UltraPurMat Group Co., Ltd

TECHNICAL DATA SHEET

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Sodium Manganese Iron Phosphate (NMFP) Powder

❖ Product Introduction

Sodium manganese iron phosphate, $NaMn_xFe_{1-x}PO_4$ (NMFP), is a polyanion-type cathode material for sodium-ion batteries. With a typical purity of ≥99%, it offers excellent structural and thermal stability and good electrochemical performance. Available in both uncoated and carbon-coated forms, NMFP can be tailored in Mn/Fe molar ratio, particle size, and surface coating to meet different battery development and application requirements. Carbon coating can help improve electronic conductivity and enhance electrochemical performance.

❖ Product Characteristics

1. Polyanion phosphate framework providing high structural stability and thermal stability for reliable battery cycling.
2. Adjustable Mn/Fe molar ratio and particle size (D50 < 10 μ m) to meet specific cathode formulation and processing requirements.
3. Good electrochemical performance and potential for improved rate capability in sodium-ion battery applications.
4. Cobalt-free chemistry using abundant raw materials, making it a promising cathode candidate for large-scale energy storage.

❖ Product Specifications

Product ID	Formula	Purity	Size
112526150800PD001	NaMn(x)Fe(1-x)PO4	≥ 99%	D50 < 10 μm
112526150800PD002	C-NaMn(x)Fe(1-x)PO4	≥ 99%	D50 < 10 μm
112526150800PDC01	Customized	Customized	Customized

Chemical Composition (wt%)				
Element	**Na (wt%)**	**Mn (wt%)**	**Fe (wt%)**	**P (wt%)**
Typical Value	12.0 ± 1.0	4.8 ± 0.5	25.0 ± 2.0	17.0 ± 2.0

Metal impurities (ppm)						
Element	**Li (ppm)**	**K (ppm)**	**Mg (ppm)**	**Cr (ppm)**	**Cu (ppm)**	**Zn (ppm)**
Typical Value	≤2000	≤100	≤150	≤50	≤50	≤110

❖ Density

Tapped Density > 1,0 g/ml Bulk Density > 0,65 g/ml

❖ Typical Applications

Sodium manganese iron phosphate powder is widely used in sodium-ion battery cathode materials, energy storage systems, and advanced battery research and development.

❖ Packaging

Outer packaging: carton or fiber drum.
Inner packaging: double vacuum-sealed bags.
Packing specification: 1 kg/bag or 25 kg/drum.
Customized packaging is available upon request.

❖ Storage

During transportation and storage, avoid moisture, contamination and direct sunlight. Keep away from fire sources and corrosive substances. Use the bag as soon as it is opened. The shelf life is no more than 24 months from the production date.

❖ Custom specifications are available, including

- Higher purity
- Narrower Particle Size Distribution
- Additional ratio requirements
- Customizable carbon-coating option

❖ Cautions

This product is harmful if swallowed or inhaled, and may cause skin and eye irritation. Inhalation may irritate the respiratory tract; avoid inhalation. We recommend that customers inform us of their intended use before purchasing to ensure proper product use.

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