

October 17, 2024
TANAKA Precious Metals
TANAKA Holdings Co., Ltd.

TANAKA Announces “TK-SK” Palladium Alloy for Semiconductor Test Equipment

New palladium alloy with a Vickers hardness of 640HV reduces wear-related deformation of probe pins, contributing to longer service life and lower costs for semiconductor test equipment.

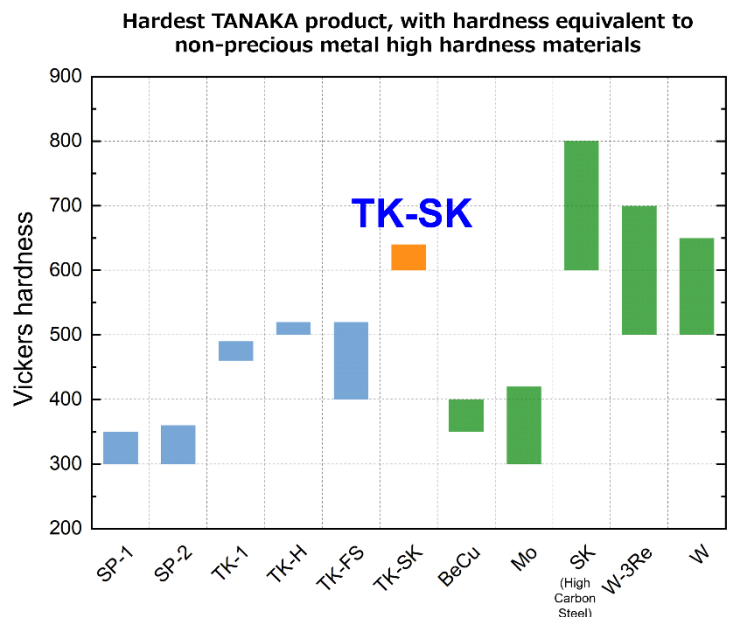
TANAKA Kikinzoku Kogyo K.K. (Head office: Chuo-ku, Tokyo; Representative Director & CEO: Koichiro Tanaka), which develops industrial precious metal products as one of the core companies of TANAKA Precious Metals, has announced the development of [TK-SK](#), a palladium alloy designed for probe pins used in the final testing stage (post-processing) of semiconductor packages. This new product will be showcased via a panel display at SWTest Asia 2024, an exhibition scheduled for October 24–25, 2024, in Fukuoka Prefecture, Japan, with samples available for shipping before the end of the year.

Key Features of “TK-SK”:

640HV Hardness: This palladium alloy offers maximum hardness of 640HV, making it ideal for use in test socket applications, particularly in the final continuity testing stage (back-end process).



“TK-SK” product image



Hardness comparison between TANAKA probe pin materials and non-precious metal high hardness materials

TANAKA Kikinzoku Kogyo has manufactured and supplied a range of precious metals for probe pins used in testing equipment in the front-end and back-end processes of semiconductor manufacturing. **As a palladium alloy for probe pins, TK-SK exhibits maximum hardness of 640HV that makes it suitable for use in test socket applications mainly in the final continuity testing stage (back-end process).**

Demand for high-hardness probe pins has increased in recent years. However, one common challenge with harder materials is that they can be more difficult to process and are prone to breaking during machining. Additionally, palladium alloys on the market previously had a maximum hardness of around 560HV. Through its unique processing technology, TANAKA Kikinzoku Kogyo has successfully developed TK-SK with a hardness of 640HV. By 2028, the company aims to ship 1.5 times the volume of its existing products.

Pogo pin-type probe pins are typically used in test sockets. During testing, the tip or plunger of the probe pin can become deformed due to friction from contact with substrates. Solder may also adhere to the plungers, needing regular cleaning, which further increases the risk of deformation due to friction. **High-hardness probe pins, like TK-SK, reduce wear-related deformation, leading to longer service life and lower maintenance costs for semiconductor test equipment.**

Looking ahead, TANAKA Kikinzoku Kogyo plans to continue contributing to the development of the semiconductor market, which is expected to experience significant growth in the coming years.

TK-SK Properties (Reference Values)

Physical properties	Reference values
Wire diameter range (mm)	0.50-0.8
Melting point (°C)	997°C
Density (g/cm ³)	10.52
Vickers hardness	640
Electrical resistivity (μΩ·cm)	16.1
Conductivity (%IACS)	10.7

Exhibition details

- Exhibition name: SWTest Asia 2024
- Dates: October 24 (10:00–15:30) and October 25 (10:00–16:00), 2024
- Venue: Hilton Fukuoka Sea Hawk, Japan
- Official website: <https://www.swtestasia.org/>
- Exhibitor: TANAKA Kikinzoku Kogyo K.K.
- Booth No.: 210
- Panel display: Palladium alloy for probe pins (TK-SK wire, TK-FS wire and sheet), copper-silver alloy for probe pins (TK-101 sheet), and precious metal plating solution for probe cards

Company Information

■ About TANAKA Precious Metals

Since its foundation in 1885, TANAKA Precious Metals has built a portfolio of products to support a diversified range of business uses focused on precious metals. TANAKA is a leader in Japan regarding the volume of precious metals it handles. Over many years, TANAKA has manufactured and sold precious metal products for industry and provided precious metals in such forms as jewelry and assets. As precious metals specialists, all Group companies in Japan and worldwide collaborate on manufacturing, sales, and technology development to offer a full range of products and services. With 5,355 employees, the group's consolidated net sales for the fiscal year ending December 2023, was 611.1 billion yen.

■ Global industrial business website

<https://tanaka-preciousmetals.com/en/>

■ Product inquiries

TANAKA Kikinzoku Kogyo K.K.

<https://tanaka-preciousmetals.com/en/inquiries-on-industrial-products/>

■ Press inquiries

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