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ALTECH - SERVICE DATA CONFIRMS SNC BATTERY'S EXCEPTIONAL 0.6-1.5% FAILURE RATE VERSUS LITHIUM'S 3–5% INDUSTRY AVERAGE

Highlights

- Sodium-Nickel-Chloride (SNC) batteries have **operated for over two decades** in South Africa's telecom and UPS sectors
- Field data shows an exceptionally **low failure rate of just 0.6-1.5%** across deployed AMPower or equivalent SNC batteries
- Lithium batteries typically show 3–5% failure rates; 8-12% lead-acid and NiCd often exceed 2–4%.
- Service life routinely exceeds 15–20 years, with minimal capacity fade and little maintenance required
- Performance benchmarked against lithium-ion, lead-acid, and nickel-cadmium batteries, demonstrating clear lifetime and safety advantages.
- SNC battery **continues to function even if individual cell fails**, ensuring uninterrupted system operation
- Major cost advantage: lower replacement frequency, no ventilation or cooling systems, and reduced total cost of ownership
- Validates SNC as the most reliable and maintenance-free UPS solution for explosive ATEX environments, remote operations, and critical industrial assets

Altech Batteries Limited (ASX: ATC; FRA: A3Y) ("Altech" or "the Company") is pleased to announce outstanding long-term performance results for its partner AMPower's sodium-nickel-chloride (SNC) batteries. **Extensive field data from South Africa** demonstrates an exceptionally **low failure rate of just 0.6%,** confirming the SNC technology's superior reliability and durability compared with traditional lithium-ion, lead-acid, and nickel-cadmium battery systems.

For more than 15 years, SNC batteries have powered South Africa's telecommunication and industrial UPS sectors, enduring extreme climates, unstable grids, and remote conditions. This long history of reliability

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underscores why SNC technology is now central to Altech Batteries' expansion strategy for European pipeline and hydrogen control infrastructure.

SOUTH AFRICAN FIELD EXPERIENCE – PROVEN IN HARSH ENVIRONMENTS

SNC batteries have been in service across South Africa since the early 2010s, supporting telecom towers, utility substations, and industrial control systems. They operate reliably in some of the toughest conditions—regularly exposed to temperatures above 50°C and constant power interruptions. Evidence shows that they continue to deliver stable capacity and output. A number of units installed as far back as mid 2000s are still running today, without the need for maintenance or electrolyte replacement. Field data collected by AMPower shows a remarkably low failure rate of just 0.6% to 1.5%, underscoring the chemistry's proven reliability. With no need for active cooling and minimal servicing requirements, field evidence has demonstrated SNC batteries are well suited to remote or high-temperature environments.

WHY SNC BATTERIES LAST SO LONG

Sodium-Nickel-Chloride batteries derive their longevity from their **solid-state ceramic construction** and fully sealed architecture. There are **no flammable electrolytes**, no venting gases, and no corrosion pathways. The internal molten sodium and nickel chloride reaction is contained within a **β-alumina ceramic electrolyte**, ensuring stable operation across thousands of cycles. Unlike lead-acid and lithium-ion batteries, SNC chemistry suffers no electrode dendrite formation or electrolyte degradation. It is immune to over-discharge damage and can remain idle for months without capacity loss. This combination of chemical stability and mechanical robustness allows SNC batteries to achieve service lives exceeding 15–20 years under both float and cycling conditions.

COMPARISON: SNC VS. LITHIUM, LEAD ACID, AND NICKEL-CADMIUM

Industry experience shows that lithium-ion batteries typically fail at **rates of around 3–5%, lead-acid systems at 8–12%, and nickel-cadmium batteries at 2–4%**. See Table 1. Failures usually stem from chemical wear, heat stress, or physical damage. In lithium-ion cells, problems such as dendrite growth, electrolyte breakdown, and thermal runaway are common. Lead-acid batteries often suffer from sulfation and corrosion of the plates, while nickel-cadmium types are prone to memory effect and electrolyte leakage. SNC batteries, by contrast, avoid these issues altogether. Their solid ceramic electrolyte contains no liquid components to corrode or gas to evolve, and they operate in a stable thermal environment.

TECHNOLOGICAL REDUNDANCY – EACH CELL INDEPENDENT

In SNC batteries, each cell is housed inside a beta-alumina solid electrolyte (BASE) tube that allows sodium ions (Na^+) to pass through while blocking electrons. If a small crack develops in the ceramic, the battery doesn't immediately fail. Because the sodium is molten at the operating temperature of about 270°C, it remains fluid enough to seep into the micro-fracture and coat the surfaces. This forms a thin ionic bridge that keeps sodium ions moving across the damaged area, maintaining conductivity. The elevated temperature keeps both the sodium and nickel-chloride materials molten and active, allowing ion transport to continue smoothly. Moreover, SNC battery modules contain many cells connected in series or parallel, so if one cell's resistance increases slightly, the others compensate—ensuring steady voltage and reliable overall performance.

Table 1 – Comparison of Field Failure Rate of Various Battery Types

Parameter	Sodium Nickel Chloride (SNC)	Lithium-Ion	Lead Acid	Nickel-Cadmium
Service Life (years)	15–20	10–15	3–5	10–15
Field Failure Rate	**0.6-1.5%**	**3–5%**	**8–12%**	**2–4%**
Maintenance	None	Periodic BMS checks	Frequent/equalisation	Routine
Temperature Range (°C)	–40 to +60	0 to +40 (typical)	0 to +40	–20 to +50
Explosion / Fire Risk	**None (fireproof, explosion-proof)**	High (thermal runaway)	Hydrogen emission	Hydrogen emission
Environmental Impact	100% Recyclable 50% Carbon Footprint to LIB	Li/Co/Cu critical metals	Lead hazard	Cadmium toxicity
ATEX Suitability	**Yes**	No	Conditional	Conditional
Total Cost of Ownership (15 yrs)	Lowest	Moderate	High	High

Altech Batteries SMC batteries to be produced by AMPower

Altech Managing Director Iggy Tan commented:

"It's great to see real service-life data confirming the reliability and consistency of SNC battery technology. These results back up our long-held understanding of how well the batteries perform under harsh conditions, including high temperatures and frequent power disruptions. The exceptionally low failure rate highlights the strength of the chemistry and design, while the high float life proves their long-term stability. This outstanding durability sets SNC batteries apart as one of the most dependable and low-maintenance energy storage solutions available today."

End

Authorised by: Iggy Tan (Managing Director)

Altech Batteries Interactive Investor Hub

Altech's interactive Investor Hub is a dedicated channel where management interacts regularly with shareholders and investors who wish to stay up-to-date and to connect with the Altech Batteries leadership team. Sign on at our Investor Hub https://investorhub.altechgroup.com or alternatively, scan the QR code below.

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About Altech Batteries Ltd (ASX:ATC) (FRA:A3Y)

CERENERGY® Batteries Project

Altech Batteries Ltd is a specialty battery technology company that has a joint venture agreement with world leading German government battery institute Fraunhofer IKTS ("Fraunhofer") to commercialise the revolutionary CERENERGY® Sodium Chloride Solid State (SCSS) Battery. CERENERGY® batteries are the game-changing alternative to lithium-ion batteries. CERENERGY® batteries are fire and explosion-proof; have a life span of more than 15 years and operate in extreme cold and desert climates. The battery technology uses table salt and is lithium-free; cobalt-free; graphite-free; and copper-free, eliminating exposure to critical metal price rises and supply chain concerns.

The joint venture is commercialising its CERENERGY® battery, with plans to construct a 120 MWh production facility on Altech's land in Saxony, Germany. The facility intends to produce CERENERGY® battery modules to provide grid storage solutions to the market.

AMPower Sodium Nickel Chloride Battery Sales Project

Altech Batteries Ltd has immediate entry into the sodium nickel chloride (SNC) battery market in Australia, Europe and United States of America through a strategic collaboration and distribution agreement with the current largest SNC battery manufacturer AMPower, a subsidiary of the Chilwee Group. Chilwee is the third largest e-mobility battery manufacturer in China, with an annual turnover of US$20 billion, 23,000 employees, and production capabilities spanning lead-acid, lithium-ion, sodium-ion, and next-generation battery technologies. AMPower currently manufactures conventional Zebra-type sodium nickel chloride ($Na/NiCl_2$) solid-state batteries—using the same chemistry as CERENERGY®—but mainly for the small Uninterrupted Power Supply (UPS) industrial market. AMPower was originally established as a joint venture with General Electric to produce sodium nickel chloride UPS batteries under the Durathon brand.

AMPower will produce sodium nickel chloride solid state UPS batteries for Altech which will be under Altech brand, supervision and specification for distribution across Australia, Europe, and the USA.

Silumina Anodes™ Battery Materials Project

Altech Batteries Ltd has licenced its proprietary high purity alumina coating technology to 100% owned subsidiary Altech Industries Germany GmbH (AIG), which has finalised a Definitive Feasibility Study to commercialise an 8,000tpa silicon alumina coating plant in the state of Saxony, Germany to supply its Silumina Anodes™ product to the burgeoning European electric vehicle market.

This Company's game changing technology incorporates high-capacity silicon into lithium-ion batteries. Through in house R&D, the Company has cracked the "silicon code" and successfully achieved a 30% higher energy battery with improved cyclability or battery life. Higher density batteries result in smaller, lighter batteries and substantially less greenhouse gases, and is the future for the EV market. The Company's proprietary silicon product is registered as Silumina Anodes™.

The Company is in the race to get its patented technology to market, and has completed a Definitive Feasibility Study for the construction of a 8,000tpa Silumina Anodes™ material plant at AIG's industrial site within the Schwarze Pumpe Industrial Park in Saxony, Germany. The European silicon feedstock supply partner for this plant will be Ferroglobe. The project has also received green accreditation from the independent Norwegian Centre of International Climate and Environmental Research (CICERO). To support the development, AIG has commenced construction of a pilot plant adjacent to the proposed project site to allow the qualification process for its Silumina Anodes™ product. AIG has executed NDAs with German and North American automakers and battery material supply chain companies.

Silumina Anodes™