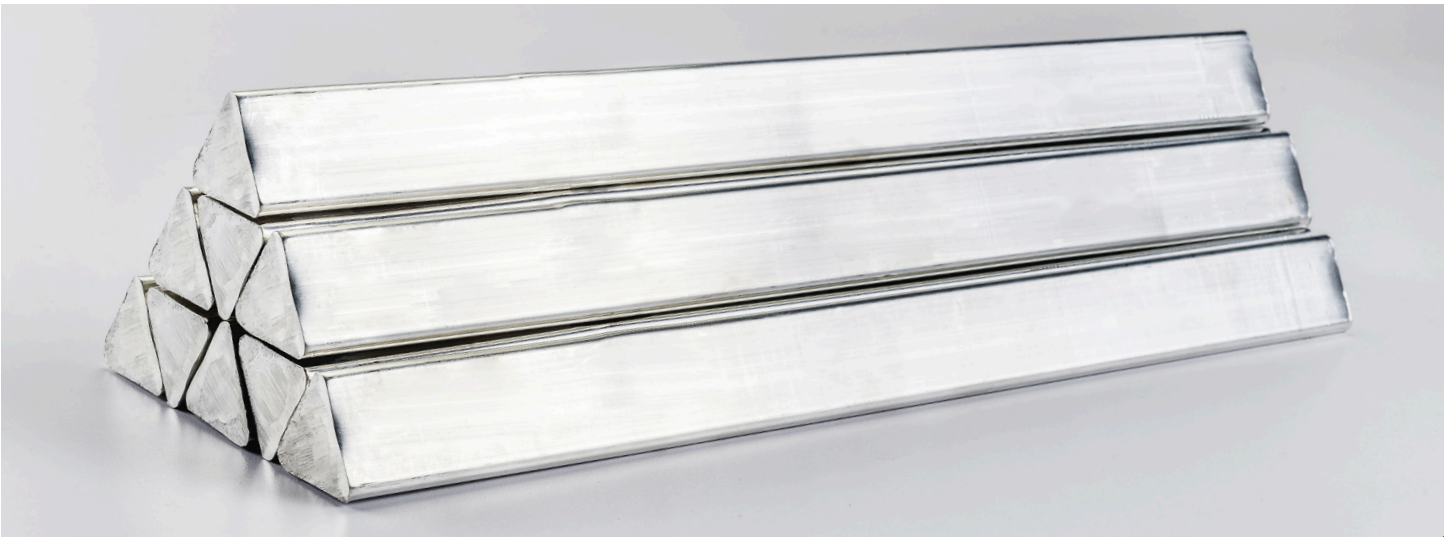
NT **NathanTrotter**
Trusted for Over 200 Years

Technical Data Sheet

NT100Ge **Solder Bar and Wire**



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Physical Properties

Melting Temp (°F)	440.6
Melting Temp (°C)	227
Density (kg/cm^3)	7.4
Expansion (%)	48
Deformation in the Traction	> 300 hours
Electrical Conductivity (μΩm) (with 1 kg load at 180°C)	40.09
Resistance to Traction (N/mm2)	32.3
Thermal Fatigue (-40/+80°C)	> 1000 Cycles

Chemical Composition (Conforms to JSTD-006)

ELEMENT	NT100Ge (%)	NT100Ge + (%)
Tin (Sn)	Balance	Balance
Copper (Cu)	0.6 - 0.8	0.08
Germanium (Ge)	0.002 - 0.01	0.002 - 0.01
Nickel (Ni)	0.04 - 0.06	0.04 - 0.06
Silver (Ag)	Max. 0.05	Max. 0.05
Aluminum (Al)	Max. 0.002	Max. 0.002
Arsenic (As)	Max. 0.03	Max. 0.03
Gold (Au)	Max. 0.03	Max. 0.03
Bismuth (Bi)	Max. 0.03	Max. 0.03
Cadmium (Cd)	Max. 0.002	Max. 0.002
Iron (Fe)	Max. 0.02	Max. 0.02
Indium (In)	Max. 0.03	Max. 0.03
Lead (Pb)	Max. 0.05	Max. 0.05
Antimony (Sb)	Max. 0.05	Max. 0.05
Zinc (Zn)	Max. 0.002	Max. 0.002

Limits are % max unless otherwise shown as range or stated otherwise. Except where otherwise indicated, the component elements in each alloy shall deviate from their nominal mass percentage by not > 0.10% of the alloy mass when their nominal percentage is ≤ 1.0%; by not > 0.20% of the alloy mass when their nominal percentage is > 1.0% to ≤ 5.0% or by not > 0.50% when their nominal percentage is > 5.0%.

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Quality Metals Since 1789
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ATTRIBUTES

NT100Ge is a high-quality, low-cost alternative to silver-bearing solder. The eutectic tin-copper-nickel alloy creates a shiny, smooth, robust interconnect for a wide range of electronics assembly requirements. With a melting temperature of 441°F, NT100Ge is compatible with all wave and selective solder equipment. Similar to the effect of phosphorous in Sn63 alloys, the small addition of Germanium in NT100Ge serves as a de-oxidant, which keeps drossing to a minimum. For PCB fabrication applications such as the hot air solder leveling (HASL) process during which copper levels increase, NT100Ge+ provides a low-copper solder solution.

NT100Ge can be used as a drop-in replacement for any existing 99C or SN100C solder bath, without the need for pot dumps or swaps. Once NT100Ge is in use, Nathan Trotter offers free, unlimited solder analysis to help maintain J-STD specifications and an optimal soldering process.

NT100Ge is available as extruded 1 kg tri-bar, 7 lb. feeder bar, and solid wire on spools.

- Consistently smooth and shiny solder joint
- Low-cost, lead-free solder alloy (no silver content)
- Superior wetting and performance
- Minimal dross
- Eutectic properties create efficient melting and freezing
- Operating temperature of 250°C - 275°C, similar to other lead-free solders

APPLICATION

Nathan Trotter solder bar performs favorably in wave soldering, solder dip, and solder coating applications. For solder plating applications, please refer to Nathan Trotter ANODES.

BAR AND WIRE SIZES

Standard sizes typically vary by application.

Application	Bar Description	Approx. Weight
Wave (PCB/THT)	Kilo Bar, Tri Bar, Feeder Bar, 3-6 mm Wire	2.2 lbs., 2.2 lbs., 7 lbs. Various Spools
Radiator	Ingot, Handy Bar, Notch Bar, 3-6 mm Wire	40 lbs., 20 lbs., 7 lbs., Various Spools
Industrial (Battery)	Ingot, Finger, Shot	60 lbs., 1 lb, 2 grams

PACKAGING

Packaging can be made to customer specification. Standard packaging is either boxed (22 lb. or 50 lb. boxes) or in the case of larger ingots, stacked and wrapped on a pallet. Each box is labeled with the alloy name, lot number, date of manufacture, weight of packaging unit, and any customer specific information required. Each bar is stamped with the alloy name, lot number, and Nathan Trotter branding. Each lot is accompanied by a certificate of analysis showing lot-specific chemistry.

POT MAINTENANCE

In conjunction with the use of Nathan Trotter solder bar, the company offers a complimentary solder pot analysis program to ensure the user's application remains at optimal chemistry. In-house OES spectrometers are used for a timely turnaround for customer samples. It is recommended that this program is utilized regularly to verify pot chemistry is within operating specification.

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RECYCLING / RECLAIM

Tin Technology and Refining (www.tintech.com) is the recycling/reclaim division of Nathan Trotter. Tin Tech works in conjunction with Nathan Trotter solder bar customers to recycle dross, drippings, residues, paste, and other solder scrap that is generated from the use of solder. Tin Tech operates as a permitted, environmentally responsible smelter with full reduction capabilities enabling optimal recoveries for all types of solder scrap material.

STORAGE, HANDLING, SHELF LIFE

Nathan Trotter Solder Bar has an infinite shelf life when stored in a dry, non-corrosive environment. Bars and packages should always be handled with care as material is naturally heavy.

HEALTH AND SAFETY

This product, during handling or use, may be hazardous to your health. Read the Safety Data Sheet (SDS) and warning label prior to use. SDS can be downloaded from our home page www.nathantrotter.com

Additional solder alloys manufactured by Nathan Trotter

Lead-Free Alloys

Sn96.5/Ag3.0/Cu0.5 (SAC305)
Sn99/Ag0.3/Cu0.7 (SAC 0307)
Sn100 (Tin Bar)
Sn95/Sb5
Sn97/3Cu

Leaded Alloys

Sn63/Pb37
Sn60/Pb40
Sn62/Pb36/Ag2
Sn30/Pb70
Sn20/Pb80
Sn40/Pb60

For Sales or Technical Assistance, contact Nathan Trotter & Co:
Info@nathantrotter.com or 610-524-1440

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