

Technical Data Sheet

TiO₂ Nanoparticles



Description

Titanium Dioxide nanoparticles are high-purity, ultrafine oxide particles with strong UV absorption, high refractive index, excellent photocatalytic activity, and chemical stability. They are commonly produced in the anatase or rutile crystalline phases, each optimized for specific applications such as photocatalysis, coatings, cosmetics, and advanced materials.

Properties

- Appearance: White fine powder
- Average Particle Size: 10-60 nm
- Purity: >99%
- Density: 4.2 g/cm³
- Morphology: Spherical
- Crystal Structure: Anatase / Rutile
- Band Gap Energy: 3.0-3.2 eV
- Packaging: 1kg / 5kg / 25kg



Applications

- Paints & Coatings: UV protection, whiteness, opacity, durability
- Cosmetics & Sunscreens: UV filter, skin-safe formulations
- Polymers & Plastics: Colorant, UV stabilizer, reinforcement additive
- Photocatalysis: Self-cleaning surfaces, wastewater treatment, air purification
- Electronics & Energy: Solar cells, sensors, dielectric materials
- Biomedical: Antimicrobial agents, drug delivery, bioimaging (research use)

Features

- Strong UV shielding and absorption capability
- High refractive index for optical clarity
- Excellent photocatalytic activity (anatase grade)
- Chemical and thermal stability
- Available in surface-modified hydrophobic or hydrophilic grades
- Non-toxic and biocompatible for certain biomedical and cosmetic uses

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.

