Technical Data Sheet: MnO_2 Powder for Oxidizing Allylic and Benzylic Alcohols

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1. Product Description

MnO_2 Powder for Oxidizing Allylic and Benzylic Alcohols is a high-surface-area activated manganese dioxide specifically engineered for selective oxidation reactions in organic synthesis. This material typically exhibits a high purity of 85–92% MnO_2, coupled with strong surface reactivity. It is widely utilized in both laboratory settings and fine chemical production for the efficient conversion of allylic and benzylic alcohols into their corresponding aldehydes or ketones.

2. Key Features

- **High Oxidation Activity:** The large surface area significantly enhances catalytic activity, improving reaction efficiency in alcohol oxidation processes.
- **Selective Oxidation Performance:** Effectively converts allylic and benzylic alcohols to aldehydes or ketones, minimizing undesirable over-oxidation.
- **Stable Purity Consistency:** Rigorous manufacturing controls ensure reliable and reproducible MnO_2 purity across different production batches.
- **Enhanced Surface Reactivity:** The material's porous structure facilitates strong contact with organic substrates, promoting efficient reaction kinetics.
- **Easy Filtration and Handling:** An optimized particle size distribution simplifies post-reaction separation and handling procedures.
- **Designed for Organic Synthesis:** Provides consistent and reliable catalytic behavior for a wide range of laboratory and industrial organic reactions.

3. Technical Specifications

Parameter	Typical Value
MnO_2 Purity	85–92%
Particle Size	5–30 μm
Surface Area	60–120 m^2/g
Moisture	≤1.0%
Bulk Density	0.45–0.65 g/cm^3
Crystal Phase	Predominantly γ-MnO_2

4. Applications

- **Selective Oxidation of Allylic Alcohols:** Efficiently converts allylic alcohols into corresponding aldehydes.
- **Benzylic Alcohol Oxidation:** Suitable for transforming benzylic alcohols into aromatic aldehydes or ketones.
- **Fine Chemical Synthesis:** Extensively used in the production of pharmaceutical intermediates and specialty chemicals.
- **Laboratory Organic Reactions:** Offers reliable oxidation performance for academic research and development.

5. Packaging & Supply

The product is typically supplied in **25 kg fiber drums equipped with polyethylene liners** to safeguard against moisture contamination. The export packaging is designed to withstand international transport and long-distance shipping. **Laboratory samples ranging from 100 g to 1 kg** are available for evaluation and reaction testing purposes.

6. Customization & Technical Support

Manufacturers offer services such as **particle size adjustment, purity optimization, and bulk supply** to meet specific process requirements. Comprehensive technical support is provided for **reaction condition optimization and catalyst loading recommendations** in various oxidation processes.