flux application systems
EWL 2510	2123	ORM1	7,0 %	wave soldering, selective soldering, water washable, for spray fluxers only
EVF 2310	2131	ORLO	3,8 %	wave soldering, selective soldering, no-clean, VOC-free

Description

- “ELR“ Low-residue no-clean electronic fluxes based on organic activators and natural or modified natural resins. The flux residues have very high surface resistances and are non-corrosive.
- “ELS“ Resin-free no-clean electronic flux based on organic activators.
- “EWL“ Highly effective, halogen-activated, water-soluble electronic flux that is used wherever components are washed after the soldering process.
- “EVF“ Solvent-free no-clean electronic flux based on organic activators. The flux residues correspond to the L0 typification according to DIN EN 61190-1-1 and IPC J-STD-004.

ISO-Flux® soldering oils and pastes

For soft soldering in electronics and electrical appliance construction

The FELDER soft solder fluxes ISO-Flux® „EL“ and „E“ are very suitable for manual and dip soldering as well as tinning work which has to be carried out under high soldering temperatures and long soldering times.

Type	Container size	Packaging form
Paste	20 g, 50 g, 100 g, 250 g	Can
Oil	100 ml, 1,000 l	Bottle
Oil	5,000 l, 25,000 l	Canister

Other container sizes available on request.



Product	DIN EN ISO 9454-1	DIN EN 61190-1-1	Halide content	Field of application
Solder oil “EL“	1131	ROLO	< 0.01 %	Hand, dip and wave soldering in the electronics industry
Solder paste “EL“	1131	ROLO	< 0.01 %	Soldering and repair work on printed circuit boards
Solder oil “E“	1123	ROM1	< 1 %	Electrical engineering and electrical appliance construction
Solder paste “E“	1123	ROM1	< 0.5 %	Electrical engineering and electrical appliance construction

ISO-Flux® cable flux

Special flux for cable assembly and coil production

For dip tinning of cable ends as well as dip and wave soldering of enamelled copper wires

FELDER ISO-Flux® cable fluxes have been specially developed for the tinning of cable ends, connectors and electronic components. Compared to conventional fluxes, it stands out due to the fact that absolutely partial tin plating can be produced. The solder is also used for copper strands with high capillary effect do not rise higher than the wetting of the strand by the flux. The coating is usually carried out by dipping.

Container size Packaging form

1,000 l	Bottle
5,000 l	Canister
25,000 l	Canister

Other container sizes available on request.



Product	DIN EN ISO 9454-1	DIN EN 61190-1-1	Solids content	Halide content	Field of application
KF 23	2231	ORLO	5.0 %	< 0.01 %	Cable assembly, transformer construction, selective soldering
KF 32	1231	RELO	15.0 %	< 0.01 %	Cable assembly, selective soldering, resin-containing
KF-L / HF	2131	ORM0	7.4 %	< 0.01 %	Cable assembly, selective soldering, low VOC
KF 1	2123	ORM1	2.8 %	< 0.5 %	Cable assembly, transformer construction
KF 070	2123	ORM1	1.3 %	< 1.5 %	Cable assembly, transformer construction
KF-L	2123	ORM1	3.4 %	< 0.5 %	Cable assembly, low VOC

Flux thinner

Alcohol-based solvent with foam stabilizing additives

For setting the optimum concentration of FELDER ISO-Flux®-Fluxes

The FELDER flux thinners "VF-1" and "VF-2" are used to adjust the optimum concentration of FELDER ISO-Flux®- Fluxes in automatic soldering systems. When used in foam flux equipment, a gradual concentration of the flux occurs, which can negatively influence the soldering result and the appearance of the soldered electronic assembly. The solvent is also consumed in dip flux stations due to the large, open surface. Since the difference in density is small for fluxes with a low solids content, we recommend determining the dilution ratio by titrating the acid number (see FELDER titration set).

Container size Packaging form

1,000 l	Bottle
5,000 l	Canister
25,000 l	Canister

Other container sizes available on request



Product	To be used with the following FELDER fluxes:
Thinner "VF-1"	All ISO-Flux® "ELR" and "ELS"
Thinner "VF-2"	ISO-Flux® "EWL", solder oils "E", "EL" as well as all FELDER cable fluxes

Soldering accessories

Tinner For cleaning and tinning soldering tips. Consisting of a mixture of solder activators, resins, soldering tin powder and binders. It also gently removes strong oxide layers in the case of minimal smoke emission. Alloy Sn97Cu3 (DIN EN ISO 9453), Flux 1231 (DIN EN ISO 9454-1), 15 g can with adhesive pad.



Desoldering braid Flux-impregnated copper strands for desoldering SMD and THT components and removing excess solder on printed circuits. Flux 1131 (DIN EN ISO 9454-1) or ROL0 (DIN EN 61190-1-1) widths: 1,00 - 1,50 - 2,00 - 2,50 - 3,00 mm On folding spools à 1,6 m and spools à 15 -100 m.

Analysis mould Mould for your service analyses with engraved analysis customer number.

Soldering services

Free analysis service Of course, our service also includes the monitoring of your solder bath alloy. This free service starts as part of the solder bath changeover or initial filling and initially includes four service analyses within 8 weeks. After the changeover phase, we continue to offer our customers the free solder bath analysis service (according to the customer information solder bath analysis service).

Scrap metal disposal We are authorized by the district government to take back the solder drosses of our customers, as far as they have been produced during the use of our products. These solder drosses are processed by our subsidiary Artenjak-Zinn GmbH. With your scrap metal invoice, you will receive a corresponding acceptance certificate, which is sufficient proof of proper disposal in accordance with § 26 Para. 3 KrWG. We will be happy to provide you with collection containers in accordance with the regulations.

Withdrawal of solder paste left-overs As a responsible supplier certified according to DIN EN ISO 14001, we offer our customers to recycle solder paste residues from their production. The conditions for the return of solder pastes are adapted to the current LME quotation and the delivery condition.

Technical application consulting and training Our application technology department will be happy to advise you on all questions relating to soldering. Our new training room also offers us the opportunity to train your employees in soldering technology in groups of up to 15 people. Certifications according to IPC and also practical hand soldering trainings are carried out by external trainers in our company.

Analytics and microscopic investigations Our modernly equipped laboratory offers the possibility of an exact metal content determination by means of OES spectroscopy far into the trace range. With our 3D-microscope we can carry out microscopic examinations up to a resolution of 5000-times at solder joints for you. We can also prepare the corresponding sections of the solder joints/components for you. With our modern, fully automatic surface resistance measuring device (64 channels) we are able to perform SIR tests (Surface Insulation Resistance) in accordance with the current IPC and ISO regulations to conduct migration studies.



1. Name und Anschrift der Zertifizierungsorganisation	2. DEKRA
1.1 DEKRA Certification GmbH Hertenstraße 19 13. Deutschland / Baden-Württemberg 70509 Stuttgart	
3. Angaben zum Zertifikat	
3.1 Nummer des Zertifikats (durch die Zertifizierungsorganisation vergeben): 12000277	
3.2 Einmalige Zertifizierung <input type="checkbox"/> oder Folgezertifizierung <input checked="" type="checkbox"/>	
3.3 Vorgangsnummer (ersetzt von der Behörde erstellt):	
3.4 Das Zertifikat beinhaltet 1 Anlage:	
3.5 <input checked="" type="checkbox"/> Das Zertifikat wird nur für einen bestimmten Betriebsfall erteilt (siehe Anlage 1).	
3.6 Das Zertifikat wird nur für bestimmte Modalitäten, Tätigkeiten oder Standorte erteilt (siehe Anlage 1).	
3.7 Das Zertifikat ist gültig bis zum 17.11.2019.	
4. Name und Anschrift des Erbringungsbetriebes (Praxisfalls)	
4.1 Name: Artenjak-Zinn GmbH	
4.2 Straße: Obere Dorfstraße 53	
4.3 Stadt: Dittelsheim, Bundesland: Baden-Württemberg	
4.4 Postleitzahl: 70509 Ort: Löffingen	
4.4 Eintrag in das Handels-, Vereins- oder Genossenschaftsregister (wenn ein Eintrag erfolgt ist): Registernummer: HRB 83, -Registergericht: Amtsgericht Stuttgart	
5. Der Betrieb ist berechtigt, im Hinblick auf die in der Anlage zu diesem Zertifikat genannten Standards, Tätigkeiten und Modalitäten das Überwachungszeichen der oben genannten technischen Überwachungsorganisation zu führen.	
Zertifizierungsbefreiung	
gemäß § 56 des Kreislaufwirtschaftsgesetzes in Verbindung mit dem Erbringungsbetriebsvertrag zu führen.	
6. Prüfungsdatum: 18.04.2018	7. Sachverständiger, der die Überprüfung durchgeführt hat: 7.1 Name: Frank 7.2 Unterschrift (nur für die Ausstellung in Papierform):
8. Ausstellungsdatum: 14.05.2018	9. Leiter/Laborant der Zertifizierungsorganisation: 9.1 Name: Weidner 9.2 Unterschrift (nur für die Ausstellung in Papierform):





Own laboratory for product research and quality control



FELDER GMBH Löttechnik is an innovative company in the field of soldering technology. State-of-the-art manufacturing processes guarantee high and consistent quality for our solders and fluxes.

All **FELDER products** are subject to the constant quality control by our own laboratory and are tested according to the guidelines of the **ISO 9001** and **ISO 14001**.

The laboratory equipment includes **optical emission spectrometers, digital microscopes and IR spectrophotometers**. Of course, we also master the classical analytical methods.

These are the prerequisites for many trend-setting developments of our company.

Careful advice and customer-specific problem solutions are a matter of course for us.

Our application engineers have many years of experience, are very familiar with the challenges in electronic component production and are happy to provide you with „advice and assistance“.

We meet your requirements!

We look forward to a good business relationship.

 **Made in Germany**



Soft solders from sustainable and fair resources

- Extracting raw materials and  paying fair prices
-  protecting the environment
 -  promoting occupational safety
 -  granting children a carefree childhood

For some years now, our approach has been to source our tin preferentially from producers who are committed both to their staff in the form of good working conditions and to the environmental conditions within the mining areas. The wages of all employees must be sufficient to guarantee their families a carefree future. Therefore, one of our preferred tin producers is MINSUR, a Peruvian company whose corporate philosophy is based on transparency and thus on environmental protection, occupational safety and fair working conditions. Especially customers who have the highest purity requirements (in particular low Pb-values < 50 ppm) or require an European origin are supplied by us with solders made from European electrolytically-won tin.

Since this year we have been able to officially confirm that we process fair-trade pure tin on a scale that allows us to produce and supply all FELDER soft solders used in the electronics industry in **ECO TIN** quality.

With your use of **ECO TIN** products you can also support the fostering of fair working conditions and of activities to protect the environment as well as the fight against child labour worldwide.

Without ifs and buts ! Without surcharge ! Always in **ECO TIN-quality.**

FELDER ECO TIN - fair quality



Made in Germany

ECOTIN

FAIR RESOURCING



Extracting raw materials and

-  paying fair prices
-  protecting the environment
-  promoting occupational safety
-  granting children a carefree childhood



 **Made in Germany**

