



NT100Ge+ Solder Bar and Wire

Physical Properties

Melting Temp (°F)	440.6
Melting Temp (°C)	227
Density (lg/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/mm ²)	32.3
Thermal Fatigue (-40/+80°C)	> 1000 Cycles

Chemical Composition

ELEMENT	NT100Ge+ (%)
Tin (Sn)	Balance
Copper (Cu)	0.06 - 0.08
Germanium (Ge)	0.01 - 0.015
Nickel (Ni)	0.16 - 0.21
Silver (Ag)	Max 0.05
Aluminum (Al)	Max 0.002
Arsenic (As)	Max 0.03
Gold (Au)	Max 0.03
Bismuth (Bi)	Max 0.03
Cadmium (Cd)	Max 0.002
Iron (Fe)	Max 0.02
Indium (In)	Max 0.03
Lead (Pb)	Max 0.005
Antimony (Sb)	Max 0.05
Zinc (Zn)	Max 0.002

*NT 100Ge+ offers the lowest lead levels of any commercially available solder at < .005%.

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%.



ATTRIBUTES

Produced using the same elements as the series of solder alloys marketed as SN100C® by Nihon Superior Sha Co.,Ltd. and its licensees*, NT100Ge+ is a high-quality, low-cost alternative to silver-bearing solder. Designed specifically for the printed circuit board fabrication process, the eutectic tin-copper nickel alloy creates a shiny, smooth finish which is ideal for HASL. A few added features that improve the performance and value of the alloy: Copper levels have been reduced so that the solder bath will remain in spec longer; higher nickel and germanium content reduces the need for expensive additives; high purity tin is used to achieve the lowest trace lead levels of any solder.

NT100Ge+ can be used as a drop-in replacement for any existing SN100Cle 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 290°C - 320°C, similar to other lead-free solders

*This solder alloy was previously subject to a patent (US6180055) that expired in March 2019. Nihon Superior Sha Co., Ltd. holds a separate patent for a solder joint (US8999519B2) with a distinct chemical composition, consisting of, among other things, either exactly .01% by weight Cu or 7.6% by weight Cu. NT100Ge has a certified copper content of .5-.7% which lies significantly outside the solder joint patent criteria. If there are concerns about the full scope of the US8999519B2 patent or solder joint composition, please consult an attorney. Nathan Trotter & Co., Inc. does not possess or confer to customers any intellectual property rights relating to the composition of their solder joints or the name SN100C®, which is a registered trademark of Nihon Superior Sha Co., Ltd.

APPLICATION

Nathan Trotter solder bar performs favorably in HASL, 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.

Main Office

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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.nathantrrotter.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@nathantrrotter.com or 610-524-1440**

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