

Technical Datasheet (TDS)

Manganese Carbonate for Metal Treatment and Surface Processing

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1. Product Description

Manganese carbonate for metal treatment is a high-purity, industrial-grade chemical compound (MnCO_3) engineered specifically as a controlled, stable source of manganese for advanced metal processing and surface treatment applications. With rigorously controlled chemical composition and minimal heavy metal impurities, this material guarantees predictable reaction kinetics, uniform surface conditioning, and consistent metallurgical performance across diverse industrial manufacturing operations.

The product is manufactured under strict quality management systems, ensuring that variations in manganese concentration and trace impurities are strictly minimized. This makes it an ideal feedstock for chemical conversion coatings, metal finishing baths, and specialized alloy preparations where precise mineral stoichiometry is required.

2. Key Technical Parameters & Chemical Composition

The chemical purity and physical characteristics of BTLnewmaterial's manganese carbonate are designed to meet stringent industrial specifications. The typical chemical and physical parameters are outlined in the table below:

Parameter	Typical Value	Test Method / Standard
MnCO ₃ Purity	≥ 98.0%	Titrimetric Analysis
Manganese (Mn) Content	≥ 44.0%	ICP-OES
Particle Size Distribution	80–200 mesh	Laser Diffraction / Sieve Analysis
Moisture Content	≤ 1.5%	Gravimetric (105°C, 2h)
Bulk Density	0.8–1.2 g/cm ³	ASTM Standard Tap Density
Solubility in Dilute Acid	≥ 95.0%	Acid Digestion & Filtration
Iron (Fe) Impurity	≤ 0.1%	ICP-OES
Calcium (Ca) Impurity	≤ 0.3%	ICP-OES
Magnesium (Mg) Impurity	≤ 0.3%	ICP-OES
Lead (Pb) Impurity	≤ 10 ppm	Atomic Absorption Spectroscopy (AAS)
Arsenic (As) Impurity	≤ 5 ppm	Atomic Absorption Spectroscopy (AAS)
Cadmium (Cd) Impurity	≤ 5 ppm	Atomic Absorption Spectroscopy (AAS)

3. Key Features

- **Controlled Manganese Stoichiometry:** High MnCO₃ purity ensures reliable, stoichiometric chemical reactions in industrial treatment baths.
- **Low Impurity Profile:** Stringent limits on iron (Fe), calcium (Ca), and magnesium (Mg) prevent undesirable side reactions and contamination in sensitive formulations.
- **Ultra-Low Heavy Metals:** Minimized levels of lead (Pb), arsenic (As), and cadmium (Cd) comply with strict environmental and industrial safety standards [1].
- **Optimized Powder Rheology:** Consistent particle size distribution (80–200 mesh) promotes excellent flowability, rapid dissolution in acidic media, and uniform feeding.
- **Customization Flexibility:** Tailored grades can be engineered regarding manganese content, particle size, and impurity thresholds to match proprietary customer processes.

4. Applications

- **Metal Surface Treatment:** Utilized as an active manganese component in phosphating and chemical conversion coating solutions to improve corrosion resistance and paint adhesion.
- **Metal Processing Chemicals:** Serves as a primary raw material for formulating etching, passivation, and surface conditioning agents.
- **Metal Finishing:** Applied in specialized electroplating and chemical immersion baths to refine metallic grain structures and surface properties.
- **Industrial Chemical Processing:** Functions as a high-grade manganese carbonate intermediate for synthesizing downstream manganese salts and catalysts.

5. Packaging, Storage & Supply

- **Standard Packaging:** Available in 25 kg woven bags lined with polyethylene, or 1000 kg jumbo bulk bags. Customized packaging options are available upon request.
- **Storage Conditions:** Store in a cool, dry, and well-ventilated warehouse away from moisture, strong acids, and direct sunlight. Keep containers tightly sealed to prevent moisture absorption and caking.
- **Supply Capabilities:** BTLnewmaterial provides flexible supply chain solutions, including customized manganese content, low-iron grades, and dedicated technical support for formula optimization and sample qualification.

References:

[1] BTLnewmaterial Product Catalog - Manganese Carbonate for Metal Treatment and Surface Processing. Available online: <https://manganesesupply.com/manganese-carbonate-for-metal-treatment-and-surface-processing/>