QUANTUM SPHERE®
ADVANCED MATERIALS FOR CLEAN ENERGY APPLICATIONS

Product Profile

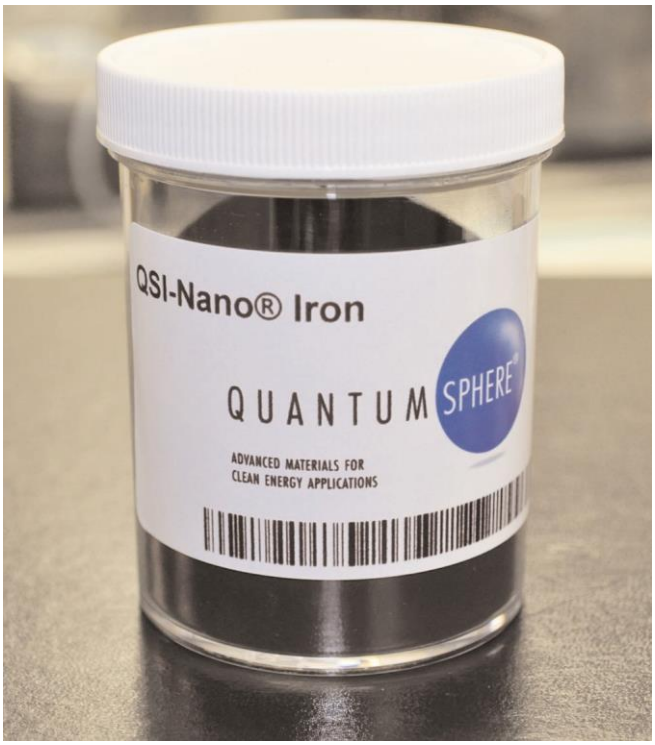
QSI-Nano® Iron

NANO IRON

QSI-Nano® iron nanopowder is manufactured by a patented vapor condensation process. Average particle sizes from 30 to 60 nanometers can be produced with independent control of the iron oxide coating thickness.

QSI-Nano® Iron Typical Analysis

Chemical Formula	Fe (core) / FeO_x (shell)
Crystal Phase	FCC / amorphous
Particle Size Range	30 – 60 nm
Oxide Thickness Range	≥ 5.1nm
Specific Surface Area (BET)	15 – 30 m^2/g
Color	Black
Bulk Density	0.275 g/cm^3
Fe Density	7.87 g/cm^3
FeO Density	5.7 g/cm^3
T_{melt} of Fe	1538 ºC



QSI-Nano® iron powder

Custom Formulation and Production

Depending on a customer's specific application and needs, QSI offers nano iron as a dry, unfunctionalized powder, or dispersed in a selected carrier fluid.

Pricing Information

Call for a quote. Prices are subject to change without notice. Delivery time and shipping charges will be quoted at time of order.

Quotes, Orders and Information

Call 714-545-NANO (6266) to speak with a product specialist or visit us online at www.qsinano.com.

QSI-Nano® iron is available in sizes ranging from 10 to 40 nanometers. Iron content is controlled by oxide thickness and can range from 30% wt. to 50% wt.

QuantumSphere, Inc.

2905 Tech Center Drive
Santa Ana, CA 92705
714-545-NANO (6266)
Fax: 714-545-6265

www.qsinano.com

QSI-Nano® Iron Applications

ADVANCED APPLICATIONS	QSI-Nano® ADVANTAGES
Magnetic Materials • Coatings • GMR Sensors • Memory and Storage	Excellent dispersion.
Electrodes • Batteries • Fuel Cells • Water Electrolysis • Integrated Circuits • Capacitors	High surface area and greater surface energy combine to produce significant increase in reactivity.
Chemical Catalysis • Fischer-Tropsch Gas-to-Liquid (GTL) • Steam, CO or CO_2 Reformation • Hydrogenation • Ammonia Production (Haber-Bosch)	Increased product yield, increased product selectivity. Increased activity at lower temperature and pressure.

Avoid contact with skin and eyes. Avoid breathing dust. Use only with adequate ventilation. Always use Neoprene or Nitrile protective gloves and safety glasses. NIOSH certified respirators are recommended and will be useful for protecting workers from nanoparticle inhalation when opening/emptying containers or processing this material. Do not eat or drink in work area. Wash in soap and water after exposure to any dust. Refer to MSDS prior to handling this material.

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As of 04/02/15