Technical Data Sheet (TDS)

MnO_2 as Oxidizer in Analytical Chemistry & Metallurgy

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1. Product Description

Manganese Dioxide (MnO_2) as an oxidizer in analytical chemistry and metallurgy is a high-purity powder specifically engineered for laboratory analysis and various metallurgical oxidation reactions. With a typical MnO_2 purity ranging from 90% to 98%, this product offers reliable and consistent oxidation capabilities essential for chemical assays, mineral analysis, and precise control in metallurgical processes. Its stable oxidizing behavior makes it an ideal choice for analytical laboratories, research facilities, and industrial applications requiring high-performance oxidation.

2. Technical Specifications

The following table outlines the key technical parameters of MnO_2 as Oxidizer in Analytical Chemistry & Metallurgy:

Parameter	Typical Value
MnO_2 Purity	90–98%
Particle Size	5–45 μm
Surface Area	30–70 m^2/g
Moisture	≤1.0%
Bulk Density	0.7–1.1 g/cm^3
Crystal Phase	Mainly Pyrolusite (β-MnO_2)

3. Key Features

- **High Oxidation Potential:** Suitable for quantitative chemical reactions, ensuring accuracy and reliability in analytical laboratories.
- **Stable Crystal Structure:** Guarantees consistent redox performance across different production batches, critical for reproducible results.
- **Controlled Particle Size Distribution:** Improves dispersion in both analytical and metallurgical solutions, facilitating efficient reactions.
- **High Surface Area:** Enhances reaction kinetics, leading to faster and more effective oxidation processes.
- **Reliable Oxidation Efficiency:** Provides consistent and effective oxidation in laboratory-scale metallurgical analysis and other chemical applications.
- **Low Impurity Levels:** Minimizes interference during analytical measurements, contributing to higher precision and accuracy of results.

4. Applications

Manganese Dioxide (MnO_2) as an oxidizer is widely applied in:

- **Metallurgical Sample Oxidation:** Used to oxidize manganese, iron, and other elements during laboratory ore analysis, preparing samples for accurate determination.

- **Analytical Chemistry Titrations:** Serves as a potent oxidizing reagent in redox titrations for the precise determination of various metal ions.
- **Mineral Composition Testing:** Assists in the necessary oxidation reactions during the analytical digestion of ores, crucial for accurate mineral composition analysis.
- **Research Laboratories:** Supports a broad range of oxidation reactions in inorganic and metallurgical chemistry experiments, aiding scientific discovery.
- **Industrial Oxidation Process Simulation:** Applied in metallurgical laboratories to simulate and optimize industrial oxidation processes, contributing to process development and efficiency.

5. Packaging & Supply

Standard packaging for MnO_2 as Oxidizer is **25 kg fiber drums with inner PE liners**, designed to protect the product from moisture and contamination, ensuring its stability and efficacy. Export packaging is available and suitable for international transport and long-distance shipping, meeting global logistics requirements. Additionally, **laboratory sample quantities** are available for analytical testing and evaluation, allowing customers to assess product suitability before larger commitments.