

Press release

Hanau, Germany, January 24, 2018

Heraeus Electronics and Nihon Handa agree on patent cross-license for sinter pastes

Customers to benefit from larger sinter paste product portfolio

Heraeus Electronics, leading supplier of material solutions for the semiconductor and electronics industries, is strengthening its collaboration with Nihon Handa by concluding a cross-license agreement for sinter pastes. The Japanese company is a global manufacturer of materials and equipment for the electronics industry. The cross-license will provide both companies' clients with access to a wide product portfolio.

Both companies have long-standing expertise in sinter technologies. Sinter pastes are used particularly in power electronics modules. The two patent portfolios in combination refer to various aspects such as morphology, metallic particle size, or sintering tools. Health aspects and price competitiveness have led Heraeus Electronics and Nihon Handa to use micro silver powder rather than nanopowder.

"With the patent cross-license we strengthen our leading material competence and support our customers more targeted with innovative products," said Dr. Frank Stietz, President of Heraeus Electronics Global Business Unit. He also states, "Only through substantial investments in research and development can we meet today's demand in power electronics. Therefore, the protection of our technology by patents is an important element of our strategy, which we enforce worldwide."

Mr. Makoto Asami, President of Nihon Handa, also comments that global compliance of fair trade and protection of intellectual property rights are indispensable for proper advancement in technology and innovation in our electronic industry.

About Heraeus

Heraeus, the technology group headquartered in Hanau, Germany, is a leading international family-owned company formed in 1851. With expertise, a focus on innovations, operational excellence and an entrepreneurial leadership, we strive to continuously improve the businesses of our customers around the world.

We create high-quality solutions for our customers and strengthen their long-term competitiveness by combining material expertise with technological know-how. Our ideas are

focused on important issues such as the environment, energy, health, mobility and industrial applications. Our portfolio ranges from components to coordinated material systems which are used in a wide variety of industries, including the steel, electronics, chemical, automotive and telecommunications industries.

In the 2016 financial year, the FORTUNE Global 500 listed company generated revenues without precious metals of €2.0 bn and a total revenue of €21.5 bn. With approximately 12,400 employees worldwide in more than 100 subsidiaries in 40 countries, Heraeus holds a leading position in its global markets.

In 2016, the Foundation for Family Businesses named Heraeus as one of the "Top 10 Family Businesses" in Germany.

About Heraeus Electronics

Heraeus Electronics - a Global Business Unit of the Heraeus Group - is one of the leading manufacturers of materials for the packaging of integrated circuits in the electronics industry. The company deals with sophisticated material solutions for semiconductor and automotive industry, consumer goods, energy, industry electronics as well as communications and telecommunications. Core competences include bonding wires, assembly materials, thick film pastes, as well as roll clad strips and substrates.

About Nihon Handa

Nihon Handa Co., Ltd., a Japanese company engaged in development, manufacturing and distribution of solder products, was inaugurated in 1910. Our group containing subsidiaries in Shanghai, Hong Kong and Malaysia employs as many as 150 people, and reaches total revenues of 4 billion Japanese Yen. Also we have been actively trying global expansion to the market through reliable distributors. Besides solder products, we have developed conductive adhesives named Dodent since 1990, and expanded our product lineup to commercialize silver sintered materials and thermal conductive materials.

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