

TECHNICAL DATA SHEET



Nexus Cored Solder Wire

Manual and Automated Soldering

Description

Nexus Cored Solder Wire is formulated for no clean, lead free, automated and hand soldering operations requiring fast wetting and defect free soldering of even the most difficult to solder components and board PCB finishes. Nexus Cored Solder leaves a minimal, clear, no clean residue. Tested to Industry standards including J-STD-004B and Bellcore GR78 Core (ECM), Nexus residues can be considered safe to remain on an assembly when no-clean technology is appropriate to the assembly end-use. Nexus Cored Solder offers excellent soldering performance and represents the next generation in lead free soldering.

Benefits

- No Clean
- Minimal, Clear, Non-Tacky Residues
- Powerful Wetting
- High Speed Soldering
- Excellent for Copper, Brass, Nickel and Zinc

Classification

| Flux | J-STD-004A | J-STD-004B | J-STD-004B (Amendment 1) |
|----------------|------------|------------|--------------------------|
| Nexus Nu-Clear | ROL0 | ROL1 | ROM1 |
| Nexus Gold | ROL0 | ROL1 | ROL1 |
| Nexus Space | ROL0 | ROL0 | ROL0 |

Properties

| | |
|---|--|
| 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 |
| Quantitative Halide (J-STD-004B) (IPC-TM-650 2.3.28) | 1.5% Nominal (Nu-Clear) <0.5% (Gold) <0.05% Max. (Space) |

Availability

| Product | Flux Content | Standard Packaging |
|----------------|---------------|---|
| Nexus Nu-Clear | 1%, 2% and 3% | 0.25Kg, 0.5Kg, 2.5Kg, 3Kg, 5Kg, 10Kg, 15Kg and 25Kg reels |
| Nexus Gold | 1%, 2% and 3% | 0.25Kg, 0.5Kg, 2.5Kg, 3Kg, 5Kg, 10Kg, 15Kg and 25Kg reels |
| Nexus Space | 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.

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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In 1994 a single European standard, EN 29453 (ISO 9453), superseded all other European national standards including: BS 219, DIN 1707, NFC 90-550.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.

Warton High Purity Solder Alloys are manufactured using only the 'Highest Purity Virgin Materials' this being part of Warton'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: Warton 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 Warton'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 Warton Metals offer a complete range of 'lead free' alloys to suit all applications.

Warton's range of lead free solder alloys includes:

| Alloy Name | Alloy Breakdown | Melting Temperature °C |
|------------|------------------------|------------------------|
| Tin | Sn100 | 232 |
| 96S | Sn96.5/Ag3.5 | 221 |
| 96/4 | Sn96/Ag4 | 221 |
| 98S | Sn98/Ag2 | 221-226 |
| TSC | Sn95.8/Ag3.5/Cu0.7 | 217-218 |
| SAC405 | Sn95.5/Ag4/Cu0.5 | 217-219 |
| Sc100e | Cu0.5-0.7/Sn Remainer | 217-219 |
| LM10A | Sn87/Ag10/Cu3 | 214-275 |
| SACXP0307 | Sn/Cu0.7/Ag0.3 | 217-227 |
| SAC305 | Sn96.5/Ag3/Cu0.5 | 217-220 |
| SAC300 | Sn97/Ag3 | 221-224 |
| SAC3 | Sn96.7/Ag2.8/Cu0.5 | 217-220 |
| SAC2 | Sn97.5/Ag2/Cu0.5 | 217-220 |
| SAC1 | Sn99.2/Ag0.3/Cu0.5 | 217-220 |
| 97C | Sn97/Cu3 | 227-310 |
| 99C | Sn99.3/Cu0.7 | 227 |
| 95A | Sb4.5-5.5/Sn Remainder | 235-240 |

Key: Sn-Tin, Ag-Silver, Cu-Copper

Other alloys available

Leaded Solder Alloys

Warton 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.

Warton's range of leaded solder alloys includes:

| Alloy Name | Alloy Breakdown | Melting Temperature °C |
|---------------|-----------------------|------------------------|
| 60/40 | Sn60/Pb40 | 183-190 |
| 63/37 | Sn63/Pb37 | 183 |
| 50/50 | Sn50/Pb50 | 183-215 |
| 45/55 | Sn45/Pb55 | 183-226 |
| 40/60 | Sn40/Pb60 | 183-238 |
| 35/65 | Sn35/Pb65 | 183-245 |
| 30/70 | Sn30/Pb70 | 183-255 |
| 20/80 | Sn20/Pb80 | 183-280 |
| Alloy 296 HMP | Sn5/Pb92/Ag3 | 296-301 |
| 15/85 | Sn15/Pb85 | 226-290 |
| LMP 62S | Sn62/Pb36/Ag2 | 179 |
| TLS/5 | Sn5/Pb94/Ag1 | 296-301 |
| HMP 5S | Sn5/Pb93.5/Ag1.5 | 296-301 |
| Sn10Pb88Ag2 | Sn10/Pb88/Ag2 | 268-290 |
| Alloy No1 | Sn50/Pb48.6/Cu1.4 | 183-215 |
| Alloy No2 | Sn60/Pb38.2/Cu1.8 | 183-190 |
| 1/99 | Sn1/Pb99 | 300 |
| 60/40 Ant | Sn60/Sb0.2-0.5/Pb Rem | 183-188 |

Key: Sn-Tin, Pb-Lead, Ag-Silver, Cu-Copper, Sb-Antimony

Other alloys available

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Wire gauge (Diameter)

The wire gauge (diameter) for Warton solid and flux cored solder wires is represented as SWG (Standard Wire Gauge). The equivalent imperial and metric values are shown below.

| 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 | 0.04 |
| 20 | 0.914 | 0.036 |
| 21 | 0.813 | 0.032 |
| 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 |

Other wire diameters available



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.