Product Information

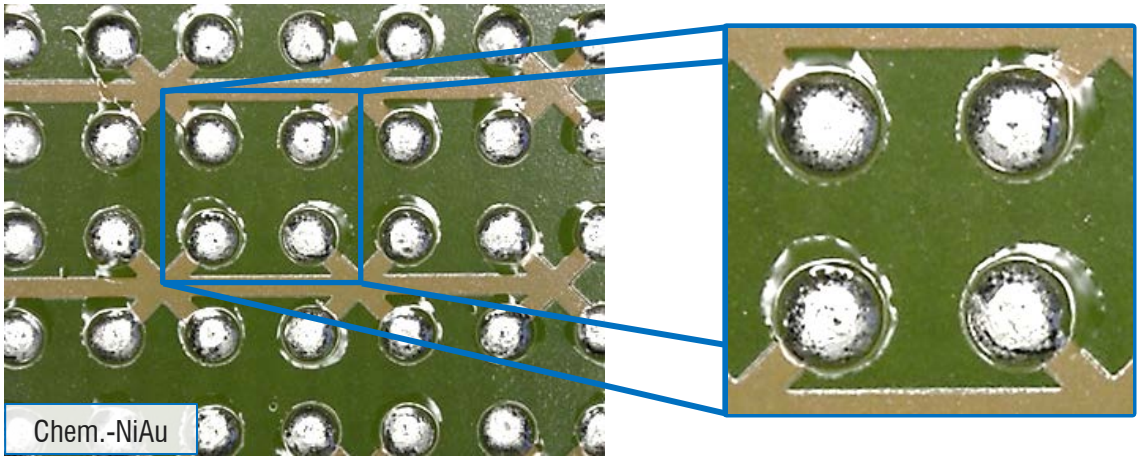
FELDER-ISO-Cream® "Clear"

No-Clean solder paste for an excellent wetting on all known surfaces.
Flux according EN ISO 9454:2016 ,1231; DIN EN 61190-1-3 / IPC J-STD-004B, REL0
Metall powder content 88,5% (standard viscosity) resp. 85 % and 70 % (dispenser and dip viscosity)

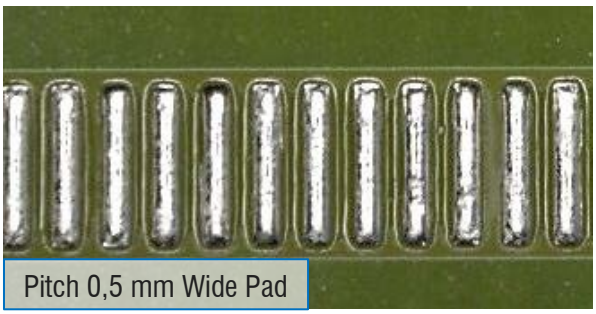
Item.-No.: 23..52.....

Description

Solder paste ISO-**Cream®** **"Clear"** is a homogenous, ready-made, odourless mixture made of metal powder, binding agents, solvents and fluxes. It is free of any thixotropic agents, therefore a steady viscosity is guaranteed. This paste has excellent wetting qualities and is also excellent for soldering of difficult solderable surfaces as chem. Ni/Au, chem. Ag or OSP.



Even components with slightest pad gaps can be processed without any problem.



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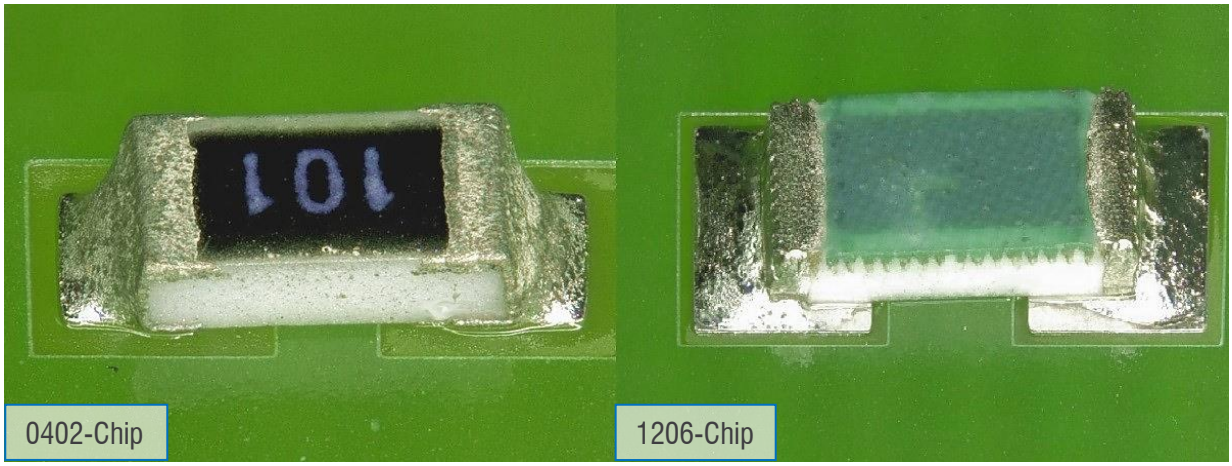
FELDER GMBH
Im Lipperfeld 11
D-46047 Oberhausen

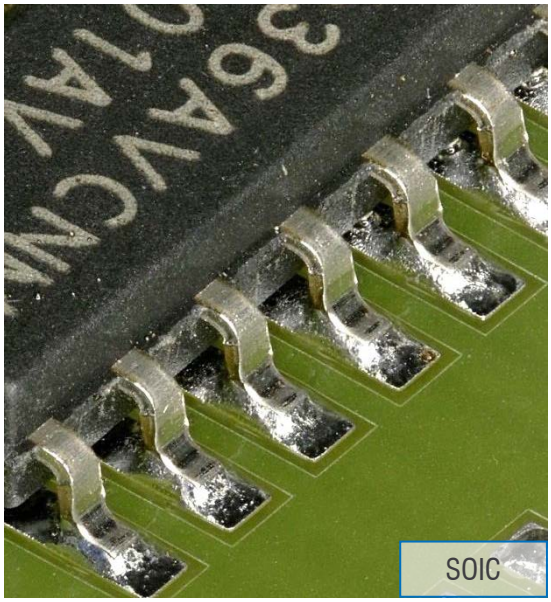
Fon +49 (0) 208 8 50 35 0
Fax +49 (0) 208 2 60 80

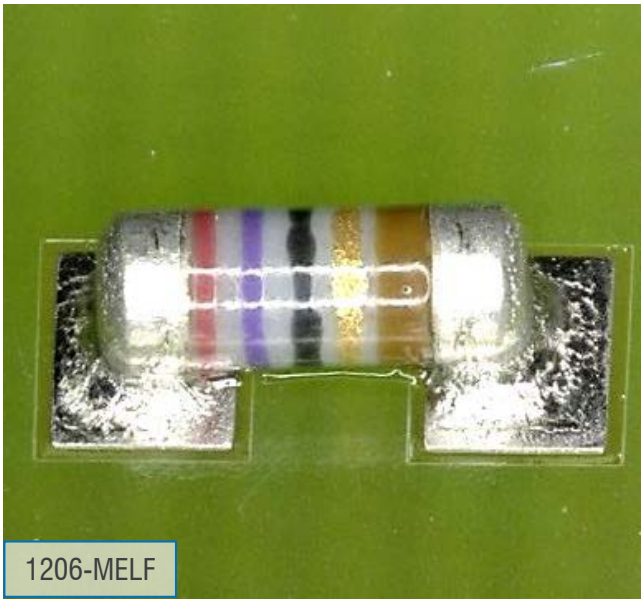
Web www.felder.de
Mail info@felder.de

Soldering Results



The solder paste ISO-**Cream® "Clear"** is insensitive against humidity and temperature. It shows no tendency for formation of solder balls at chip-resistances and capacitors. Excellent soldering results with clear flux residues with very high surface resistivity values.





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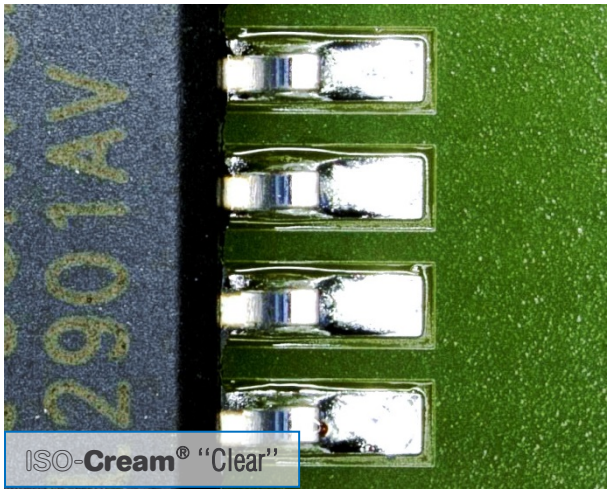
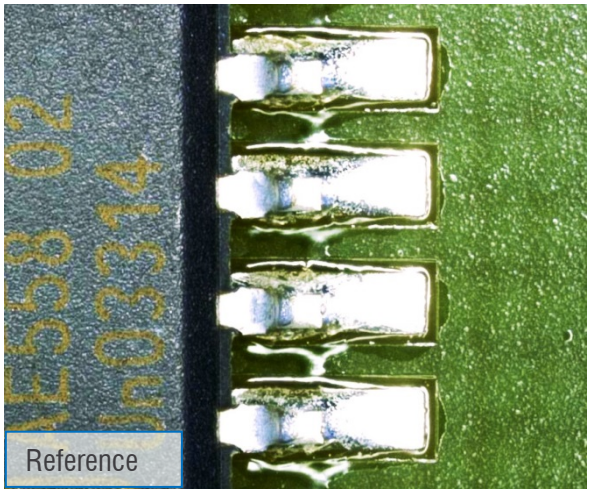
The flux residues of **FELDER ISO-Cream®"Clear" SMD** soldering paste have a very limited expansion (the flux does not flow over the edge of the solder resist mask). Thus the pseudo failure quote, especially with AIO-controlling systems, is significantly reduced, as reflecting flux residues could be interpreted as solder bridges (wrong).



ISO-**Cream®** "Clear"

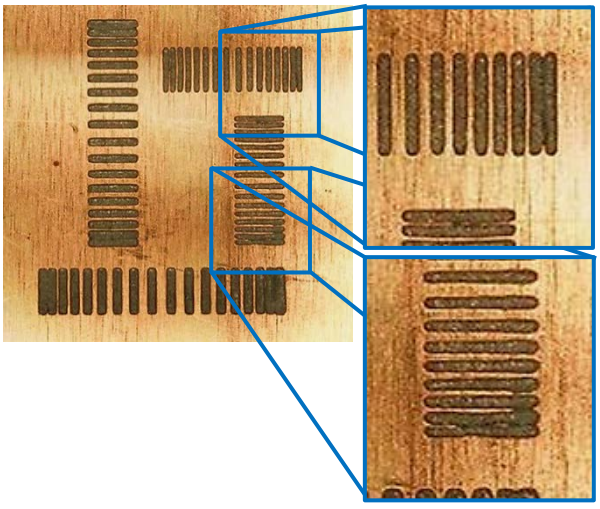


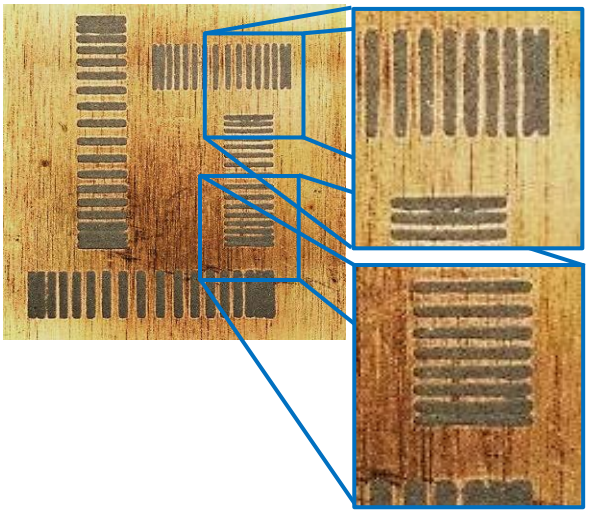
Reference

Contour Stability (Slump) 0,1mm stencil

15 min. after paste print at 25°C / 50% RF		
horizontal	0.33 x 2.03	0.10 mm free
	0.2 x 2.03	0.10 mm free
vertical	0.33 x 2.03	0.125 mm free
	0.2 x 2.03	0.10 mm free

15 min. after paste print at 150°C		
horizontal	0.33 x 2.03	0.15 mm free
	0.2 x 2.03	0.10 mm free
vertical	0.33 x 2.03	0.15 mm free
	0.2 x 2.03	0.10 mm free





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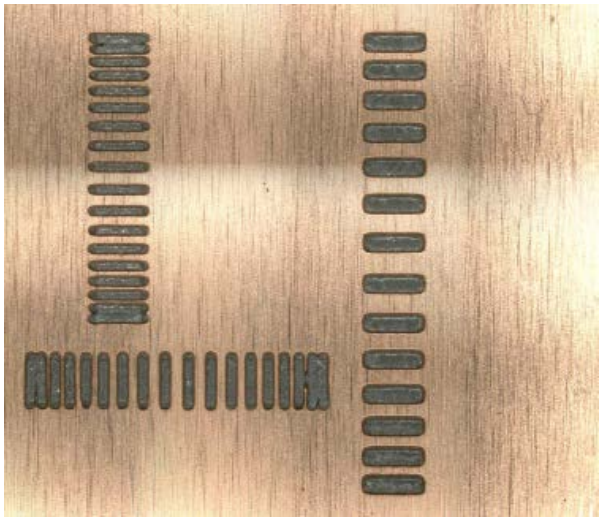
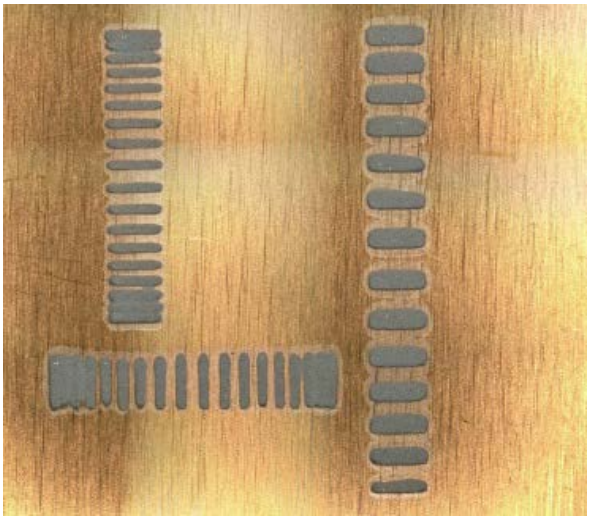
Contour Stability (Slump) 0,2 mm stencil

15 min. after paste print at 25°C / 50% RF		
horizontal	0.33 x 2.03	0.10 mm free
	0.2 x 2.03	0.10 mm free
vertical	0.33 x 2.03	0.125 mm free
	0.2 x 2.03	0.10 mm free



15 min. after paste print at 150°C		
horizontal	0.33 x 2.03	0.15 mm free
	0.2 x 2.03	0.10 mm free
vertical	0.33 x 2.03	0.15 mm free
	0.2 x 2.03	0.10 mm free



Tack Time

FELDER ISO-Cream® "Clear" has a very high wet adhesive strength and is also suitable for very high print speeds.

Adhesiveness (Tack Time)	at least 72 hours

The paste has a very long stencil time and may be applied on printing machines with a temperature control unit (very strong ventilation).

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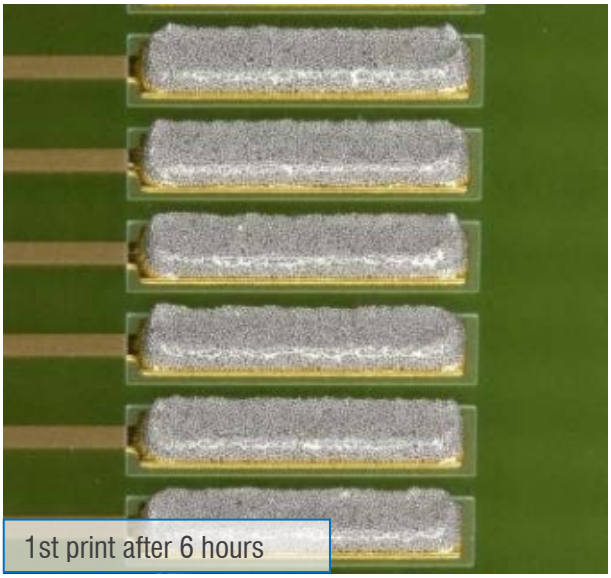
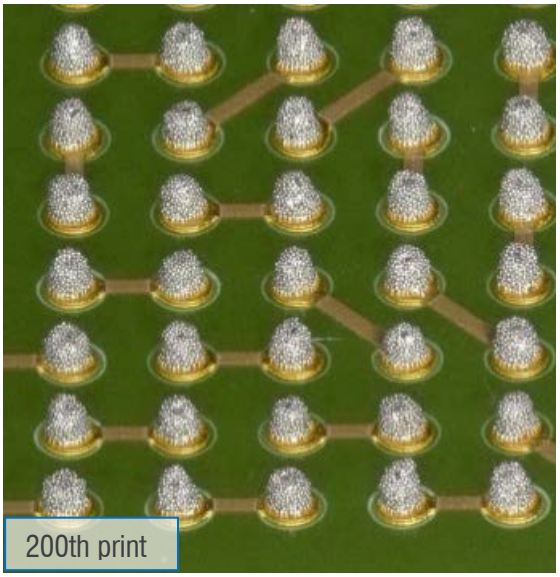
Rheology

The rheology of this paste has been optimised in order to achieve excellent printing qualities at narrow openings as well as a very good first print after longer breaks. Laboratory tests have shown that the first print after a break of 8 hours was unobjectionable. The paste remains in perfect condition up to 72 hours so that the adhesiveness allows a mounting and the solder results are still perfect.



1st print after 6 hours



200th print

Solder Ball Test

after 4 hours in air

after 72 hours in air

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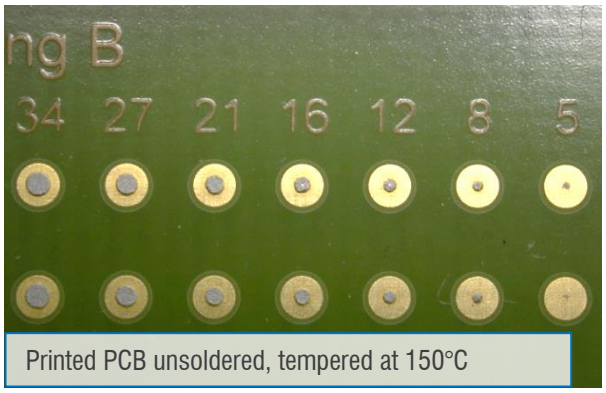
Wetting test on Ni/Au

Here a test PCB is printed with different quantities of solder paste. The cutout of the printing stencil is increasingly reduced from pad to pad up to a part of surface of 5 % of the pad area. After remelting of the paste the wetting is evaluated.

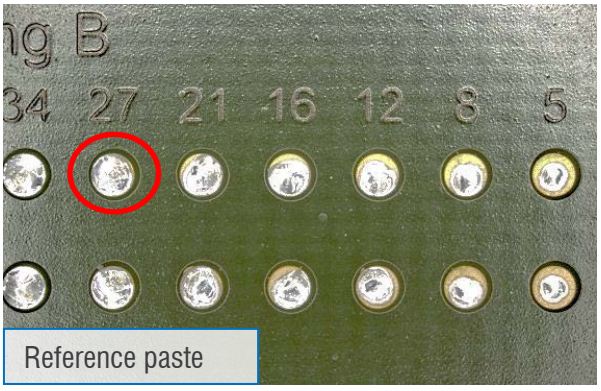


Printed PCB unsoldered, tempered at 150°C

FELDER ISO-Cream® "Clear"

As this example shows the paste has excellent wetting qualities in comparison to a conventional solder paste (here on Ni/Au). Even with low solder paste application (here 16 % of the pad area) a 100 % wetting of the solder surface is reached.

Conventional lead-free pastes reach a complete wetting up to a stencil cutout of 27 % of pad size!



Reference paste

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D-46047 Oberhausen

Fon +49 (0) 208 8 50 35 0
Fax +49 (0) 208 2 60 80

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Properties

Available Alloys	Melting point	Metal powder form	Metal content
Sn99Cu0.7Ag0.3	217-227 °C	ball-shaped	70 – 88.5%
Sn96.5Ag3Cu0.5	217-220 °C		
Sn95,5Ag3,8Cu0,7	217 °C		
Sn100Ni+/ Sn100C (Sn99.25Cu0.7Ni0.05)	227 °C		

Grain sizes: 3 = Fine-Pitch 25-45 µm
4 = Superfine-Pitch 20-38 µm
5 = Superfine-Pitch 15-25 µm

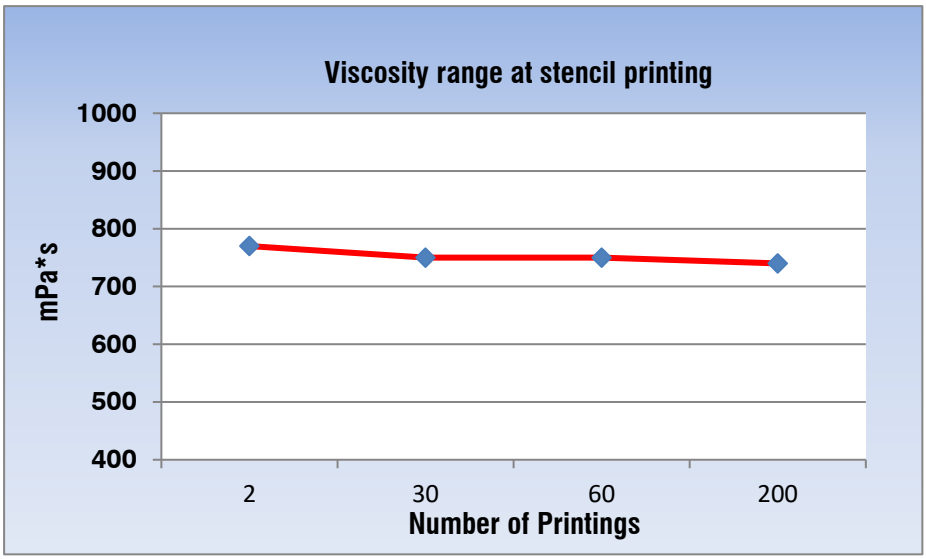
Flux: EN ISO 9454:2016 ,1231 ; DIN EN 61190-1-3 / IPC J-STD-004B, REL0

Recommended stencil strength: Fine-Pitch = 100-150 µm
Superfine-Pitch = 75-125µm

Organic Carrier Materials

The composition of ISO-Cream® "Clear" solder paste avoids encrustation as far as possible at ambient storage conditions und guarantees the following rheological properties:

- excellent printability
- long lasting constant viscosity



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SIR-Test according to DIN EN 61189-5, IPC J-STD-005

The flux residues show a very high surface insulation resistance:

Test duration	ISO-Cream Clear 40°C/93%RF	Blank test 40°C/93%RF
after 24 hours	$2.67 \times 10^{11}\Omega$	$7.10 \times 10^{11}\Omega$
after 96 hours	$2.91 \times 10^{11}\Omega$	$6.23 \times 10^{11}\Omega$
after 168 hours	$6.78 \times 10^{10}\Omega$	$8.35 \times 10^{10}\Omega$

Advantages

- uncoloured flux residues
- low flux expansion
- excellent wetting on all known surfaces
- low volatiles fractions ⇨ larger cleaning intervals of the reflow oven
- real no-clean-quality
- excellent printing quality ⇨ high stencil time of at least 72 hours
- unobjectionable soldering results with all common soldering profiles
- insensitive against environmental influences
- constancy of the viscosity also with longer printing breaks

Processing Instructions

– The paste should reach room temperature before opening the jar so that there will be no condensed water on the paste.
– Before usage stir FELDER ISO-Cream® "Clear" slowly and well.
– FELDER ISO-Cream® "Clear" stays in its sticky consistency over a long period of time, which allows a trouble-free assembling of the circuit board even after 72 hours. The exact period depends on the ambient conditions, size and form of the components as well as the printing speed of the machine.
– The exact soldering peak temperature depends inter alia to the warmth capacity of the components.
– FELDER ISO-Cream® "Clear" may be soldered under normal atmosphere or inert gas.
– Do not return the used solder paste (e. g. leavings on the stencil) in the jar, because the durability of the remaining paste will be reduced considerably. Keep the used solder paste separately in a empty jar and if necessary mix it just before usage with fresh solder paste.

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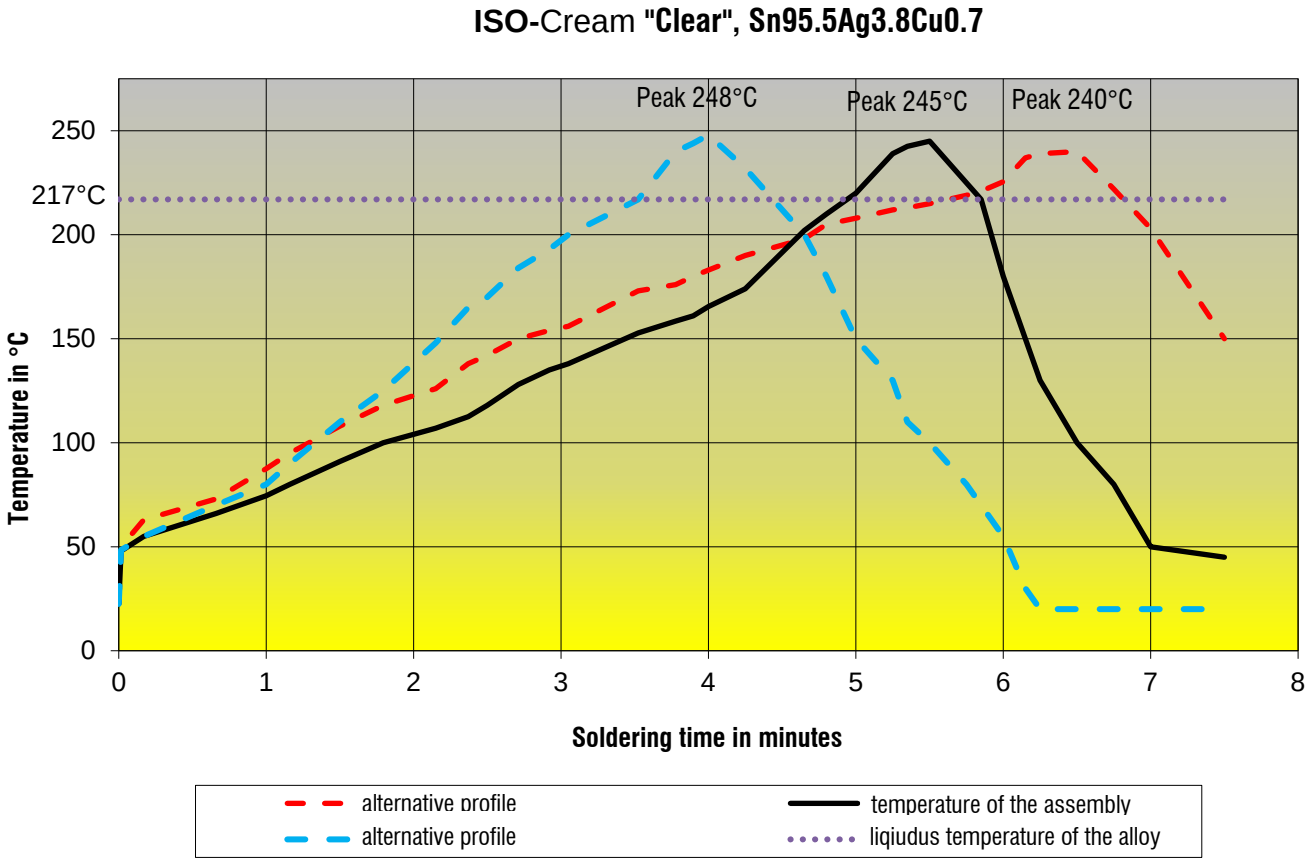
Washing

Because of the high "No-clean-level" this solder paste reaches, the flux residues may remain on the soldered circuits and don´t have to be cleaned. Nonetheless the residues can be removed e.g. in conventional washing plants.

Recommended Solder Profiles



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Technical Data

Category	Values			Target/standard
	printing (Low/Standard/High)	dispensing	dipping	
Metal powder content	88/ 88.5/ 89 %	85 %	70 %	DIN EN 61189-6
Density of the paste	ca. 3.9 g/cm³	ca. 3.7 g/cm³	ca. 3.1 g/cm³	-
Flux residues	clear, colourless, not sticky			DIN EN 61189-5
Viscosity acc. to Brookfield RVT spindle TF, 5rpm, 25°C ±10%	680/ 780/ 880 Pas	450 Pas	230 Pas	DIN EN 61189-5, IPC J-STD-005
Stencil time	> 8 h			-
Wetting	No indications of de-wetting resp. non-wetting, no solder splatters			DIN EN 61189-5
Mounting	min. 72 hours			-
Corrosiveness	Copper-Mirror-Test: passed (L)			DIN EN 61189-6 /IPC J-STD-005
Halide content	<0.001 %			DIN EN 61189-6, IPC J-STD-005
Flux type	REL0			DIN EN 61190-1-3, IPC J-STD-004B
Surface resistance SIR	40° C/93 %RF: 6.78E+11 168h			DIN EN 61189-5, IPC J-STD-005
Durability	6 months at 5 - 15° C / 3 months at room temperature			

Dispenser Specific Properties

FELDER ISO-Cream® "Clear" in the dispenser version can be exactly applied continuously with all common dosage methods:

- Manual Dosage
- Standard dosage equipment with constant air-pressure
- Dosage devices with impulse air-pressure
- Dosage by scroll valves
- Pin-Transfer resp. dipping
- Micro dosage

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Recommended pin diameter: 0.58 mm for grain size 3
0.41 mm for grain size 4
0.34 mm for grain size 5

We recommend a dosage pressure between 1 and max. 3 bar.
The special ISO-**Cream® "Clear"**-formulation avoids the separation of the solder paste and guarantees so a constant viscosity until complete emptying of the cartridge.

Storage Advices

Store in tightly closed containers secured against humidity, insolation and warmth effect. ISO-**Cream® "Clear"** is storable for at least 6 months (storage at constant temperature 5 - 15° C), storable at least 3 months (storage at room temperature 20 - 25° C).

Delivery Forms

Jars	:	0.250 and 0.500 kg
Cartridges	:	6 and 12 oz Semco®
Cassettes	:	ProFlow™
Dispenser cartridges	:	10 g (5 cm^3), 30 g (10 cm^3), 100 g (30 cm^3)

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