

Dear colleague!
NANOPOWDERS



(this paragraph for those who have no clue)

What is nanopowder? Where does this name come from, what does it mean, why it will change the quality of products in the next 10 years?

Cognitive : Nano-meter is the billionth part of a meter, that is 10^{-9} . The name comes from lat. nanos - "dwarf" and others. gr. μέτρον - "measure". How small are these objects? If you submit our Earth, which has a spherical shape, the football is about 1 nano meter (nm) or 10 hydrogen atoms arranged in a row. At the nano level atomic-molecular interaction of physical objects, their properties change, they manifest perfect in a different way than in normal conditions. Fragile becomes flexible, soft - strongest. One pinch of nanopowder can completely change the properties of ten tons of metal! - This is the true truth. Scientists cannot yet fully explain all these processes, however it does not interfere at all to use these extraordinary properties of nano particles now. That's why, new inventions in the form of materials with super properties and products appear every day.

Examples: super ceramics able to protect from bullets and splinters, slippery ceramics - by reducing friction "slippery" ceramics can reduce the noise of any pump, super capacitors, extra strong concrete, coating absorbs radiation, materials with a negative refractive index "cloak invisible" and much more ...

What RSS-NANO do? Our technological know-how and capabilities that can help you create new products, materials or improve the quality of existing ones. The company RSS-NANO produces nanopowders of metals, alloys and some chemical compounds such as oxides and nitrides metals.

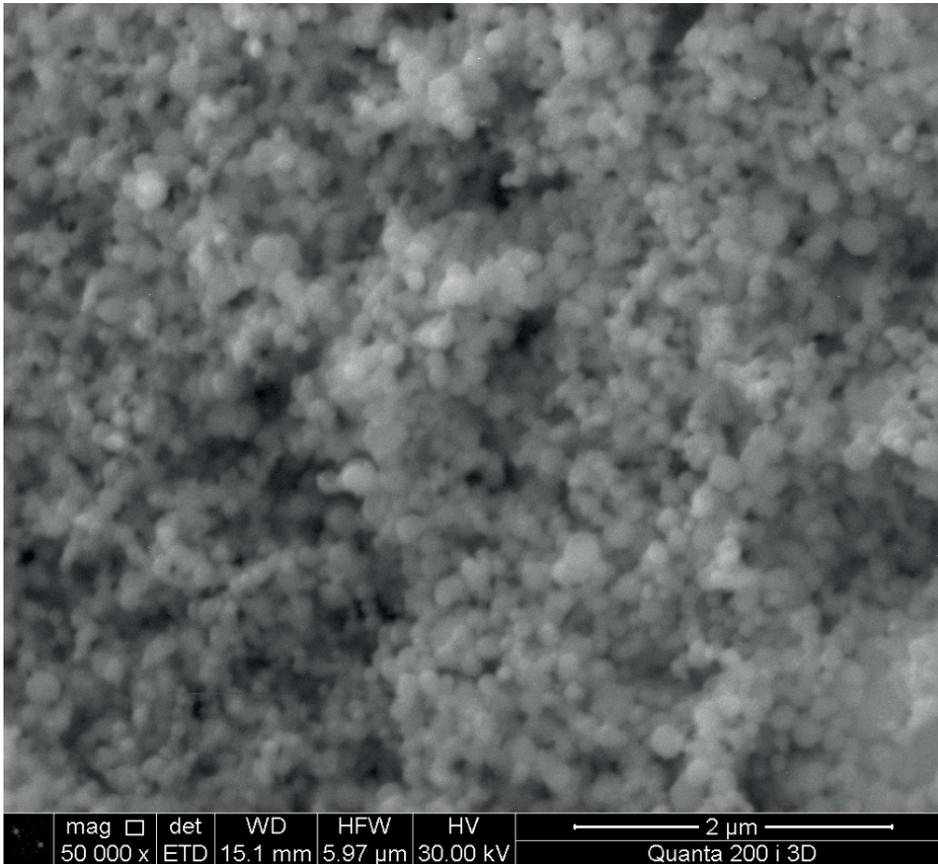
For your purposes, we can produce nano particles:

- Sizes from 5 nm in the center of the distribution, to 200 nm;
- Method of obtaining nanopowders physical (top/down) excludes contact with air. Therefore, you get a dry powder in vacuum packed or in normal;
- We make particles of different (including chaotic) forms, however we learned how to make particles spherical and can up to a certain degree to maintain uniformity of particle shapes;
- In addition to regulating forms, it is possible to control size difference weight;
- We are able to cover the particles with metal layer. For example, if you need silver oxide particles on a silicon substrate - it is possible!;
- Several can produce particles of different metals in one go and in one container;
- The technological process of know-how includes the purification of material in plasma flow (aliens, heavy and light particles are removed);
- Developed synthesis method which we use in production is universal and allows us to receive Ga to Mo nanopowders, inclusive of melting points up to 2500 ° C.

For example: weight distribution in the nanoparticles of Al₂O₃ popular for fixed installation work parameters.

- a) for particles with an average size above 10 nm – logarithmically normal;
- b) for particles with an average size below 10 nm - almost normal.

Appearance and color: white powder, bulk density from 0.6 to 1.7 g / cm³. Contains mainly phase α-Al₂O₃. Particles have spherical shape. Specific surface measured by BET 35 - 40 m²/g. Probabilistic (arithmetic average) size \bar{n} = 36 nm; size average over the surface \bar{s} = 45 nm; medium mass size \bar{m} = 54 nm. Melting point 2000 °C. Powder explosion proof, fire safe.



Nanopowder of aluminum oxide is used in the manufacture of composite materials, catalysts, the cultivation of artificial sapphire mono crystals, rubies, catalytic production materials and nano filters for the oil and gas industry; transparent ceramics, high-strength ceramics, glass with special functions, films for light filters, additive in rubber, plastic; fluorescent materials

Synthesis of metal powder is implemented in 1 production cycle and does not require additional processing of raw materials. The powder is passivated and long held.

We will be glad to learn about your technology and how we can be useful and successful together, including the use of nanopowders in various products. If your idea is unique and promising, we can consider any form of cooperation!

Thanks for attention!