



NC602 (Ecolloy™)
LEAD FREE
NO CLEAN
SOLDER WIRE

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Description

Qualitek has developed a new patented lead free alloy, Ecolloy™ that performs better than SAC305 in the drop test and is available in wire form. Ecolloy has a melting point range in between SAC305 and Sn/Cu alloys for better solderability performance. NC602 is a no clean flux that promotes fast wetting action and maximum wetting spread. NC602 contains rosin with a very effective activator so it performs like an RA type cored wire. NC602 exhibits virtually no spattering and conforms to J-STD-004B specifications.

Main Features

- ❑ Excellent wettability
- ❑ Ecolloy alloy yields stronger joints than SAC alloys
- ❑ Hard non-conductive residues

Technical Data

Flux Classification	Specification	Test Method
	ROLO	J-STD-004
Copper Mirror	No removal of copper film	IPC-TM-650 2.3.32
Silver Chromate Corrosion	Pass	IPC-TM-650 2.3.33
SIR	Pass	IPC-TM-650 2.6.15
JSTD-004,Pattern Down	2.12 x 10 ¹⁰	IPC-TM-650 2.6.3.3
Electromigration	Pass	Bellcore GR-78-CORE 13.1.4
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	100 mm ²	IPC-TM-650 2.4.46

Wire Diameter

Ecolloy™ alloy 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 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
Diameter/mm	3.18	2.33	1.57	1.27	1.01	0.81	0.71	0.63	0.51
Std.Wire Gauge	11	13	16	18	19	21	22	23	25
Tolerance, in.	+/-0.006	+/-0.005	+/-0.003	+/-0.003	+/-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 lead free solder is 2.2-3.3%.

Physical Properties

Solder Composition

Ecolloy™ conforms and exceeds the impurity requirements of J-STD-006C and all other relevant international standards.

Typical Analysis														
	Sn	Ag	Cu	Pb	Sb	Bi	In	As	Fe	Ni	Cd	Al	Zn	Au
Ecolloy™	Bal	0.100 Max	0.1-1	0.070 Max	0.200 Max	<6.0	0.100 Max	0.030 Max	0.020 Max	0-0.1	0.002 Max	0.005 Max	0.003 Max	0.050 Max

	Ecolloy™	SAC305
Melting Point, °C	221 - 227	217 - 221
Hardness, HV	23	14.1
Coefficient of Thermal Expansion, ppm/ °C	23	23
Tensile Strength, MPa	63	49
Density, g/cc	7.4	7.4
Electrical Resistivity (μohm-cm)	12	12
Electrical Conductivity, %IACS	14.3	14.3
Elongation, %	50	63
Specific Heat, J/g.K	0.23	0.23

Flux Residues & Cleaning

NC602 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 Everkleen 1005 Buffered Saponifier with a 5-15% concentration in hot 60 °C (140 °F) de-ionized water will aid in residue removal.

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

NC602 lead free solder should be disposed of in accordance with 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