

# Technical Data Sheet

## ZnO Nanoparticles



### Description

Zinc Oxide nanoparticles are ultra-fine inorganic particles with high purity and controlled nanometer-scale size distribution. They exhibit exceptional UV absorption, antimicrobial properties, high surface reactivity, and photocatalytic activity, making them suitable for applications in coatings, polymers, cosmetics, sensors, catalysts, and biomedical fields.

### Properties

- Appearance: White to off-white fine powder
- Average Particle Size: 20-80 nm
- Purity: >99%
- Density: 5.6 g/cm<sup>3</sup>
- Morphology: Spherical
- Crystal Structure: Hexagonal Wurtzite
- Band Gap Energy: ~3.3 eV
- Packaging: 1kg / 5kg / 25kg



### Applications

- Cosmetics & Personal Care: UV filters in sunscreens, skincare products
- Polymer & Rubber Industry: Reinforcement, UV stabilizer, antibacterial additive
- Paints & Coatings: UV protection, antimicrobial coatings, self-cleaning surfaces
- Electronics & Sensors: Gas sensors, varistors, optoelectronic devices
- Environmental: Photocatalyst for wastewater treatment, air purification
- Biomedical: Antimicrobial agents, wound dressings, drug delivery

### Features

- Strong UV shielding and absorption properties
- High catalytic and photocatalytic activity
- Excellent antimicrobial and antibacterial properties
- Thermal and chemical stability
- Compatible with polymer and coating formulations
- Improves barrier, optical, and mechanical properties of composites

### Notes

- The product should be stored in the original container securely under cool and dry conditions away from direct sunlight, heat and contamination.
- Shelf life at proper storage is about 24 months from the production date, but it is recommended to consume the product within 12 months.

