# Titanium Dioxide, High-Purity Powders

Pred Materials is pleased to market advanced TiO2 powders. These are produced by gas-phase reactions between refined $TiCl_4$ and $O_2$ under specially controlled conditions at high temperatures. With such high purity, these powders are used mainly in the electric and electronic industries as the material for electro-ceramic parts, such as PTC (Positive Temperature Coefficient) thermistors and MLCC (Multi-Layer Ceramic Capacitors). Our TiO2 has recently found applications in optical glass lenses, replacing lead-containing compounds. Production capacity is 180 metric tons per month.

## Applications

- **Electrode of MLCC**
- **Dielectric for MLCC**
- **PTC Thermistor**
- **Dielectric Resonator & Filter**
- **Piezo Electric Element**
- **Pharmaceutical**

**Specifications**

(1) Grades for Electronic Use

| Grade | TiO2 %min. | Al %max. | Fe %max. | Cl %max. | Rutile content % | Ignition Loss % | Surface Area $m^2/g$ | Average Size µm |
|---|---|---|---|---|---|---|---|---|
| **0210** | 99.9 | 0.002 | 0.002 | 0.01 | ≥90 | ≤0.1 | 2 - 3 | 2.10 - 2.55 |
| **0514** | 99.9 | 0.002 | 0.002 | 0.025 | ≥90 | ≤0.25 | 5.5 - 7.5 | 0.50 ~ 1.00 |
| **1311** | 99.9 | 0.002 | 0.002 | 0.045 | ≥80 | ≤1.00 | 8 - 14 | 0.30 ~ 0.90 |
| **1701** | 99.9 | 0.002 | 0.002 | 0.05 | ≥80 | ≤0.95 | 50 ~ 80 | ≤0.42 |
| **2301** | 99.9 | 0.002 | 0.002 | 0.10 | ≥80 | ≤1.50 | 20 - 25 | <0.25 |
| **2321** | 99.9 | 0.001 | 0.001 | 0.13 | ≤10 | ≤1.50 | 20 - 27 | -- |

(2) 4N grade

| Grade | $TiO_2$ % min. | Al | Fe | Si | Sn | As | Ni | Cr | Cu | Cl | Rutile Content % min. | Surface Area $m^2/g$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ppm max. | | | | | | | | | | |
| **0270** | 99.99 | 1 | 5 | 1 | 1 | 5 | 1 | 1 | 1 | 100 | 90.0 | 2 - 3 |

**Application:** Advanced ceramics, Specialty materials
**Product type:** Consumables, Chemicals
**Production scale:** Lab, Pilot, Commercial
**Search tags:** Advanced Ceramics, Raw material, Piezoelectric raw material