Technical Datasheet (TDS)

Manganese Oxide Powder for Ceramic Capacitor Production

1. Company Information

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2. Product Description

Manganese Oxide Powder for Ceramic Capacitor Production is a high-purity Manganese(II) Oxide (MnO) material specifically developed as a functional additive for dielectric ceramics. With strictly controlled impurity levels and a consistent particle size distribution, it is designed to ensure stable electrical performance and reliability in Multilayer Ceramic Capacitors (MLCCs) and other precision electronic components.

3. Key Features

- **High Purity:** Ensures minimal impact on the base dielectric composition, maintaining high-performance standards.
- **Controlled Particle Size:** Uniform distribution (D50: 1–5 µm) facilitates homogeneous mixing and consistent sintering behavior.
- **Low Heavy Metal Content:** Extremely low levels of Fe, Pb, and As to maintain superior electrical insulation and stability.

- **Enhanced Reliability:** Improves grain boundary characteristics, helping to compensate for charge imbalances and increasing insulation resistance.
- **Thermal Stability:** Exhibits excellent stability under the high-temperature conditions required for ceramic sintering.

4. Technical Specifications

Parameter	Specification / Typical Value
MnO Purity	≥ 99.0%
Manganese (Mn) Content	≥ 76.0%
Particle Size (D50)	1.0 – 5.0 µm
Moisture (H_2O)	≤ 0.5%
Bulk Density	1.2 – 1.6 g/cm^3
Loss on Ignition (LOI)	≤ 0.5%
Iron (Fe) Content	≤ 0.01%
Lead (Pb) Content	≤ 10 ppm
Arsenic (As) Content	≤ 5 ppm

5. Physical Properties

- **Appearance:** Fine green/brownish powder.
- **Odor:** Odorless.
- **Solubility:** Insoluble in water; soluble in mineral acids.

6. Applications

- **Multilayer Ceramic Capacitors (MLCCs):** Acts as a critical dopant to modify grain boundaries and stabilize dielectric properties.
- **Dielectric Ceramics:** Used in barium titanate-based systems to enhance stability and voltage reliability.

- **Precision Electronic Components:** Suitable for high-end electronic ceramic manufacturing requiring high insulation resistance.
- **Functional Materials:** Acts as a controlled manganese source for various electronic-grade ceramic formulations.

7. Packaging & Supply

- **Standard Packaging:** 25 kg kraft paper bags with an inner PE moisture-proof liner.
- **Export Packaging:** Palletized for secure international container shipment.
- **Supply Ability:** Bulk supply options tailored for large-scale capacitor manufacturers.
- **Samples:** Available for formulation trials and sintering optimization tests.
