

Technical Data Sheet: Manganese Sulfate (Mn 32%) for NCM Ternary Precursors

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1. Product Description

Battery Grade Manganese Sulfate ($\text{MnSO}_4 \cdot \text{H}_2\text{O}$) with 32% manganese content is specifically formulated for the production of NCM (Nickel Cobalt Manganese) ternary cathode precursors. This product ensures high purity, ultra-low impurity levels, and consistent quality, which are critical for the manufacturing of high-performance lithium-ion batteries. Its precise composition and controlled physical properties are designed to prevent impurity interference during NCM precursor synthesis, ensuring uniform dissolution and homogeneous mixing, thereby contributing to the stable electrochemical performance of the final battery products.

2. Key Features

- Stable, High-Purity Manganese Source:** Provides a reliable and consistent supply of manganese for NCM cathode precursors, crucial for maintaining stoichiometric accuracy and product quality.
- Low Impurities (Fe, Ca, Mg):** Strict control over iron ($\text{Fe} \leq 0.01\%$), calcium ($\text{Ca} \leq 0.05\%$), and magnesium ($\text{Mg} \leq 0.05\%$) content is vital to prevent interference and contamination during NCM precursor synthesis, which can otherwise negatively impact cathode crystal structure and electrochemical performance.
- Controlled Heavy Metals (Pb, Cu, Zn):** Ultra-low levels of lead ($\text{Pb} \leq 2$ ppm), copper ($\text{Cu} \leq 1$ ppm), and zinc ($\text{Zn} \leq 1$ ppm) ensure compliance with stringent battery-grade safety standards and prevent degradation of battery materials.

- **Consistent Particle Size:** The controlled particle size (100–200 mesh) is optimized for solution-based cathode processing, facilitating uniform dissolution and homogeneous mixing, which are essential for producing high-quality NCM precursors.

3. Technical Specifications

Parameter	Typical Value
MnSO ₄ · H ₂ O Purity	≥ 98%
Manganese (Mn) Content	32%
Moisture	≤ 0.5%
Particle Size	100–200 mesh
Bulk Density	0.9–1.3 g/cm ³
Iron (Fe)	≤ 0.01%
Calcium (Ca)	≤ 0.05%
Magnesium (Mg)	≤ 0.05%
Lead (Pb)	≤ 2 ppm
Copper (Cu)	≤ 1 ppm
Zinc (Zn)	≤ 1 ppm

4. Applications

- **NCM Ternary Cathode Precursors:** Primarily used as a high-purity manganese source for the synthesis of NCM (Nickel Cobalt Manganese) ternary cathode precursors, which are fundamental components in advanced lithium-ion batteries.
- **Lithium-ion Battery Manufacturing:** Essential for ensuring consistent electrochemical performance and extending the lifespan of lithium-ion batteries used in electric vehicles, portable electronics, and energy storage systems.

- **Electrolyte and Cathode Research:** Supports high-precision laboratory-scale synthesis and research in the development of new electrolyte and cathode materials, contributing to innovations in battery technology.

5. Packaging & Supply

Battery Grade Manganese Sulfate (Mn 32%) is packaged in durable 25 kg kraft paper bags, each equipped with a polyethylene (PE) liner to protect the product from moisture and maintain its integrity. For global distribution, products are provided with palletized export packaging, suitable for container shipments (20GP / 40HQ), ensuring secure and efficient transport. Samples are readily available for customer evaluation and testing purposes.