



TECHNICAL DATA SHEET

Sn99.3-Cu0.7 (ECO 1) flux-cored solder



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.

RANGE FLUX

ECO 1 PW13	(Flux with halogens with resin) ROL1
ECO 1 PW12	(Flux with resin without halogens) ROL0
ECO 1 PW25	(Flux without rosin with halogens) REM1
ECO 1 PW25	(Flux without rosin without halogens) REM0
ECO 1 PW15	(Flux with halogens with resin) ROM1
ECO 1 PW14	(Flux with resin without halogens) ROM0
ECO 1 B 3.1	(Flux acid with urea) ORM1
ECO 1 B 3.2	(Flux acid without urea) INM1
ECO 1 PW23	(Flux without rosin with halogens) REL1
ECO 1 PW22	(Flux without rosin without halogens) REL0

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:

- For robotic and hand soldering in the electrical engineering and partly also in the electronics.

Revision date: 21/02/2023

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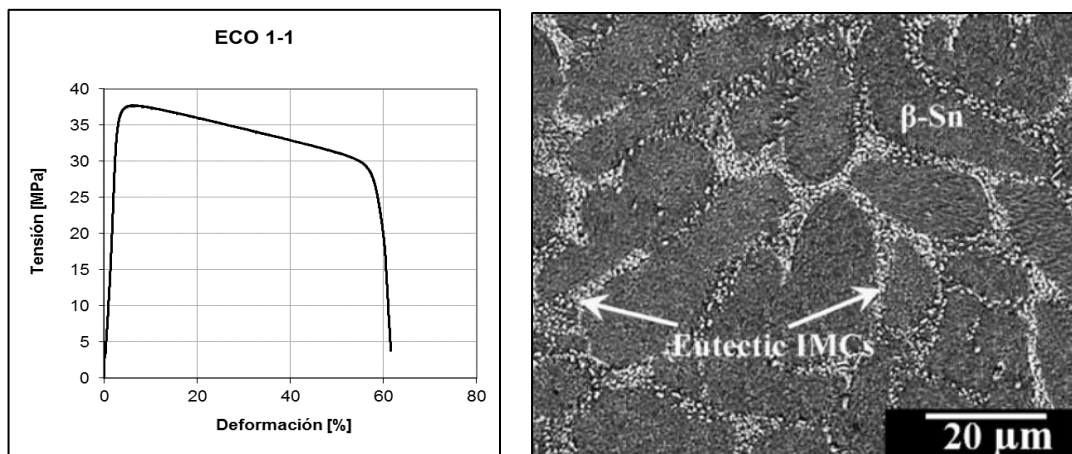


Figure 1. a) Stress-Strain curve and **b)** SEM image for ECO 1 solder.

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.

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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

STORAGE AND HANDLING

To avoid any undesirable damage, please follow these advice:

- 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 above advice, the shelf life of this fluxing alloy is 60 months provided storage conditions are maintained in a dry, dust-free location at room temperature. Refer to the MSDS for additional precautions and procedures.

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AVAILABLE FORMATS – PLASTIC REELS

Diameter	Weight **	Units/box
From 0.50 mm. to 6 mm.	100 g.	30
	250 g.	50
	500 g.	20
	1 kg.	10
	2 kg. and 4 kg.	Under demand

** Other formats can be supplied

FLUX PERCENTAGE ACCORDING TO UNE-EN IEC 61190-1-2

Design Symbol	Nominal %	Allowable Range %
3	1,5	1,2 – 1,8
4	2,0	1,7 – 2,3
5	2,5	2,2 – 2,8
6	3,0	2,7 – 3,3

NUMBER OF FLUX-CORES

Number of Cores	Design Symbol
1	1 NR
3	3 NR
4	4 NR
5	5 NR

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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