

Btlnewmaterial

Certificate of Analysis (COA)

1. Product Information

Product Name: Electrolytic Manganese Dioxide (EMD)
Grade: Battery Grade
Application: Mercury-free Alkaline Batteries (Zn – MnO₂)

Product Model: NK-A
Batch Number: JA-20250515

Production Date: May 29, 2025
Inspection Date: May 30, 2025

Total Quantity: 30 Metric Tons
Packaging: 500 kg big bags

Manufacturer: BTL New Material

2. Chemical Composition

Parameter	Specification	Result	Unit
MnO ₂ Content	≥ 92.0	92.8	%
Moisture (H ₂ O)	≤ 2.0	1.3	%
Iron (Fe)	≤ 50	40	ppm
Copper (Cu)	≤ 1.0	0.9	ppm
Cobalt (Co)	≤ 2.0	0.2	ppm
Nickel (Ni)	≤ 2.0	0.9	ppm
Lead (Pb)	≤ 2.0	0.1	ppm
Molybdenum (Mo)	≤ 0.5	0.1	ppm

3. Alkali & Alkaline Earth Metals

Parameter	Specification	Result	Unit
Potassium (K)	≤ 200	49	ppm
Sodium (Na)	≤ 3500	2110	ppm
Calcium (Ca)	≤ 300	130	ppm
Magnesium (Mg)	≤ 200	124	ppm

4. Heavy Metals & Restricted Elements

Parameter	Specification	Result	Unit
Chromium (Cr)	≤ 5.0	0.6	ppm
Cadmium (Cd)	≤ 1.0	0.2	ppm
Arsenic (As)	≤ 1.0	0.5	ppm
Antimony (Sb)	≤ 0.5	0.04	ppm
Mercury (Hg)	≤ 1.0	0.03	ppm

5. Physical & Electrochemical Properties

Parameter	Specification	Result	Unit
pH (5% slurry)	5.0 – 7.0	6.4	—
Discharge Potential	≥ 290	309	mV
Bulk Density	≥ 1.5	1.8	g/cm ³
Acid Insoluble Matter	≤ 0.1	0.002	%
Sulfate (SO ₄ ²⁻)	≤ 1.30	1.25	%

6. Particle Size Distribution

Parameter	Specification	Result
–200 Mesh	≥ 95%	100%
–325 Mesh	≥ 80%	82%

7. Compliance Statement

This product complies with the technical requirements for **mercury-free alkaline battery materials**.
Mercury content is **ultra-low (0.03 ppm)** and no mercury is intentionally added during production

8. Conclusion

Inspection Result: PASS

The above batch meets battery-grade EMD specifications and is suitable for alkaline battery applications.

Tested by: _____ Lipan_____

Approved by: _____ HuangJiang_____

