

Technical Datasheet: High-Purity Activated Manganese Dioxide (MnO₂)

Product Name:	Activated Manganese Dioxide, High-Purity Grade
Chemical Formula:	MnO ₂
CAS No.:	1313-13-9
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1. Product Description

Our High-Purity Activated Manganese Dioxide is an insoluble, black, amorphous powder specifically developed for critical applications such as pharmaceutical synthesis and fine chemical manufacturing. Produced through a refined chemical process, this grade boasts exceptional purity, high catalytic activity, and a controlled particle size distribution. These characteristics make it an excellent oxidizing agent for reactions demanding high efficiency, selectivity, and minimal impurity introduction.

2. Chemical & Physical Properties

Parameter	Specification	Typical Value	Test Method
MnO ₂ Content	≥ 99.0%	99.17%	Titration
Particle Size (D ₅₀)	4 - 7 μm	6.35 μm	Laser Diffraction
Calcium (Ca)	≤ 200 ppm	133 ppm	ICP-OES
Magnesium (Mg)	≤ 200 ppm	125 ppm	ICP-OES

Parameter	Specification	Typical Value	Test Method
Sodium (Na)	≤ 100 ppm	53 ppm	ICP-OES
Lead (Pb)	≤ 20 ppm	8 ppm	ICP-OES
Potassium (K)	≤ 100 ppm	25 ppm	ICP-OES
Iron (Fe)	≤ 100 ppm	55 ppm	ICP-OES
Sulfate (SO ₄ ²⁻)	≤ 800 ppm	381 ppm	Gravimetric
HCl Insoluble	≤ 200 ppm	166 ppm	Gravimetric
Appearance	Fine Black Powder	Conforms	Visual

3. Key Features & Benefits

- **Ultra-High Purity (≥99.0%):** With a typical assay of 99.17%, this grade significantly reduces potential side reactions and impurities, which is crucial for sensitive pharmaceutical and chemical syntheses.
- **High Reactivity:** A controlled particle size (Typical D50 of 6.35 μm) and high purity ensure excellent reactivity and efficiency in various chemical processes, facilitating reliable and consistent reaction outcomes.
- **Low Impurity Profile:** Stringent control over heavy metals and other elemental impurities ensures suitability for the most demanding applications, including pharmaceutical and high-purity chemical manufacturing.
- **Consistent Quality:** Manufactured under strict quality control protocols, ensuring batch-to-batch consistency in both physical and chemical properties for reliable process performance.

4. Recommended Applications

- Highly selective oxidation of alcohols (allylic, benzylic, propargylic) to aldehydes and ketones.
- Dehydrogenation reactions in complex organic synthesis.
- Specialized applications requiring a high-purity, high-activity oxidizing agent.
- Pharmaceutical intermediates and active pharmaceutical ingredient (API) synthesis.

5. Packaging & Storage

- **Standard Packaging:** 25 kg net weight in fiber drums with inner PE liner. Custom packaging (including sample sizes) is available upon request.
 - **Storage:** Store in a cool, dry, well-ventilated area away from incompatible substances. Keep containers tightly closed to prevent moisture absorption and maintain product integrity.
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