

The Agency of Industrial Science and Technology (AIST) of Japan has developed and patented three-dimensional network structures of silica particles that provide excellent mechanical and high-temperature properties. Heat-transfer fluids, paints & coatings, and other specialty applications of these functional polymers are enabled by this opportunity.

PATENTED TECHNOLOGY

When an alkoxy silane polymer is subjected to hydrolysis and polymerization in a solvent of water and alcohol in the presence of an acid catalyst, a new structure with unique properties is obtained.

Current U.S. patents granted that protect the technology include:

<i>US Patent</i>	<i>Features</i>
5,656,250	<ul style="list-style-type: none"> • Three-dimensional network structure comprising spherical silica particles and method of producing same. • Surfaces of silica particles are coated with water-soluble polymer such as polyacrylic acid, PEG, polyvinyl acetate, polyvinyl alcohol, water soluble proteins, or sodium polystyrenesulfonate.
5,900,450	<ul style="list-style-type: none"> • Three-dimensionally-connected silica sphere-resin composite and method for production thereof. • No appreciable loss of elastic modulus at glass transition point of the resin. • Excellent high-temperature stability (600 – 800 deg C), even with high silica content.
6,071,997	<ul style="list-style-type: none"> • Three-dimensionally-connected silica spheres-resin composite and method for production thereof. • Spherical silica particles with diameter of 6 – 30 microns. • Surface area of 300 – 400 m²/g. • Pore radius of 5 – 10 nm.

TECHNOLOGY

The technology enables production of either thermosetting or thermoplastic resin composites.

- *Thermosetting* resins of epoxy, polyimide, unsaturated polyester, silicone, or phenolics.
- *Thermoplastic* resins of polypropylene, polyethylene, polyamide, PVC, PVA, or methacrylics.



INTELLECTUAL CAPITAL

On April 1, 2001, Japan's National Institute of Advanced Industrial Science and Technology began operations as the "new" AIST.

The new AIST is a research organization that comprises 15 research institutes previously under the former Agency of Industrial Science and Technology in the Ministry of International Trade and Industry and the Weights and Measures Training Institute.

AIST is Japan's largest public research organization with research facilities and more than 3,200 employees across Japan.

FOR MORE INFORMATION

AIST is seeking to license these technologies and assist with their commercialization success to qualified organizations.

Consideration will be provided to a range of financial, strategic, and commercial investment options.

Certain circumstances will warrant consideration for nominal funding from AIST.

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