

TECHNICAL DATA SHEET

Sn99.3-Cu0.7 Solder alloy (ECO 1)



UNIVERSITAT DE
BARCELONA

ECO 1 - Sn99.3Cu0.7. Tin-Copper solder according to EN-ISO 9453, alloy 401

TECHNICAL DATA – ECO 1

Melting point (°C)	227
Density at 20°C (gcm ⁻³)	7.27
Tensile strength (MPa)	38
Elongation (%)	51.5 (figure 1a)
Hardness (HB)	11

*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 1 Sn99.3Cu0.7 is a lead-free, silver-free eutectic (figure 1b) tin-copper alloy formulated with the highest quality raw materials. The composition of this solder complies with the ISO 9453:2015 (alloy 401) standards and RoHS directive. This makes our **ECO 1** alloy suitable for different processes, including:

- Wave, Selective and Dip Soldering.
- Component insertion and touch-up for surface mount technology for electronics assembly industry.

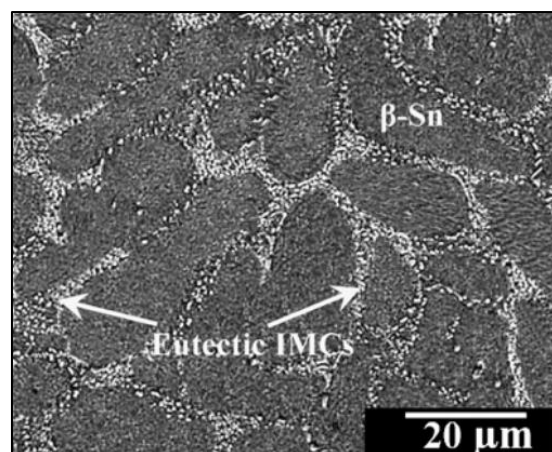
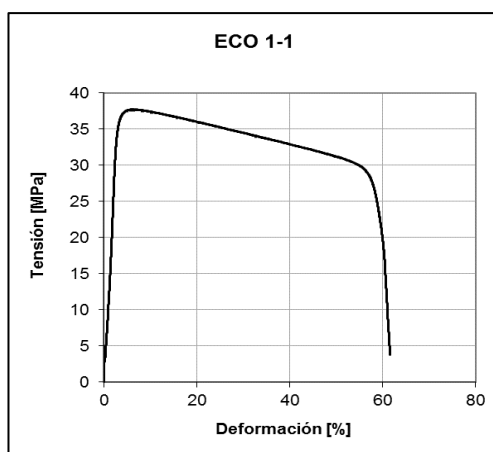


Figure 1. a) Stress-Strain curve and b) SEM image for ECO 1 solder.

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CUSTOMER ADDED VALUE

- A high-quality binary alloy for mechanical or electrical applications where lead-free materials are required.
- Excellent solder joint reliability and joint strength.
- Superior thermal and mechanical fatigue resistance.
- Very good wetting properties.

COMPATIBILITY AND CLEANING

This ECO 1 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.

ALLOY COMPOSITION (Sn99.3Cu0.7)

COMPOSITION	
Tin (Sn)	Rem.
Copper (Cu)	0,5-0,9
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
Silver (Ag)	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

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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.

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

** It can be supplied in:

- Round rods of 6x400 mm.
- Square rods of 7x9x400 mm.
- Rectangular rods of 12x24x400 mm.

Our recommendation is based on 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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