

Technical Datasheet: Battery Grade Manganese Carbonate (MnCO₃)

Company Name: BTLnewmaterial **Email:** lixifirm@outlook.com **Phone:** +8618273793022 **Website:** manganesesupply.com

1. Product Description

Battery Grade Manganese Carbonate is a high-purity MnCO₃ precursor specifically designed for use in Lithium Manganese Iron Phosphate (LMFP) cathode material synthesis. This product ensures stable manganese content ($\geq 44\%$ Mn) and meticulously controlled impurity levels, making it ideal for advanced lithium-ion battery applications. It is particularly suitable for cathode manufacturing processes that demand consistent phase formation and superior electrochemical performance.

2. Key Features

- **High Purity Manganese Source:** Serves as a critical, high-purity manganese precursor for LMFP cathode material synthesis.
- **Controlled Impurities:** Features controlled levels of iron (Fe), calcium (Ca), and magnesium (Mg) to minimize lattice contamination within the cathode structure.
- **Ultra-Low Heavy Metals:** Contains very low levels of heavy metals, with lead (Pb) content ≤ 5 ppm, ensuring compliance with stringent battery-grade safety and environmental regulations.
- **Consistent Particle Size:** Exhibits a consistent particle size distribution (D50: 3–8 μm), which is crucial for uniform solid-state or co-precipitation processes.
- **Stable Mn²⁺ Availability:** Guarantees stable Mn²⁺ availability during the calcination process, contributing to the overall stability and performance of the cathode material.

3. Technical Specifications

The following table outlines the key technical parameters and chemical composition of BTLnewmaterial's Battery Grade Manganese Carbonate:

Parameter	Typical Value
MnCO ₃ Purity	≥ 99.0%
Manganese (Mn) Content	≥ 44%
Particle Size (D50)	3–8 μm
Moisture	≤ 0.5%
Bulk Density	0.9–1.3 g/cm ³
Solubility in Acid	≥ 98%
Iron (Fe)	≤ 0.01–0.03%
Calcium (Ca)	≤ 0.05%
Magnesium (Mg)	≤ 0.05%
Lead (Pb)	≤ 5 ppm
Sodium (Na)	≤ 0.05%
Sulfate (SO ₄ ²⁻)	≤ 0.1%

4. Applications

Battery Grade Manganese Carbonate from BTLnewmaterial is utilized in various critical applications within the lithium-ion battery industry:

- **LMFP Cathode Material Synthesis:** Provides the essential manganese source for the formation of the LiMn_xFe_{1-x}PO₄ structure, a key component in advanced cathode materials.
- **Lithium-ion Battery Materials:** Supports the development of high-voltage cathode materials, contributing to improved energy density and overall battery

performance.

- **Precursor Manufacturing:** Employed in both solid-state and hydrothermal synthesis routes for the production of cathode precursors.
- **Advanced Battery Research & Development:** Suitable for experimental and developmental work, particularly for fine-tuning Mn/Fe ratios in novel cathode formulations.

5. Packaging & Supply

BTLnewmaterial ensures secure and efficient packaging and supply of Battery Grade Manganese Carbonate:

- **Packaging:** The product is supplied in 25 kg kraft paper bags, each equipped with a polyethylene (PE) liner to ensure product integrity and protection.
- **Export Packaging:** For international shipments, the product is palletized to facilitate safe and efficient transportation.
- **Shipment Options:** Available for shipment in 20GP (General Purpose) and 40HQ (High Cube) containers, accommodating various order volumes.
- **Samples:** Samples are readily available for customers to conduct cathode material testing and evaluation.