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## **Tanaka Precious Metals Commence Sales of Highly Electrically Conductive Silver Alloy Bonding Wire on January 15**

Electrical conductivity improved by approx. 30%, providing the same performance as high-purity gold bonding wire

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Tanaka Holdings Co., Ltd. (a company of Tanaka Precious Metals, Head office: Chiyoda-ku, Tokyo; President & CEO: Hideya Okamoto) today announced that Tanaka Denshi Kogyo K.K. (Head office: Chiyoda-ku, Tokyo; President & CEO: Koichiro Tanaka) of Tanaka Precious Metals, which boasts the world's leading share in bonding wire (wiring material) manufacturing, has developed "SEC" silver alloy bonding wire (referred to as "SEC" below) with electrical conductivity improved by approximately 30% compared to the existing product, and will commence sales on January 15.

SEC has electrical resistivity of 2.8 micro-ohm centimeters ( $\mu\Omega \cdot \text{cm}$ ), and electrical conductivity has improved by approximately 30% compared to the existing product (Tanaka's "SEB"). As a result, it provides electrical resistivity comparable to that of the electrical resistance (approximately  $2.3 \mu\Omega \cdot \text{cm}$ ) of bonding wire made of 99.99% purity gold (referred to as 4N-Au wire below). Furthermore, the FAB (Free Air Ball: the ball shape formed by the melted tip of the bonding wire) softness has also been improved to the same level as 4N-Au, providing high bondability that meets high performance requirements without damaging aluminum electrodes.

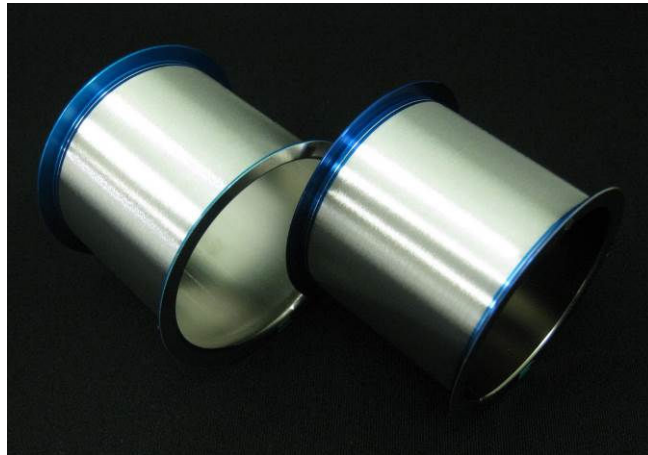
### **■ Costs Can be Reduced by Approximately 80% with the Same Performance as 4N-Au Wire**

When replacing 4N-Au wire with silver alloy bonding wire, it is possible to reduce precious metal bullion costs by approximately 80%<sup>(\*)</sup>, but increased electrical resistivity (lower electrical conductivity) was an issue. SEC optimizes the alloy composition that caused the increased electrical resistivity, providing the same performance as 4N-Au wire by improving processing methods. Customers can use SEC in all areas where 4N-Au wire is used such as IC and LSI wiring material. The features of SEC are as follows.

- Electrical conductivity: Has been improved by approximately 30%, providing the same level of electrical conductivity as 4N-Au wire.
- Bondability: SEC has excellent bondability due to FAB softness improvement comparable to 4N-Au wire.
- Cost: Compared to the precious metal bullion cost of 4N-Au wire, the precious metal bullion cost of SEC is approximately 80% lower.

- Corrosion resistance: SEC has the same level of high reliability as the existing product.
- Productivity: SEC allows for sufficient adhesion under almost the same usage conditions as 4N-Au wire.
- SEC can be attached using inexpensive and safe nitrogen gas by partially modifying the equipment for gold bonding wire.

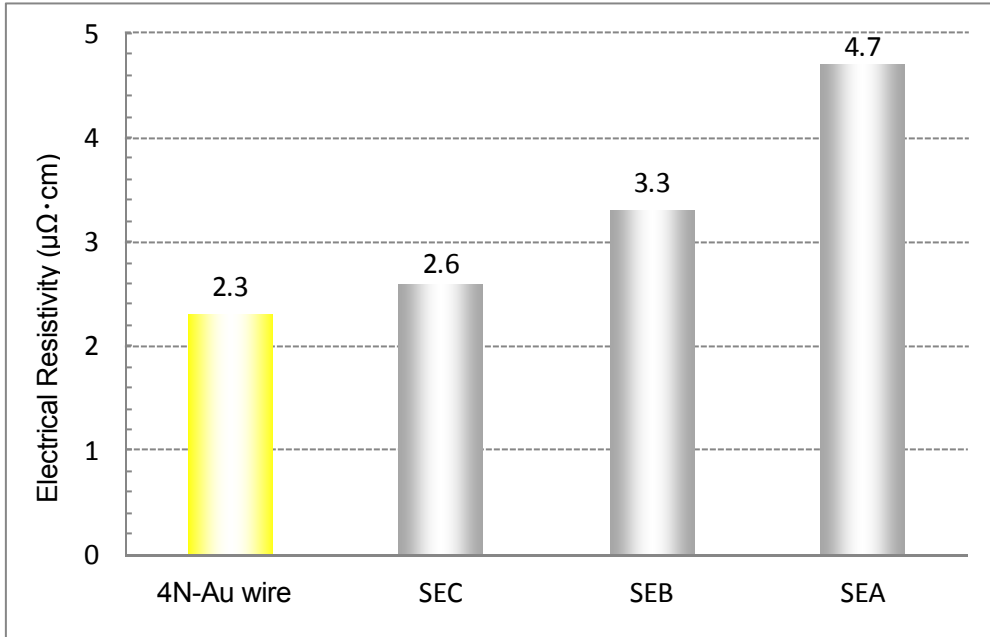
The size of the silver alloy bonding wire market is currently approximately 60 million meters, but Tanaka Denshi Kogyo expects this to grow to approximately 200 million meters in three years, and aims for monthly sales of 500 million yen in three years by offering SEC to semiconductor manufacturers and LED manufacturers. Tanaka Denshi Kogyo has scheduled to exhibit SEC at the 15th IC Packaging Technology Expo to be held at Tokyo Big Sight (Koto-ku, Tokyo) for three days from January 15 (Wed) until January 17 (Fri). Technical staff will constantly be on-site in the exhibit booth (East 43-001) to respond to interviews.



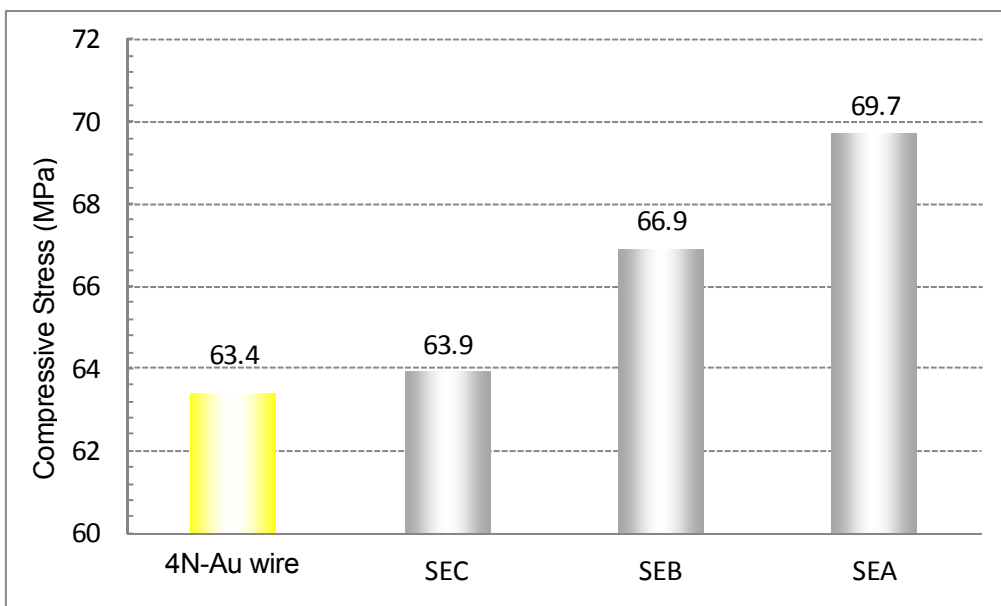
Appearance of SEC

[Reference Materials]

■ Comparison of electrical resistivity



■ Comparison of hardness in FAB compression test



(\*1) When the wire diameter is 25 micrometers (micro is 1/1,000,000).

■**Tanaka Holdings Co., Ltd. (Holding company of Tanaka Precious Metals)**

Headquarters: 22F, Tokyo Building, 2-7-3 Marunouchi, Chiyoda-ku, Tokyo

Representative: Hideya Okamoto, President & CEO

Founded: 1885

Incorporated: 1918

Capital: 500 million yen

Employees in consolidated group: 3,895 (FY2012)

Net sales of consolidated group: 839.2 billion yen (FY2012)

Main businesses of the group:

Manufacture, sales, import and export of precious metals (platinum, gold, silver, and others) and various types of industrial precious metals products. Recycling and refining of precious metals.

Website: <http://www.tanaka.co.jp/english> (Tanaka Precious Metals),

<http://pro.tanaka.co.jp/en> (Industrial products)

■**Tanaka Denshi Kogyo K.K.**

Head office: 22F Tokyo Building, 2-7-3 Marunouchi, Chiyoda-ku, Tokyo

Representative: Koichiro Tanaka, President & CEO

Incorporated: 1961

Capital: 1,880 million yen

Employees: 151 (FY2012)

Net sales: 32,323 million yen (FY2012)

Businesses: Manufacture of high-purity bonding wire (gold, gold alloy, aluminum, aluminum-silicon, copper, etc.)

Website: <http://www.tanaka-bondingwire.com/>

**<About the Tanaka Precious Metals>**

Established in 1885, the Tanaka Precious Metals has built a diversified range of business activities focused on the use of precious metals. On April 1, 2010, the group was reorganized with Tanaka Holdings Co., Ltd. as the holding company (parent company) of the Tanaka Precious Metals. In addition to strengthening corporate governance, the company aims to improve overall service to customers by ensuring efficient management and dynamic execution of operations. Tanaka Precious Metals is committed, as a specialist corporate entity, to providing a diverse range of products through cooperation among group companies.

Tanaka Precious Metals is in the top class in Japan in terms of the volume of precious metal handled, and for many years the group has developed and stably supplied industrial precious metals, in addition to providing accessories and savings commodities utilizing precious metals. As precious metal professionals, the Group will continue to contribute to enriching people's lives in the future.

The eight core companies in the Tanaka Precious Metals are as follows.

- Tanaka Holdings Co., Ltd. (pure holding company)
- Tanaka Kikinzoku Kogyo K.K.
- Tanaka Kikinzoku Hanbai K.K.
- Tanaka Kikinzoku International K.K.
- Tanaka Denshi Kogyo K.K.
- Electroplating Engineers of Japan, Limited
- Tanaka Kikinzoku Jewelry K.K.
- Tanaka Kikinzoku Business Service K.K.