Sn63Pb37 Water Soluble Solder Wire 4885WS Technical Data Sheet

Description

The 4885WS *Sn63Pb37 Water Soluble Solder Wire* is an electronic grade solder wire. It uses the eutectic tin-to-lead ratio, which is complemented with a water soluble flux core. The 4885WS meets J-STD-004B, ASTM B 32, and exceeds J-STD-006C specifications. It offers great compatibility with all liquid water-soluble organic flux.

The 4885WS leaded solders achieve a consistent solder and flux percentage through a state-of-the-art, extrusion, wire-drawing machine. This machine continually monitors the wire to prevent voids and ensure consistency, providing a top-grade solder wire.

Benefits & Features

- **Eutectic alloy** (liquidus = solidus temperature)
- **Alloy exceeds J-STD-006C and meets ASTM B 32 purity requirements**
- **Flux meets J-STD-004B**
- **Water soluble flux**
- **Fast wetting**
- **Fast flowing**
- **Low VOC**

COMPLIANCE
✓ Dobb Frank (DRC conflict free)
✓ REACH (compliant)
× RoHS (non-compliant)

Wire Sizes Availability

Cat No.	*Std. Wire Gauge*	*Diameter*		*Packaging*	*Sizes*
4885WS	21	0.81 mm	0.032 in	Spool	1 lb

General Flux Parameters

Property	*Value*
Residue Removal	Required [a)]
Flux Percentage	3.3%
Flux Feature	Fast wetting, fast flowing, low VOC
Shelf Life	5 y

a) Use DI water at 54-66 °C [130-150 °F]

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Flux Core Properties

The rosin activated flux wets rapidly and is fast flowing. It will not decompose and carbonize under prolonged heat. It is compatible with other water soluble organic fluxes.

Physical Properties	*Method*	*Value*
Flux Classification	J-STD-004B	ORH1
Flux Type		Organic
Flux Activity		High
%Halides		>2%
Color	—	Opaque solid
Softening Point of Flux Extract		60 °C [140 °F]
Acid Number (mgKOH/g sample)	IPC-TM-650 2.3.13	180–200
Silver Chromate—Chlorides + Bromides	IPC-TM-650 2.3.33	Detection
Surface Insulation Resistance (SIR)	IPC-TM-650 2.6.3.3	>1.0 × 10^9 Ω (cleaned)
Cleaning Requirements	—	Required [a]

a) Use DI water at 54-66 °C [130-150 °F]

Sn63/Pb37 Alloy Typical Literature Properties

Physical Properties	*Value* [a]
Color	Silvery-white metal
Density @26 °C [78 °F]	8.40 g/cm^3
Tensile Strength	54 N/mm^2 [7 800 lb/in^2]
Elongation	37%
Hardness	14 HB
Shear Strength	37 N/mm^2 [5 400 lb/in^2]

Electric Properties	*Value*
Volume Resistivity	14.5 μΩ·cm
Electrical Conductivity [b]	11.9% IACS

Thermal Properties	*Value*
Melting Point, Solidus	183 °C [361 °F]
Melting Point, Liquidus	183 °C [361 °F]
Tip Temperature Upper Limit	Do not exceed 260 °C [500 °F]
Coefficient of Thermal Expansion (CTE) [c]	24.7 ppm/°C
Thermal Conductivity	50 W/(m·K)

NOTE: This table present typical literature values for 63/37 alloys.
a) N/mm^2 = mPa; lb/in^2 = psi;
b) International Annealed Copper Standard: 100% give 5.8 × 10^7 S/m.
c) CTE unit conversions: ppm/°C = μm/(m·K) = in/in/°C × 10^{-6} = unit/unit/°C × 10^{-6}

Solder Alloy Composition

Properties	Value	Properties	Value
MAIN INGREDIENTS		*IMPURITIES* [a]	*REQUIREMENTS*
Sn	63.5 to 63.5%	Sb	≤0.20% Max
Pb	36.5 to 37.5%	Ag	≤0.10% Max
		Bi	≤0.10% Max
		In	≤0.10% Max
Because this product contains lead, it is not RoHS compliant. The following RoHS exemptions are applicable 7(b), 15, 24, 31, 33.		Cu	≤0.08% Max
		Au	≤0.05% Max
		As	≤0.03% Max
		Fe	≤0.02% Max
		Ni	≤0.01% Max
		Al	≤0.005% Max
		Zn	≤0.003% Max
		Cd	≤0.002% Max

a) Exceeds the requirements of J-STD-006C and meets ASTM B 32.

Storage

Protect from direct heat or sunlight.

Cleaning

The flux residue does not need to be removed for typical applications. If removal is desired, a solvent system like the *MG 4140* can be used. For best results, warm the cleaning solution to about 40 °C [104 °F].

Health and Safety

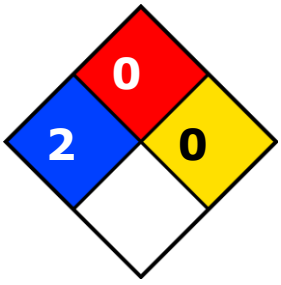
Please see the 4885WS **Safety Data Sheet** (SDS) for more details on transportation, storage, handling and other security guidelines.

Health and Safety: Avoid breathing fumes. Wash hands thoroughly after use. Do not ingest.

HMIS® RATING

HEALTH:	* **2**
FLAMMABILITY:	**0**
PHYSICAL HAZARD:	**0**
PERSONAL PROTECTION:	

NFPA® 704 CODES



Approximate HMIS and NFPA Risk Ratings Legend:
0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

Packaging and Supporting Products

Cat. No.	*Form*	*Package*	*Net Weight*
4885WS-454G	Solid wire	Spool	454 g 1.0 lb

Technical Support

Contact us regarding any questions, improvement suggestions, or problems with this product. Application notes, instructions, and FAQs are located at www.mgchemicals.com.

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Warranty

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