



TECHNICAL DATA SHEET

Sn96.5-Ag3-Cu0.5 (ECO 4) flux-cored solder



UNIVERSITAT DE
BARCELONA

ECO 4 Sn96.5Ag3Cu0.5. Tin-Copper-Silver solder according to EN-ISO 9453, alloy 711

TECHNICAL DATA – ECO 4

Melting point (°C)	217/220
Density at 20°C (gcm⁻³)	7.38
Tensile strength (MPa)	49
Elongation (%)	19 (figure 1a)
Hardness (HB)	15

FLUX TYPES

ECO 4 B 1.1	(Flux without rosin with halogens) REM1
ECO 4 B 1.2	(Flux without rosin without halogens) REM0
ECO 4 B 2.1	(Flux with halogens with resin) ROM1
ECO 4 B 2.2	(Flux with resin without halogens) ROM0
ECO 4 B 3.1	(Flux acid with urea) ORM1
ECO 4 B 3.2	(Flux acid without urea) INM1

*All the characterizations and procedures done to obtain the physical properties of the solder were carried out in collaboration with the University of Barcelona.

GENERAL INFORMATION

ECO 4 is a high performance lead-free tin-copper-silver (figure 1b) solder alloy. The composition of this solder complies with the ISO 9453:2015 standards and RoHS directive. This makes the ECO 4 suitable for a wide variety of applications in which lead is prohibitive. This solder can be used in wave, selective, hand and SMT reflow soldering.

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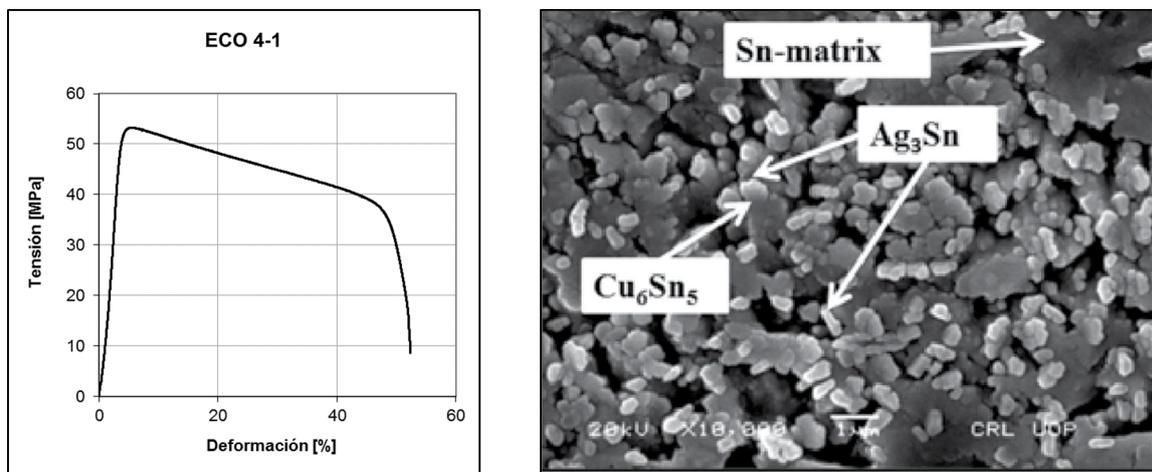


Figure 1. a) Stress-Strain curve and b) SEM image for ECO 4 alloy.

CUSTOMER ADDED VALUE

- Excellent wetting and fluidity.
- Excellent solderability due to fast wetting.
- Low bridging levels.
- Excellent performance and compatibility across a wide range of flux technologies.
- Compatible with all fluxes used in electronic applications.

COMPATIBILITY AND CLEANING

This ECO 4 alloy is compatible with a wide variety of flux types that we also offer in our catalogue. For more information ask us for the corresponding technical data sheet.

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ALLOY COMPOSITION (Sn96.5Ag3Cu0.5)

COMPOSITION	
Tin (Sn)	Rem.
Silver (Ag)	2.8-3.2
Copper (Cu)	0,3-0,7
MAXIMUM IMPURITY LEVELS ACCORDING TO ISO 9453:2015	
Antimony (Sb)	0,10
Bismuth (Bi)	0,10
Gold (Au)	0,05
Lead (Pb)	0,07
Indium (In)	0,10
Aluminum (Al)	0,001
Arsenic (As)	0,03
Cadmium (Cd)	0,002
Iron (Fe)	0,02
Nickel (Ni)	0,01
Zinc (Zn)	0,001

STORAGE AND HANDLING

To avoid any undesirable damage, please follow these advices:

- Do not fire anything near storage area.
- Store in dry, cool and non-corrosive environment.
- While handling and processing, wear the personal protective equipment.
- Refer to the accompanying Material Safety Data Sheet (MSDS) for any specific emergency information.

SHELF LIFE

Following the previously named advices, the durability of this alloy when solid (without flux) is indefinite at room temperature. Consult the MSDS for additional precautions and procedures.

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AVAILABLE FORMATS

Diameters from 0.5mm to 6mm.

Plastic reels of:

- 100 g.: 30 units/box
- 250 g.: 40 units/box
- 500 g.: 20 units/box
- 1 kg.: 10 units/box
- 2 kg and 4 kg: Under demand

** Other formats can be supplied.

Our recommendation is based on wide technical studies and a great practical experience. However, due to the wide variety of materials and working conditions in which our products are used, we do not assume any responsibility over the obtained result or caused damage due to misuse.

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