

Technical Data Sheet: Ceramic Grade MnO₂

Header Information

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1. Product Description

Ceramic Grade MnO₂ for Body Stains and Pigments is a high-purity manganese dioxide powder specifically engineered for ceramic color formulation and body stain applications. With a typical purity ranging from 98.0% to 99.5% MnO₂, this product ensures consistent coloration, excellent dispersion, and reliable firing performance in both oxidizing and neutral kiln atmospheres. Its controlled particle size and low impurity levels contribute to superior aesthetic and functional outcomes in ceramic production.

2. Key Features

- **Consistent Ceramic Coloration:** Optimized for body stains and glaze pigments, providing stable color response during firing processes.
- **High Purity MnO₂:** Contains 98.0–99.5% manganese dioxide, minimizing impurities that could lead to undesirable off-tones or defects in glazes.
- **Controlled Particle Size:** A particle size distribution (D50) of 2–8 μm enhances dispersion and ensures uniformity in stain and pigment mixes, leading to homogeneous color development.
- **Low Iron Content:** Reduced Fe₂O₃ content ($\leq 0.20\%$) guarantees cleaner color outcomes and mitigates adverse interactions with other oxide colorants.

- **Easy to Disperse:** The fine powder, coupled with a balanced bulk density, facilitates predictable batching and mixing, improving production efficiency.
- **Thermal Stability:** Exhibits reliable performance across typical ceramic firing schedules, resisting volatilization or reduction at high temperatures.

3. Technical Specifications

Property	Typical Range / Value
Chemical Formula	MnO ₂
MnO ₂ Content	98.0–99.5%
Fe ₂ O ₃ (Iron Oxide)	≤ 0.20%
SiO ₂ (Silica)	≤ 0.50%
Loss on Ignition (LOI)	0.5–1.5%
Particle Size (D50)	2–8 μm
Bulk Density	0.8–1.2 g/cm ³
pH (10% Aqueous Slurry)	6.5–8.0
Colour	Dark Brown to Black Powder

4. Applications

- **Body Stains and Pigments:** Primarily used for formulating ceramic body stains, ensuring stable color yield and intensity after firing.
- **Glaze Colorants:** Incorporated into oxide colorant packages for glazes that require specific manganese shades or as a modifier for other colors.
- **Tiles & Sanitaryware:** Highly suitable for large-scale production of ceramic tiles and sanitaryware, providing consistent pigmentation.
- **Porcelain & Earthenware:** Delivers reliable and consistent results when used in porcelain and earthenware bodies, enhancing their aesthetic appeal.

- **Refractory Color Systems:** Utilized in refractory stains where specific manganese hues are desired, maintaining color integrity under extreme conditions.

5. Packaging & Supply

Ceramic Grade MnO_2 for Body Stains and Pigments is supplied in robust multi-wall paper bags, each equipped with inner PE liners to provide superior protection against moisture and environmental contaminants. Standard packaging options include 25 kg and 50 kg bag formats. For larger industrial requirements and export purposes, bulk packaging and Full Container Load (FCL) options are readily available. All shipments are meticulously prepared for intercontinental logistics, accompanied by comprehensive documentation and ensuring full compliance with export regulations.