

May 9, 2023

TANAKA Precious Metals
TANAKA Holdings Co., Ltd.

TANAKA Launches New Alloy “TK-FS” for Probe Pins

**Development of material with high hardness, low specific resistance,
and high pliability that allows for use in a wide range of probe pins
for semiconductor test equipment**

TANAKA Kikinzoku Kogyo K.K. (Head office: Chiyoda-ku, Tokyo; Representative Director & CEO: Koichiro Tanaka), which operates the TANAKA Precious Metals manufacturing business, announced the launch of [TK-FS](#), a new alloy for probe pins of probe cards and test sockets used in the testing process of semiconductor manufacturing. Samples started shipping in July of 2022, and a material with even better performance has been achieved through continuous research and development.



“TK-FS” product image

So far, TANAKA Kikinzoku Kogyo has been manufacturing and selling palladium (Pd) materials mainly for pogo pin-type probe pins used in test sockets for final testing (post-processing) of semiconductor packages. The latest TK-FS launch is a **material that can be used in a wide range of types of probe pins** besides pogo-pin types, such as cantilever-type or vertical-type for wafer testing (pre-processing) probe cards. **This product has three unique attributes: a Vickers hardness of at least 500, specific resistance of at most $7.0\mu\Omega\cdot\text{cm}$, and durability that can withstand 10 or more times of repeated bending.** In TANAKA Kikinzoku Kogyo’s existing products, there is no material that has simultaneously achieved these three qualities of high hardness, low specific resistance, and high pliability. This product succeeded in addressing all requirements, allowing the same material to be used in various types of probe pins.

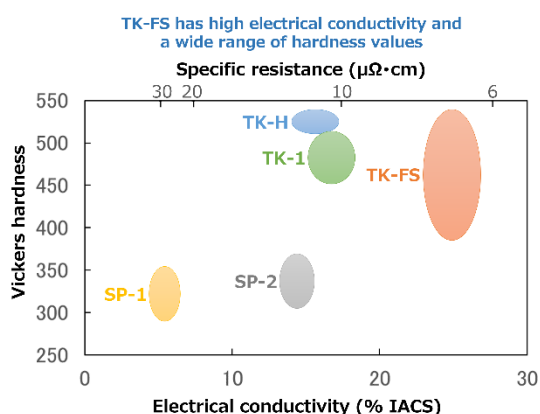
In the manufacturing process of semiconductors, semiconductor test equipment is used to conduct testing—divided into several stages—to see if the semiconductor is operating properly, how many years it can operate, and whether it is operating safely. Testing using semiconductor test equipment requires extremely high reliability as it is used to assess the performance of the main operations of products that use semiconductors. With the spread of IoT today, the demand for semiconductor-related products is expanding, including the necessity of semiconductors in electronic devices, as well as in a wide range of fields such as automobile and home appliances. At the same time, the market for semiconductor test equipment is also expected to continue developing.

As this product is a material that combines the functions of high Vickers hardness, low specific resistance, and high pliability, it can be used for various types of probe pins. It is expected to contribute toward longer service life and lowering costs in semiconductor test equipment.

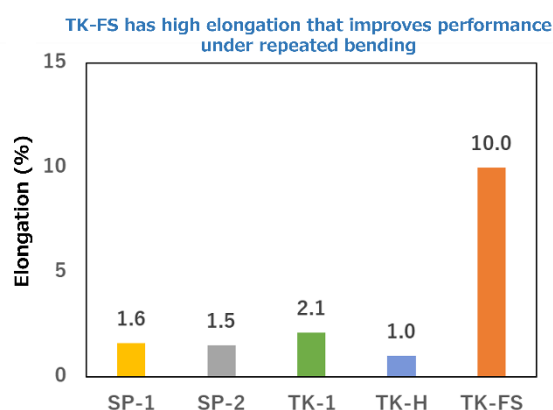
For this product, the target is to achieve twice the shipment volume compared to that of existing products by 2028. In the future, the goal is to shift most of the existing products for probe pins to TK-FS. TANAKA Kikinzoku Kogyo seeks to contribute toward the development of the semiconductor market, which is expected to grow significantly going forward.

■ Features of TK-FS

- **Simultaneously achieves the three functions** of a Vickers hardness of at least 500, specific resistance of at most $7.0\mu\Omega\cdot\text{cm}$, and durability that can withstand 10 or more times of repeated bending (based on TANAKA's standards)
- Using unique processing technology, it is possible to adjust and offer a wide range of Vickers hardness values (400 to 520)
- Has a higher elongation (8% to 13%) compared to TANAKA Kikinzoku Kogyo's existing probe pin materials



Comparison of probe pin materials
(hardness/specific resistance @20°C)



Comparison of probe pin materials (elongation)

■ 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 volumes of precious metals handled. Over the course of many years, TANAKA has not only manufactured and sold precious metal products for industry but also provided precious metals in such forms as jewelry and assets. As precious metals specialists, all Group companies in Japan and around the world collaborate and cooperate on manufacturing, sales, and technology development to offer a full range of products and services. With 5,225 employees, the Group's consolidated net sales for the fiscal year ending March 31, 2022, were 787.7 billion yen.*

*From the current consolidated fiscal year, the amounts of sales for some transactions are indicated as net values due to the application of the Accounting Standard for Revenue Recognition.

■ 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

TANAKA Holdings Co., Ltd.

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