

## TECHNICAL DATA SHEET

Alloy designation according to ISO 9453:2020:	<b>Sn96,5Ag3Cu0,5</b>
Flux designation:	<b>1.1.3</b>
Product form:	Cored solder wire
Other known alloy markings:	SAC305 • S-Sn96Ag3Cu1 • TSC305 • A30C5

### 1. General characteristics

The lead-free solder alloy Sn96,5Ag3Cu0,5 is manufactured by Cynel-Unipress in the first smelting of tin, silver and copper. Its chemical composition complies with ISO 9453. The use of a continuous casting process ensures that the metal oxide formation in the solder alloy is minimized. As a result, the negative effect of the formation of dross in the soldering process has been significantly reduced. The product is designed for a wide range of industrial applications in electronics and electrical engineering where RoHS compliance is required. It can be sold on the consumer market and also used by private individuals outside professional applications.

### 2. Chemical composition and physical characteristics

- 2.1. Tin content: the rest
- 2.2. Silver content: 2,8 – 3,2%
- 2.3. Copper content: 0,3 – 0,7%
- 2.4. Purity class of raw materials used for smelting: min. 99.90%
- 2.5. % composition and maximum values of impurities according to ISO 9453:2020:

Sn	Pb	Sb	Bi	Cu	Au	In	Ag	Al	As	Cd	Fe	Ni	Zn	other
rest	0,0700	0,1000	0,1000	0,3000 - 0,7000	0,0500	0,1000	2,8000 - 3,2000	0,0010	0,0300	0,0020	0,0200	0,0100	0,0010	-

- 2.6. Melting point (solidus/liquidus): 217/220 °C
- 2.7. Specific weight: ~7,38 g/cm<sup>3</sup>
- 2.8. Resistivity: 0,132 μΩ·m
- 2.9. Thermal conductivity: 58 W/m·K
- 2.10. Tensile strength at break: 500 kg/cm<sup>2</sup>
- 2.11. Elongation at break: 19%
- 2.12. Hardness: 15 HB
- 2.13. Recommended soldering temperature (tip): 340 - 420 °C

### 3. 1.1.3 flux

Halide-free flux based on modified colophony, perfectly wetting the commonly used PCB solder point coatings. Delicate yet effective. It performs very well in robotic processes as well as in general applications in soldering of electronic connections. Residues of flux after soldering do not require washing (No Clean formula).

- 3.1. Designation according to DIN 8511: SW32
- 3.2. Designation according to ISO 9454-1: 1.1.3
- 3.3. Designation according to J-STD-004: ROL0
- 3.4. Standard flux contents: 1,5% • 2,2% • 3,0% ± 0,2%  
other flux contents in the range from 0,8% to 3,5% possible to agree on
- 3.5. Halide content: 0,0%
- 3.6. Acid number: 190 ±10 mg KOH/g
- 3.7. Copper mirror test: passed (in accordance with J-STD-004 IPC-TM-650 2.3.32D)
- 3.8. Corrosiveness: noncorrosive
- 3.9. SIR test (PN-EN ISO 9455-17): passed (after 4 days – 1,2x10<sup>9</sup> Ω, after 7 days – 3,4x10<sup>9</sup> Ω)

### 4. Other information

- 4.1. Available diameters [mm]: 0,25 • 0,38 • 0,50 • 0,56 • 0,70 • 0,80 • 0,90 • 1,00 • 1,20 • 1,50 • 2,00 • 2,50 • 3,00 • 4,00  
Other wire diameters possible to be agreed.
- 4.2. Spools and packaging: Spools 100 g - carton box of 30 pcs  
Spools 250 g - carton box of 5 kg  
Spools 500 g - carton box of 5 kg  
Spools 1 kg - carton box of 10 kg
- 4.3. Expiry date: 5 full years from the end of the year of production given in the product batch number.  
E.g.: batch no. 21112233 = year of manufacture 2022, validity until the end of 2027.
- 4.4. Markings: Spools and carton boxes marked with alloy, flux type, percentage content of flux, diameter, weight and batch number.
- 4.5. Storage: Store at room temperature in a dry place out of reach of children.

The subject of the specification described above complies with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of hazardous substances in electrical and electronic equipment and with the Commission Delegated Directive (EU) 2015/863 of 31 March 2015, amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances as amended. The subject does not contain any of the substances listed in the RoHS Directive, i.e. lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), polybrominated diphenyl ethers (PBDE), di(2 ethylhexyl phthalate (DEHP), butyl benzyl phthalate (BBP), dibutyl phthalate (DBP), diisobutyl phthalate (DIBP) above 0.1% at a homogeneous level of material, unless it is exempted.