

# Sn60/Pb40

## No Clean Wire Solder

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### Description

The Solder wire is a no clean formulation designed for both tin/lead and lead-free alloys, such as Sn60/Pb40. It contains a synthetically refined resin and very effective activator so spreads like an RA type flux core. It exhibits virtually no spattering and leaves minimal residue.

### Features

- Designed for leaded and lead-free alloys
- Excellent wetting properties
- Clear, non-conductive residues

### Technical Data (Flux Extract)

		Test Method
Colour and Appearance	Light yellow opaque solid	Visual
Flux Classification	REL0	J-STD-004B
Copper Mirror	No removal of copper film	IPC-TM-650 2.3.32
Corrosion	Pass	IPC-TM-650 2.6.15
SIR	$1.82 \times 10^{11}$	IPC-TM-650 2.6.3.3
Post Reflow Flux Residue	55%	TGA Analysis
Acid Value	190 - 210	IPC-TM-650 2.3.13
Flux Residue Dryness	Pass	IPC-TM-650 2.4.47
Spitting of Flux-Cored Solder	0.3%	IPC-TM-650 2.4.48
Solder Spread	100mm <sup>2</sup>	IPC-TM-650 2.4.46

### Wire Diameter

Sn60/Pb40 solder wire is available in a variety of diameters. The chosen diameter is based on application methods, pad size, and desired solder joint volume. Generally, the diameter of the wire should be slightly large than the width/diameter of the joint or connection to be soldered. Below is a list of standard diameters.

### Standard wire diameters

Diameter (Inches)	0.125	0.092	0.062	0.05	0.04	0.032	0.028	0.025	0.02	0.015
Diameter (mm)	3.18	2.33	1.57	1.27	1.01	0.81	0.71	0.63	0.51	0.38
Std. Wire Gauge	11	13	16	18	19	21	22	23	25	28
Tolerance (Inches)	±0.006	±0.005	±0.003	±0.002	±0.002	±0.002	±0.002	±0.002	±0.002	±0.002

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Typical flux percentage for leaded solder is 1.1% to 3.3%

### Physical Properties

#### Solder Composition

A rosin activated based core flux with alloy composition, Sn60/Pb40. The impurity requirements of IPC-J-STD-006C.

Typical Analysis													
Sn	Ag	Cu	Pb	Sb	Bi	In	As	Fe	Ni	Cd	Al	Zn	Au
59.5 - 60.5	0.1 Max.	0.08 Max.	Bal	0.2 Max.	0.1 Max.	0.1 Max.	0.03 Max.	0.02 Max.	0.01 Max.	0.002 Max.	0.005 Max.	0.003 Max.	0.05 Max.

	Sn60/Pb40
Melting Point	183°C to 188°C
Hardness, Brinell	16 HB
Coefficient of Thermal Expansion	23.9
Tensile Strength	535kgf/cm <sup>2</sup>
Tensile Elongation	40%
Density	8.5g/cm <sup>3</sup>
Electrical Resistivity	15.3μΩ-cm
Thermal Conductivity	49W/m-k

### Flux Residues and Cleaning

It is a no clean formulation; therefore, the residues do not need to be removed for typical applications. If residue removal is desired, the use of Buffered Saponifier with a 5-15% concentration in hot 60°C (140°F) de-ionized water will aid in residue removal.

### Storage and Shelf Life

Solder wire storage should be in a 65°F to 80°F environment away from direct heat. Recommend using gloves when handling solder wire directly. Solder wire has an indefinite shelf life.

### Disposal

Sn60/Pb40 leaded solder should be disposed of in accordance with federal, state and local authority requirements.

### Part Number Table

Description	Part Number
60/40 No Clean Wire Solder, Sn/Pb Alloy	MP740207

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