



ROSIN-BASED (Sn/Ag/Cu)
R.A., R.M.A. AND S.R.A.
DELTA[®] SOLDER WIRE

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Description (Flux Core)

RMA 200 (Rosin Mildly Activated)

RMA200 has been formulated for use in high reliability electronic assembly where pure rosin core does not provide fast spreading and wetting action; and activated rosin residues may be electronically less reliable. RMA200 conforms to IPC-J-STD-004B specifications

RA 300 (Rosin Activated)

RA300 contains a rosin activated core that is available with both lead-containing alloys and lead-free alloys. RA300 cored solder wire has extremely rapid wetting action and excellent flowing properties. RA300 residues are non-corrosive and electrically non-conductive. RA300 conforms to IPC-J-STD-004B specifications

SRA 500 (Super Rosin Activated)

SRA 500 is the supreme activated rosin flux-core wire. It is recommended for highly oxidized metals and difficult-to-solder metals. SRA500 conforms to IPC-J-STD-004B specifications.

Physical and Chemical Characteristics (Flux Extract)

	RA	RMA	SRA
Color & Appearance	Amber Solid	Light Amber Solid	Amber Solid
Softening Point, °C(Flux Extract)	80°	92°	92°
Acid Number (mgKOH/ g sample)	140-160	190-220	150 - 180
Silver Chromate (Qualitative Halides)	Detection	No Detection	Detection
Classification Per J-STD-004	ROM1	ROL0	ROH1
Surface Insulation Resistance	>1.0 x 10 ⁹	>1.0 x 10 ⁹	>1.0 x 10 ⁹
Shelf Life	Indefinite	Indefinite	Indefinite
Residue Removal	Not Required. May be removed with CFC replacement solvent or Qualitek 1005 Saponifier	Not Required. May be removed with isopropanol or Qualitek 1005 Saponifier	Recommended. May be removed with CFC replacement solvent or Qualitek 1005 Saponifier

Wire Diameter

Rosin-based Delta Solder Wire with tin/silver copper alloys 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 larger than the width/diameter of the joint or connection to be soldered. Below is a list of standard diameters.

Standard wire diameters

Diameter/Inch	0.125	0.092	0.062	0.050	0.040	0.032	0.028	0.025	0.020	0.015	0.010
Diameter/mm	3.18	2.33	1.57	1.27	1.01	0.81	0.71	0.63	0.51	0.38	0.25
Std.Wire Gauge	11	13	16	18	19	21	22	23	25	28	31
Tolerance, in.	+/-0.006	+/-0.005	+/-0.003	+/-0.003	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002

Flux Percentage

Qualitek utilizes a state-of-the-art automatic wire extrusion and wire drawing machines to manufacture consistent solder. The introduction of flux core in the wire extrusion process involves continual monitoring of flux percentage to ensure minimal flux voids and irregular wire. Typical flux percentage for high temperature lead-free SAC-containing alloy solder is **1.1 – 3.3%**.

Physical Properties

Solder Composition

Qualitek offers several types of rosin-based core flux with tin/silver/copper (SAC) alloys. Qualitek SAC alloys conform to and exceed the impurity requirements of IPC-J-STD-006C.

Typical Analysis														
	Sn	Ag	Cu	Pb	Sb	Bi	In	As	Fe	Ni	Cd	Al	Zn	Au
LF955-38	Bal	3.6-4.0	0.5-0.9	0.070 Max	0.200 Max	0.100 Max	0.100 Max	0.030 Max	0.020 Max	0.010 Max	0.002 Max	0.005 Max	0.003 Max	0.050 Max
LF958-35	Bal	3.3-3.7	0.5-0.9	0.070 Max	0.200 Max	0.100 Max	0.100 Max	0.030 Max	0.020 Max	0.010 Max	0.002 Max	0.005 Max	0.003 Max	0.050 Max
LF965-30	Bal	2.8-3.2	0.3-0.7	0.070 Max	0.200 Max	0.100 Max	0.100 Max	0.030 Max	0.020 Max	0.010 Max	0.002 Max	0.005 Max	0.003 Max	0.050 Max
LF217	Bal	3.8-4.2	0.3-0.7	0.070 Max	0.200 Max	0.100 Max	0.100 Max	0.030 Max	0.020 Max	0.010 Max	0.002 Max	0.005 Max	0.003 Max	0.050 Max

	Sn/Ag/Cu	Sn63/Pb37
Melting Point, °C	217-221	183 E
Hardness, Brinell	15HB	14HB
Coefficient of Thermal Expansion	Pure Sn= 23.5	24.7
Tensile Strength, psi	4312	4442
Density, g/cc	7.39	8.42
Electrical Resistivity , (μohm-cm)	13.0	14.5
Electrical Conductivity, %IACS	16.6	11.9

	Sn/Ag/Cu	Sn63/Pb37
Yield Strength, psi	3724	3950
Total Elongation,%	27	48
Joint Shear Strength, at 0.1mm/min 20 °C	27	23
Joint Shear Strength, at 0.1mm/min 100 °C	17	14
Creep Strength, N/mm ² at 0.1mm/min 20 °C	13.0	3.3
Creep Strength, N/mm ² at 0.1mm/min 100 °C	5	1
Thermal Conductivity, W/m.K	58.7	50.9

Storage & Shelf Life

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

Disposal

SAC alloy rosin-based lead-free solder should be disposed of in accordance with federal, state & local authority requirements.

Packaging

Qualitek flux-core wire and solid wire are packed in

- 12.5lb -box of ½ lb spools
- 25 lb -box of 1 lb spools
- 12.5kg -box of ½ kg spools
- 8 kg -box of 1kg spools
- 40 lb -box of 5 lb spools
- 20 lb -box of 20 lb spools