QUANTUM SPHERE®
ADVANCED MATERIALS FOR CLEAN ENERGY APPLICATIONS

Product Profile

QSI-Nano® Copper

NANO COPPER

QSI-Nano® copper nanopowder is manufactured by a patented vapor condensation process. Average particle sizes from 20 to 50 nanometers can be produced with independent control of the copper oxide coating thickness.

QSI-Nano® Copper Typical Analysis

Chemical Formula	Cu (core) / Cu0 (shell)
Crystal Phase	FCC / amorphous
Particle Size Range	20 – 50 nm
Oxide Thickness Range	≥ 2 nm
Specific Surface Area (BET)	10 – 40 m^2/g
Color	Black
Bulk Density	0.2 g/cm^3
Cu Density	8.96 g/cm^3
Cu0 Density	6.31 g/cm^3
T_{melt} of Cu	1083 °C

Custom Formulation and Production

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

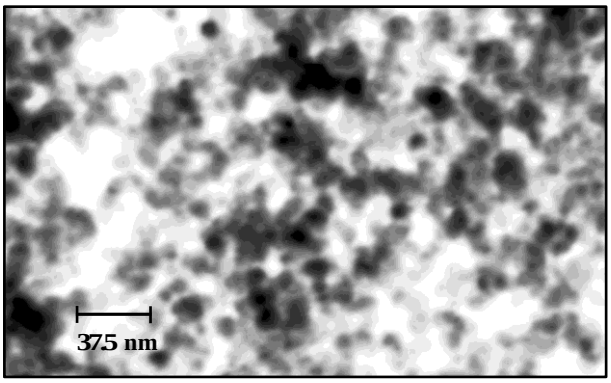
Pricing Information

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® copper powder



QSI-Nano® copper is available in sizes ranging from 20 to 50 nanometers. Copper content is controlled by oxide thickness and can range from 20% to 90%.

QuantumSphere, Inc.

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

www.qsinano.com

QSI-Nano® Copper Applications

ADVANCED APPLICATIONS	QSI-Nano® ADVANTAGES
Filtration • Gas Separation • Biological Protection Systems	Filters solutions or gases to remove bacteria, viruses, bio-hazards and pollutants. Anti-microbial.
Electrodes • Integrated Circuits • Batteries • Solar Cells • Capacitors	Huge surface area and greater surface energy combine to produce orders of magnitude increase in reactive performance.
Coatings and Sealants • Thin Films • Paints • Polymers • Inks	• Highly Conductive • Printed Circuits • Increased Thermal Conductivity • Radio Frequency Shielding
Chemical Synthesis • Methanol Synthesis	Increased surface area provides increase in catalyst activity.

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.

QuantumSphere, Inc.

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

www.qsinano.com

As of 04/02/15