

## Rosin-Free HF (Halide Free) Cored Solder Wire

Rosin and Halide-Free Solder



### DESCRIPTION

R-TECH Rosin-Free HF (Halide Free) Cored Solder Wire is a halide free flux core contained in R-TECH High Purity Cored Solder Wire. Containing no rosin (colophony), resin acids, pine oil or other naturally occurring derivatives from pine trees, it has been specifically designed to reduce the number of worldwide cases of industrial asthma, related to rosin usage within a cored solder wire. Rosin-Free HF (Halide Free) provides excellent wetting whilst leaving a minimal no clean, clear residue. Cleaning by batch or in-line processes is not suitable.

### DISTINCTIVE FEATURES

- No Clean
- Rosin Free
- Halide Free
- RELO Classification
- Minimal Clear Residues

**Rosin Free**

**Halide Free**

**SC 100e**

**SAC 305**

**RELO**





## GENERAL SPECIFICATION

### High Purity Solder Alloy

Standardization is important to reduce variety and to promote the quality of products by defining features and characteristics governing their fitness for purpose. The standards promote clear unambiguous communication between purchasers and suppliers for quotation ordering and supply purposes.

In 1994 a single European standard, EN 29453 (ISO 9453), superseded all other European national standards including: BS 219, DIN 1707, NFC 90-550. Other equivalent international standards include J-STD-006, ASTM B32 and JIS-Z-3382.

R-TECH High Purity Solder Alloys are manufactured using only the 'Highest Purity Virgin Materials' this being part of R-TECH's simple philosophy that the best raw materials lead to the best finished products.

Below shows a typical batch analysis of the High Purity Tin/Lead used in manufacturing High Purity 63/37.

#### Typical batch analysis: Tin

Sn	Sb	Pb	Cu	Zn
99.95	0.009	0.002	0.0002	0.0001
Fe	As	Ag	Bi	In
0.002	0.002	0.0001	0.0001	0.0003

#### Typical batch analysis: Lead

Sn	Sb	Pb	Cu	Zn
0.001	0.002	99.99	0.003	0.0001
Fe	As	Ag	Bi	In
0.002	0.0005	0.002	0.005	0.0003

#### Typical batch analysis: R-TECH High Purity 63/37

Sn	Sb	Pb	Cu	Zn	Fe	As	Ag	Bi	In
63.0	0.0095	remainder	0.0007	0.0002	0.002	0.001	0.0005	0.0003	0.0003

These consistent high standards apply not only to all of R-TECH's high purity solder alloys, but to its entire range of products, inclusive of flux cored and solid solders, liquid fluxes, cleaners and solder paste.

### Lead Free Solder Alloys

In accordance with REACH legislation and increasing environmental awareness R-TECH offer a complete range of 'lead free' alloys to suit all applications.

R-TECH's range of lead free solder alloys includes:

Alloy Name	Alloy Breakdown	Melting Temperature °C
Sc100e	Cu0.5-0.7/Sn Rem	227
SAC305	Sn96.5/Ag3/Cu0.5	217-220
99C	Sn99.3/Cu0.7	227

Key: Sn-Tin, Ag-Silver, Cu-Copper, Rem-Remainder  
Other alloys available

Please note that not all alloys are available ex-stock and minimum order quantities may apply

### Leaded Solder Alloys

R-TECH are able to offer a comprehensive range of leaded solder alloys to 'Professional Users' which will be marked as For Professional Use Only in accordance with REACH regulations.

R-TECH's range of leaded solder alloys includes:

Alloy Name	Alloy Breakdown	Melting Temperature °C
60/40	Sn60/Pb40	183-190

Key: Sn-Tin, Pb-Lead, Ag-Silver, Cu-Copper, Sb-Antimony, Rem-Remainder  
Other alloys available

### Wire gauge (Diameter)

The wire gauge (diameter) for R-TECH solid and flux cored solder wires is represented as SWG (Standard Wire Gauge). The equivalent imperial and metric values are shown in the table.

The information supplied in this technical data sheet is designed only as guidance for the safe use and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information related only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process.

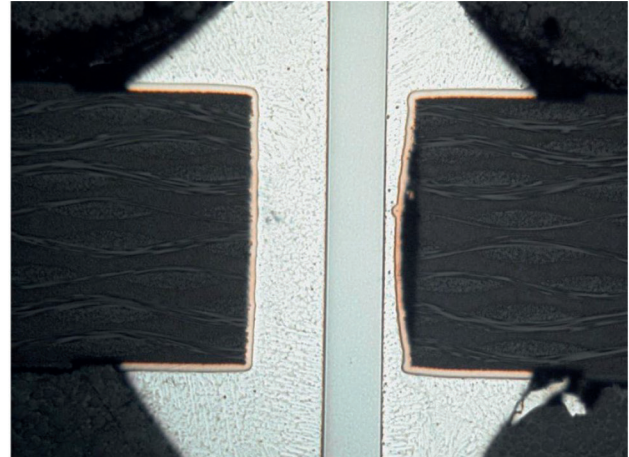
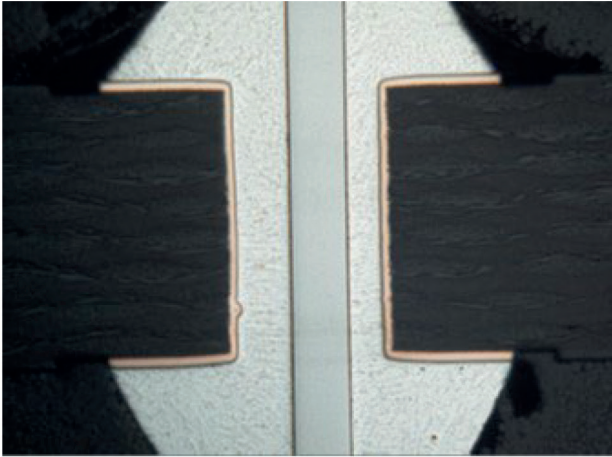
SWG	mm	Inch
10	3.25	0.128
11	2.95	0.116
12	2.64	0.104
13	2.34	0.092
14	2.03	0.080
16	1.63	0.064
18	1.22	0.048
20	0.914	0.036
21	0.813	0.032

SWG	mm	Inch
22	0.711	0.028
24	0.599	0.022
26	0.457	0.018
28	0.375	0.014
30	0.315	0.012
32	0.274	0.010
34	0.234	0.009
36	0.193	0.008



## ENVIRONMENTAL/OPERATING SPECIFICATION

R-TECH Rosin-Free HF (Halide Free) is suitable for hand and robotic soldering applications. Solder wire diameter and soldering iron tip size should be selected to suit the parts/components to be soldered. Soldering irons should provide enough heat for the solder alloy selected. A typical solder tip temperature should be between 120°C and 160°C above the liquidus temperature of the alloy. The ideal temperature will be dependent on the individual assembly. Take care not to overheat the solder as this causes an increase in the depth of inter-metallic layer, which weakens the joint.



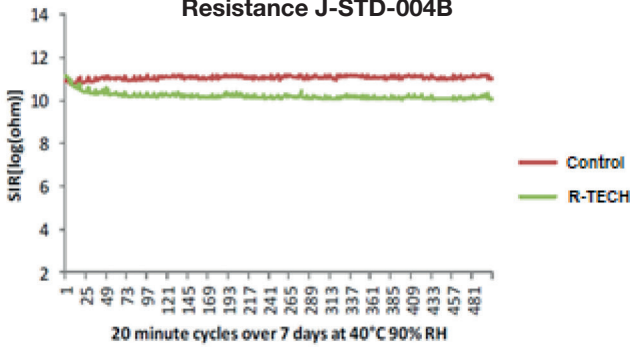
Microsection of R-TECH SAC alloy, showing a good even fill and even with poor pin placement.

### Commitment to Care

Lead free soldering represents a clear commitment to care for the long-term health of our planet and its inhabitants, by eliminating the use of toxic materials which can leech into the water supply. The R-TECH flux and activation system does not include any known carcinogens or additives which may be damaging to the reproductive health of operators. Unfortunately, some manufacturers and distributors do not share our considerate approach and insist on using such additives. Often these additives are only used in a low level, typically ~1-3% within the flux formulation, so ~0.1% within the solder wire, these activators are then not reported in SDS documentation even though used in considerable volume within the flux. We offer a commitment to care for users of R-TECH by never using such additives, whilst still offering an improvement in performance and reliability. R-TECH Solder Wire and our insistence on ethical product development allows you to fulfill your commitment to the environment and manufacturing performance whilst offering you peace of mind.

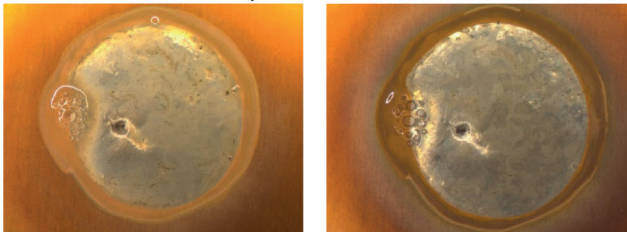
## Test Data

### Rosin-Free HF (Halide Free) Median Surface Insulation Resistance J-STD-004B



7 day continuous Surface Insulation Resistance test, testing cycles every 20 minutes at 5V. Showing no dendrite formation and far exceeding J-STD-004B requirements of greater than 100 MΩ.

J-STD-004B 10 day corrosion test. 40°C 93% RH

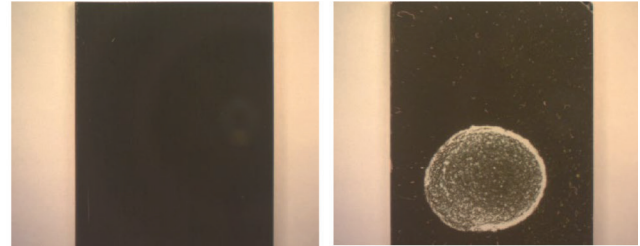


0 Hours

240 Hours

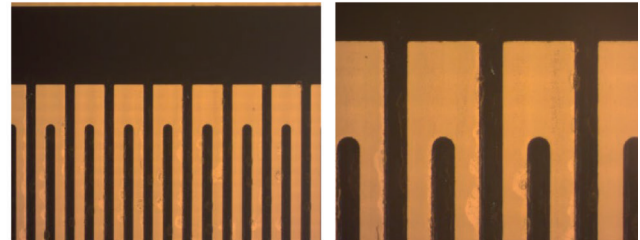
No evidence of corrosion or green/blue discolouration

J-STD-004B copper mirror test. 24 hr 23°C 50% RH requirement for type L (low corrosion) is no evidence of breakthrough of the copper mirror.



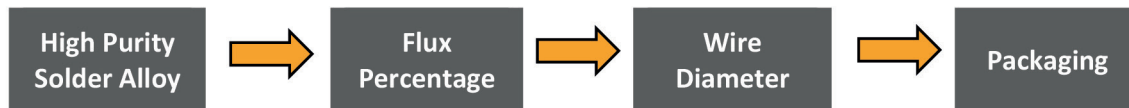
R-TECH Flux  
(non-corrosive)

Competitor Type M Flux  
(corrosive)



J-STD-004B Surface Insulation Resistance test showing no conductive anodic filament (CAF) migration or dendritic growth after 168 hours at 40°C, 90% relative humidity.

## Selecting R-TECH Cored Solder Wire





## CERTIFICATION AND STANDARDS

Flux Classification (J-STD-004B)	RELO
Quantitative Halide (J-STD-004B) (IPC-TM-650 2.3.28)	Halide Free (0.05% Max)
Rosin Softening Point	70-80°C
Surface Insulation Resistance (J-STD-004B) (IPC-TM-650 2.6.3)	Pass
Electro Migration (Bellcore GR-78) (IPC-TM-650 2.6.14)	Pass
Copper Mirror Test (J-STD-004A/B) (IPC-TM-650 2.3.32)	Pass
Copper Corrosion Test (J-STD-004A/B) (IPC-TM-650 2.6.15)	Pass
Shelf Life (Stored in dry conditions) (10°C to 40°C)	4 Years (guaranteed) Indefinite if stored correctly



## OPTIONS (MOQ may apply)

Product	Flux Content	Standard Packaging
Rosin-Free HF (Halide Free)	1%, 2% and 3%	0.25Kg, 0.5Kg, 2.5Kg, 3Kg, 5Kg, 10Kg, 15Kg and 25Kg reels

Other packaging options available. For more information on alternate packaging options please contact our sales team.



## PART NUMBER TABLE

Part number	Alloy	Flux Content	Gauge	Reel size	UNSPSC	EAN	Country of Origin
<b>85-7029</b>	SC100e	2%	18	250g	23271806	5053556008810	United Kingdom
<b>85-6996</b>	SC100e	2%	18	500g	23271806	5053556008223	United Kingdom
<b>85-7030</b>	SC100e	2%	20	500g	23271806	5053556008827	United Kingdom
<b>85-7031</b>	SC100e	2%	22	250g	23271806	5053556008834	United Kingdom
<b>85-6995</b>	SC100e	2%	22	500g	23271806	5053556008216	United Kingdom
<b>85-7032</b>	SC100e	2%	26	250g	23271806	5053556008841	United Kingdom
<b>85-7033</b>	SC100e	2%	26	500g	23271806	5053556008858	United Kingdom
<b>85-7034</b>	SAC305	2%	18	250g	23271806	5053556008865	United Kingdom
<b>85-6998</b>	SAC305	2%	18	500g	23271806	5053556008247	United Kingdom
<b>85-7035</b>	SAC305	2%	20	500g	23271806	5053556008872	United Kingdom
<b>85-7036</b>	SAC305	2%	22	250g	23271806	5053556008889	United Kingdom
<b>85-6997</b>	SAC305	2%	22	500g	23271806	5053556008230	United Kingdom
<b>85-7037</b>	SAC305	2%	26	250g	23271806	5053556008896	United Kingdom
<b>85-7038</b>	SAC305	2%	26	500g	23271806	5053556008902	United Kingdom

For further information on pricing, delivery, and long-term stock agreements please contact your local business development person, telephone our main office on **01206 838000** or email **Sales@Rapidonline.com**.



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