

Supplier Quality Audit Report: Tier-2 SinoPower Cell Foundry QA Assessment

Audit Tracking ID: AUD-2024-SPC-02

Supplier Name: SinoPower Cell Foundry (Gigavolt Supplier ID: SUP-SPC-11)

Facility Location: Plant 2, High-Tech Industrial Park, Hefei, Anhui Province

Audit Dates: September 11 – September 13, 2024

Lead Auditor: Dr. Aris Thorne, Director of Global Quality Assurance

Target Component: Prismatic 280Ah LiFePO₄ Cell (CEL-LFP-280)

Executive Audit Summary

An unannounced on-site quality and manufacturing process audit was conducted across SinoPower's Plant 2 manufacturing lines following elevated field reports of cell voltage divergence (ERR-BMS-701) in Megapack X-7000 modules. The audit team inspected slurry mixing, electrode coating, calendaring, automated laser slitting, cell winding, electrolyte filling, and automated formation aging. SinoPower was awarded a provisional audit score of **82/100 (Conditional Pass)**, with 2 Major Non-Conformances and 3 Minor Non-Conformances identified.

Non-Conformance Findings & Root Cause

- 1. Major Non-Conformance NC-01 (Electrode Slitting Burr Tolerances):** Quality control specification SINO-QC-CAT-04 mandates that cathode edge burr height must not exceed 12 µm. Visual inspection of slitting station line 3 revealed cutter blade wear exceeding 120,000 meters of throughput without re-grinding. Slitting burrs up to 26 µm were measured via cross-sectional optical microscopy. Over time, burrs of this scale can penetrate the 16 µm ceramic-coated polyethylene separator under high mechanical vibration.
- 2. Major Non-Conformance NC-02 (Formation Aging Chamber Temperature Gradients):** Temperature sensors in Formation Aging Bay B showed a 6.4 °C gradient between lower shelf and upper shelf locations. Cells aged on upper shelves showed

accelerated SEI layer formation and variable internal DC resistance (up to 0.38 mΩ vs. nominal ≤ 0.25 mΩ specification).

3. **Minor Non-Conformances:** Incomplete cleanroom apparel compliance in slitting sub-assembly; overdue calibration on electrolyte moisture coulometer (Karl Fischer titrator).

Corrective Action Plan (CAP) Deadlines

- SinoPower must replace all slitter blades across Lines 1 through 4 with tungsten carbide circular knives and implement an automated 40,000-meter mandatory blade retirement protocol by October 30, 2024.
- Gigavolt Receiving Inspection will enforce 100% incoming 4-wire AC impedance testing on all incoming cell lots originating from Plant 2.