Introduction:

Since its humble beginnings in 1995, Nanomat, Inc. has helped various organizations successfully employ nanomaterials and nanotechnologies for a wide variety of applications. As an established and respected manufacturer of nanomaterials, Nanomat has developed efficient and cost-effective processes to manufacture numerous types of nanomaterials. Our operations span three buildings and 45,000 ft^2 comprising laboratories, pilot plant, and manufacturing plant. Our state-of-the-art manufacturing and analytical facilities enable us to manufacture and characterize virtually any nanomaterial in virtually any quantity – from grams to kilos to tons. We manufacture these nanomaterials using the most appropriate synthesis methods, depending on our customers' requirements and the intended applications. We also work closely with our customers to develop new processes, products, and applications for these nanomaterials. *The primary differentiator between our competitors and us is our capability to use a wide variety of synthesis methods to cost-effectively manufacture these nanomaterials to suit our customers' needs.* Also, our profitability (we are one of the very few profitable nanomaterials companies), expertise, and diversity of skills insure that we can and do devote adequate resources to continuously improve and refine our products and processes.

Unique Capabilities, Expertise, and Qualifications:

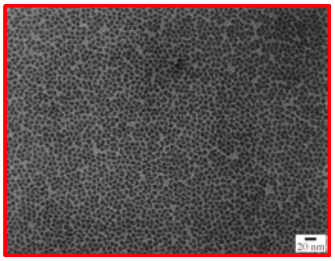
Type of Nanomaterials Manufactured	Almost any organic and inorganic material, including ceramics, metals, polymers, and their alloys and composites. We can manufacture any nanomaterial our customers may require.
Production Quantity	Some materials can be produced in tons and others can currently be produced only in tens of kilograms per day. We manufacture nanomaterials on order to our customers' specifications. Samples of some nanomaterials are available for testing. Also, we can manufacture sample quantities, if needed.
Dispersion Medium	The dispersion medium is heavily dependent on the nanomaterial itself. However, surface treatments and other techniques can be used to make the nanomaterials compatible with the medium, which may usually be incompatible.
Morphology of the Nanomaterials	The morphology can be spherical, angular, faceted, rod-shaped, belt-like, platy, acicular depending on the nanomaterial itself, synthesis methods, and precursors.
Size of Nanomaterials	Nanomat can produce nanomaterials with particle sizes ranging from 1-400 nm.
Color of Nanomaterials	The color of a nanomaterial can be tailored by varying its particle size by exploiting the quantum-size effects.
Particle Size Distribution	We can manufacture nanomaterials that are monodisperse (single particle size with very narrow particle size distribution, typically ± 1%). We also have the capability to manufacture non-agglomerated and agglomerated nanoparticles, depending on the need. Typically, agglomerated nanomaterials are easier and cheaper to manufacture than non-agglomerated, monodisperse nanoparticles.
Cost of Nanomaterials	Some nanomaterials cost few dollars a pound, whereas others cost a few hundred dollars a gram. The cost typically varies based on many factors, such as particle size, particle size distribution, degree of agglomeration, nanomaterial itself, purity, and precursors used.
Technical Qualifications and Expertise	Nanomat's personnel are a veritable who's who of nanomaterials and nanotechnologies. Our team members include materials specialists, physicists, electrical/electronics engineers, chemists, chemical engineers, biologists, and metallurgists. Our staff members and consultants are experts at various synthesis methods, such as sol-gel, plasma, chemical, polyol, hydrothermal, high-energy ball milling/mechanical alloying, mechanochemical, sonochemical, aerosol processing, and other chemical and physical techniques.
Manufacturing and Analytical Capabilities	Nanomat possesses all the requisite synthesis, manufacturing, and analytical equipment and expertise necessary to undertake any nanomaterials challenge. Our capabilities are also augmented by our extensive associations and ties with universities, government laboratories, corporations, and non-profit institutions.

- *Chemical synthesis*
- *Mechanochemical synthesis*
- *Mechanical alloying*
- *Plasma synthesis*
- *Transmission electron microscope with Image Acquisition and Processing System (IAPS)*
- *Scanning electron microscope with EDS and IAPS*
- *FT-IR/UV-Vis Spectrometers/Fluorimeter*
- *Mass Spectrometers*
- *Metallograph*
- *Metallographic Samples Preparation equipment*
- *Universal testing machine*
- *Mechanically-fluidized vacuum (MFV) furnace*
- *X-ray Diffractometer*
- *Thermal analysis equipment*
- *75-ton hot-press*
- *High-temperature atmosphere & vacuum furnaces*
- *Many more*

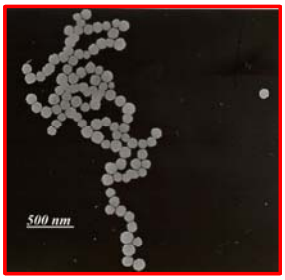
Nanomaterials Applications	Representative applications can be found in various fields including, but are not limited to, cosmetics, pharmaceuticals, drug-delivery, paints, paper, pigments, optical devices, polymer/rubber, display devices, biomedical devices, automotive, appliances, energy storage devices (batteries, fuel cells, capacitors/dielectrics, etc.), sensors, structural, aerospace, defense, and petrochemical industries..
IP Protection	Patents and trade secrets.

Nanomat Facilities:

Examples of Nanomat Nanomaterials:

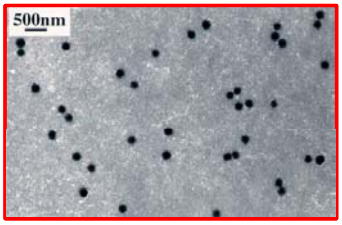


Fe

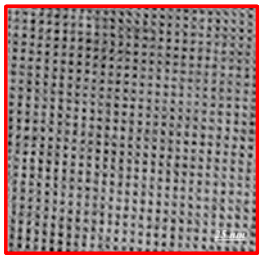


Fe-Co

Co

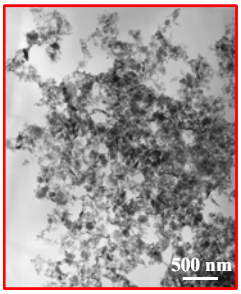


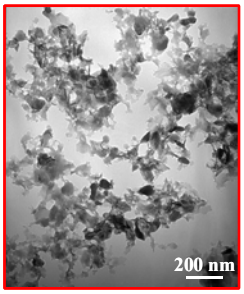
Fe-Co



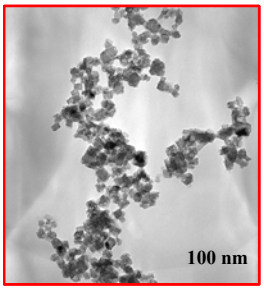
Fe-Pt

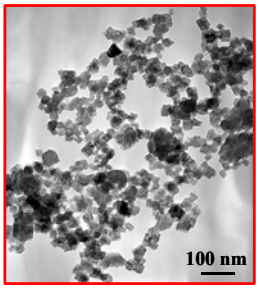
Fe-Co



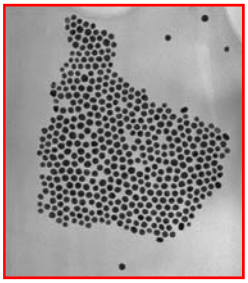


NanoTalc

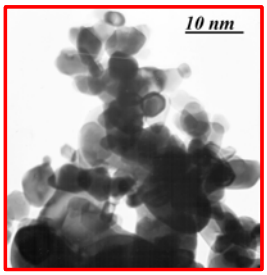




NanoCalc

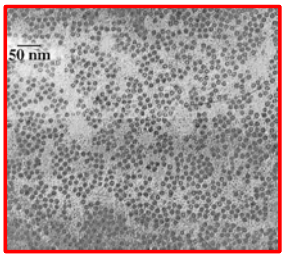


NanoGold (8nm)

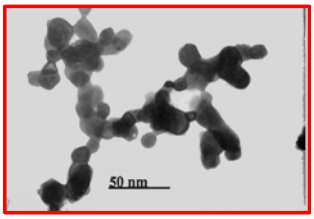


V_2O_5

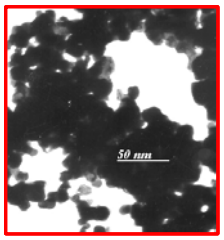
TiO_2



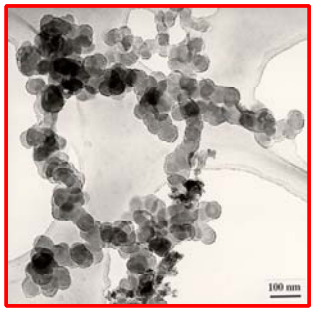
Fe_2O_3



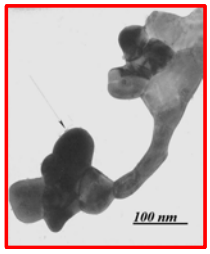
Elemental tungsten



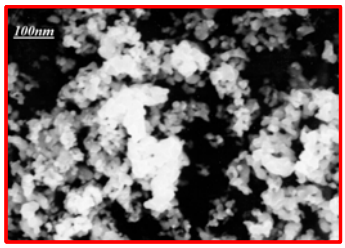
W-Ta Solid Solution



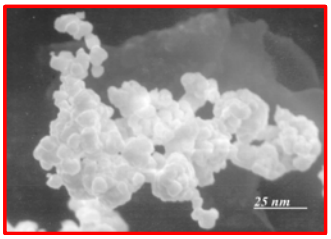
$CaCO_3$



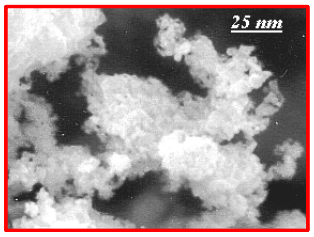
Cu-coated W



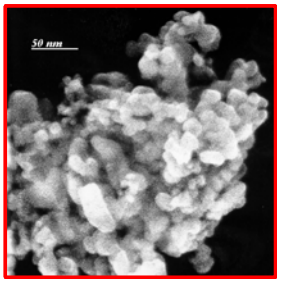
WC-Co



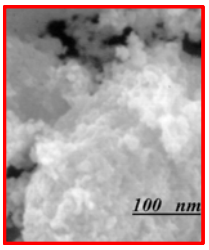
AlN



B_4C



TiB_2



SiC

Conclusion:

Nanomat is indeed very well-qualified and strategically and uniquely positioned to discover new applications and technologies to help you improve existing products, create new products, and take advantage of market opportunities. We look forward to hearing from and working with you very soon.

For further information, please visit our website at *http://www.nanomat.com*. If you prefer, please contact

Srikanth Raghunathan
President
NANOMAT, INC.
1061 Main Street
Building # 1 – Drawer #18
North Huntingdon, PA 15642-7425
Tel: (724) 861-6129
Fax: (724) 961-6119
e-mail: *sraghunathan@nanomat.com*