28 October 2025

ALTECH – SODIUM-NICKEL-CHLORIDE BATTERIES PROVE OUTSTANDING SAFETY UNDER DESTRUCTIVE TEST CONDITIONS

Highlights

- All SNC **safety destruction tests** successfully completed with zero thermal runaway, fire or explosion
- Extreme fire, impact, over-charge, and submersion tests **confirm full mechanical and chemical stability**
- SNC cells remained sealed and **intact after 850°C gasoline fire for 30 minutes**
- Rod penetration and water exposure produced only harmless steam; no violent reactions observed
- Ten-metre drop and 48 km/h crash caused minor dents, **no leakage or rupture**
- Module endured 2.5h saltwater immersion without any external reaction or voltage loss
- Over-charge at 145% nominal voltage showed **no venting, swelling, or heat generation**
- Bullet impacts caused brief smoke only; structure and voltage remained stable
- Confirms SNC chemistry as one of the **safest energy-storage technologies** for UPS, stationery and transport applications

Altech Batteries Limited (ASX: ATC; FRA: A3Y) ("Altech" or "the Company") is pleased to report the completion of a full suite of **safety self-destruction validation tests** performed on its Sodium-Nickel-Chloride (SNC) battery technology. The tests were designed to simulate the most severe field hazards that can occur during storage, transport, or operation.

Across all scenarios — including direct fire exposure, rod penetration, over-charge, ballistic impact, drop test, impact test and submersion — the SNC cells and modules demonstrated exceptional **chemical stability and mechanical resilience**. No explosions, thermal runaways, or uncontrolled reactions were recorded in any test. The results confirm what long-term field deployments have already indicated: SNC batteries are intrinsically safe, thermally robust, and chemically contained, even when exposed to conditions

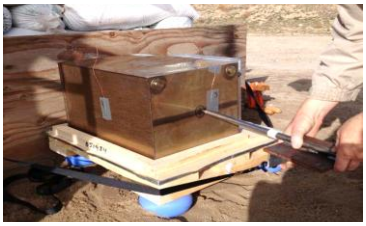
far beyond those specified under international certification standards such as UL 1973, IEC 62619, and UN 38.3.

Cell Fire Exposure Test

Three fully charged SNC battery cells were subjected to a 30-minute gasoline fire reaching 850°C. Despite the extreme conditions, there was **no explosion**, **no rupture** of the cell casing, and no leakage or release of internal materials. **The cells remained structurally intact** throughout the test.

Module Fire Exposure Test

A hot, fully charged SNC battery module was subjected to a 30-minute gasoline fire reaching 850°C. The flames were extinguished within one minute. **No explosion occurred**, the cell **casing remained intact**, and only minor mechanical weakening was observed.



Module Rod Penetration Test

A fully charged SNC battery module was pierced with a 20mm steel rod and then exposed to water. After 23 minutes, an external reaction generated steam and a small amount of vapour, which gradually dissipated over four hours. **No explosion or violent reaction** occurred throughout the test.

Ten Metre Drop Test

A fully charged, operational SNC battery module was dropped from a height of 10m onto a steel pole, simulating an impact at approximately 30MPH. The test caused minor denting, but the battery casing remained intact with **no rupture, leakage, or loss** of structural integrity.

Module Impact Tests

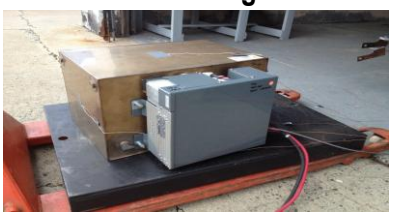
A set of fully charged SNC battery packs was crash-tested by impacting a simulated utility pole at 48km/h using a vehicle. **No explosion, fire**, or thermal reaction occurred during or after the collision, confirming the chemistry's strong structural integrity and inherent safety under severe impact conditions.

Module Saltwater Exposure

A fully operational Altech SNC battery module was tested under 3.5% saltwater exposure, including a full 2.5-hour submersion period. Throughout the test, **no fire, explosion, or external reaction** occurred,

demonstrating the system's inherent chemical stability and sealed-cell safety even in highly conductive marine environments.

Module Overcharge Test



A fully charged SNC battery was subjected to 145% of its nominal voltage for one hour (45% higher than the UL1973) over charge limit. The test resulted in **no swelling, venting, or thermal reaction**, confirming the battery's exceptional tolerance to overvoltage conditions and intrinsic electrochemical stability.

Module Bullet Impact

A fully operational SNC battery was struck by both shotgun and rifle rounds during ballistic testing. The impacts produced only brief, minor smoke with no ignition, fire, or explosion. The cell structure remained stable, confirming the chemistry's exceptional tolerance to extreme mechanical abuse.

Watch Safety Test Video https://www.youtube.com/watch?v=2k2FoDKOAS0

INTERPRETATION OF RESULTS

These cumulative tests reinforce the SNC system's **fundamental safety principles**:

- **Solid-state architecture** – No liquid electrolyte or polymer separator that can burn, leak, or decompose.
- **Low internal pressure** – No gas generation under over-charge or thermal stress.
- **Ceramic isolation** – The β-alumina solid electrolyte maintains ionic conduction but blocks electrons, preventing short-circuit propagation.
- **Sealed stainless-steel casing** – Provides complete containment and mechanical strength even under severe deformation.
- **Self-regulating chemistry** – Sodium and nickel-chloride redox couples exhibit natural equilibrium limits, preventing energy overshoot or dendrite formation.

Unlike lithium-ion or lead-acid systems, which rely on organic electrolytes and pressure-relief vents, SNC modules remain **hermetically sealed for their entire service life**, eliminating risks of gas venting, electrolyte ejection, or thermal propagation.

Test Type	Condition	Outcome	Observation
Cell Fire Exposure	850 °C for 30 min	No explosion or leakage	Casings intact
Module Fire Exposure	850 °C for 30 min	No explosion	Minor casing weakening only
Rod Penetration	20 mm rod + H2O exposure	No violent reaction	Light steam only
Ten-Metre Drop	~30 mph impact	No rupture or leak	Casing dented, structure stable
Vehicle Impact	48 km/h crash	No fire or explosion	Chemistry stable
Saltwater Immersion	3.5 % NaCl, 2.5 hr	No reaction	Fully sealed, stable voltage
Over-Charge	145 % nominal V 1 h	No swelling or venting	Normal operation resumed
Ballistic Impact	Shotgun & rifle rounds	No ignition	Minor smoke only

Altech Managing Director Iggy Tan commented:
"These independent abuse tests confirm what long-term field data has been telling us for years — our sodium-nickel-chloride technology batteries produced by partner company AMPower, are exceptionally safe. Even under direct fire, impact, or over-voltage, the cells remain sealed and stable. This level of intrinsic safety is a major differentiator for Altech. As global energy-storage installations increase near population centres and critical infrastructure, regulators and customers are demanding non-flammable chemistries. SNC meets that demand today."

"We are proud to demonstrate that our SNC batteries can endure conditions well beyond certification limits while maintaining integrity and performance. This gives confidence to partners, insurers, and end-users that SNC systems deliver not only long cycle life and temperature tolerance but also unmatched safety".

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.

For more information, please contact:

Corporate

Iggy Tan
Managing Director
Altech Batteries Limited
Tel: +61 8 6168 1555
Email: info@altechgroup.com

Martin Stein
CFO & Company Secretary
Altech Batteries Limited
Tel: +61 8 6168 1555
Email: info@altechgroup.com

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™