Zinc Oxide Nanomaterial Datasheet
Powder, Aqueous and Organic Dispersions - Product #09820

- Available in aqueous/waterbourne and organic dispersion; standard quantity is 1 g ZnO in 30 mL solvent
- Dispersions are also available, on a custom basis, in the highest concentrations commercially available.
- Powders are also available with surface customization options based on application requirements
- Available in average diameters of 10 nm or 150 nm. Please discuss your requirements with us to determine appropriate product form factor.

Zinc Oxide (ZnO) nanoparticles are a versatile material which finds applications in sunscreens, sunblocks, paint, preservation, piezoelectric thin films, thin film waveguides, etc. Zinc oxide's electronic band structure allows the material to block or absorb harmful UV radiation. Below a certain size threshold nanoparticles of ZnO are fundamentally transparent to the human eye. In addition, the material is sensitive to light. ZnO can thus find potential applications as a transparent electro-optic substrate.

Zinc Oxide nanoparticle dispersions are fabricated in scaled quantities with mean particle diameters of 10 nm, and ship in three prepackaged form factors: aqueous stabilized dispersion, organic stabilized dispersion, and powder. Custom form factors and solvents are available upon request.

The Meliorum Technologies zinc oxide product ships in prepackaged 30 mL research quantities, which contain 1 g of zinc oxide material. However, both the sample size and concentration may be modified as required, to concentrations as high as 50 volume percent. At these concentrations, the solutions take on a paste-like consistency. Powders are also available, with application-specific customization of surface treatment.
Meliorum Technologies, Inc. has completed Phase I of implementing its operational statistical process control plan. With the completion of this initial implementation and analysis phase, The Company has developed enhanced, high-level knowledge of its own manufacturing process capability. The Plan includes the completion of a year-long period of monitoring key manufacturing process input variables, and subsequent quantitative analysis of resultant outputs. Process outputs were previously defined at the beginning of the year-long period both internally and through target market research, and include parameters such as mean diameter, size standard deviation of particle population (i.e. degree of monodispersity), purity level (raw feedstock and final product), type of impurities (raw feedstock and final product), and for dispersion products, the shelf life of the dispersion (i.e. period of time during which half of total dispersed material has settled).

**Process Control and Supporting Data**

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**Zinc Oxide Product Attributes**

- Mean particle diameter: 10 nm or 150 nm with ca. 10% monodispersity
- Approximate surface area, average: based on mean diameter, range from ca. 30 to 134 sq. m per gram
- Particle purity: 99.9% (metals basis), excluding coating, where applicable; material is deliverable with no surface treatment if specified by user (highest elemental purity achievable)
- Fabricated using a proprietary technology which is, by its nature, scalable; lots in kilogram quantities are now available

**ADDITIONAL SERVICES**

- Technical Support
- Application Support
- Supply Agreements (Kanban, JIT)
- Statistical Process Control Data
- Process Capability (C_p,k) Analysis
- Product Storage Support
- Custom Specification Negotiation