CLEAN INDUSTRIAL HEAT™

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1414 DEGREES REACHES 530 mAh/g MILESTONE IN SINTL SILICON ANODE PROGRAM — AHEAD OF SCHEDULE

Highlights

- 530 mAh/g specific capacity demonstrated in laboratory testing — surpassing the previously announced 500 mAh/g milestone
- Program tracking ahead of schedule toward the 600 mAh/g target — approximately 20% above current commercial silicon-enhanced anode benchmarks
- Result achieved with a 4-hour charge/discharge cycle between 20–80% state of charge
- SiNTL nanoparticles designed for drop-in compatibility with existing lithium-ion battery manufacturing processes — no infrastructure overhaul required
- Silicon is increasingly being incorporated into lithium-ion anodes to lift energy density and fast-charge performance
- Silicon anode battery market projected to grow from USD 0.4 billion (2025) to USD 25.8 billion by 2035 at a CAGR of 51.7%

1414 Degrees Ltd (ASX: 14D) ("1414 Degrees" or the "Company") is pleased to announce that laboratory testing of its SiNTL silicon nanoparticle battery material program has demonstrated 530 mAh/g specific capacity — exceeding the previously announced 500 mAh/g milestone and advancing ahead of schedule toward the program's 600 mAh/g development target.

The result was achieved under controlled test conditions using a 4-hour charge/discharge cycle between 20–80% state of charge, with testing conducted at George Washington University (GW) under the Company's exclusive global technology licence.

A Market at Inflection Point

Graphite has long dominated battery anode materials — but its theoretical capacity ceiling of approximately 372 mAh/g is increasingly a constraint as electric vehicle manufacturers push for longer range and faster charging. Silicon offers a theoretical capacity of around 3,600 mAh/g, but its commercial adoption has historically been limited by the volume expansion that occurs during lithium absorption, which degrades cycle life and electrical conductivity.

That is now changing. Investment in silicon anode start-ups exceeded USD 4.5 billion in 2024, and multiple independent analysts project the silicon anode battery market to grow at a CAGR exceeding 50% through 2035, with projections ranging up to USD 25.8 billion by 2035[1] — reflecting broad industry conviction that silicon integration is no longer a research ambition but a commercial imperative.

What SiNTL® Does Differently

The SiNTL process produces aluminium-coated silicon nanoparticles using a low-temperature, one-step synthesis method operating between 125–180°C. The in-situ aluminium coating forms during synthesis, producing air- and water-stable nanoparticles that directly address silicon's volume expansion problem. The process avoids hazardous reagents such as hydrofluoric acid or silanes, has demonstrated yields of approximately 97%, and has been independently validated as compatible with conventional anode production lines.

[1] Fact.MR, Silicon Anode Battery Market Global Market Analysis Report – 2035.

Where most silicon anode approaches rely on chemical vapour deposition — a high-temperature process requiring silane gas and specialised infrastructure — SiNTL™ operates at 125–180°C in a single step, without hazardous reagents and with independently validated compatibility with standard anode production lines. Battery manufacturers can integrate SiNTL material without retooling existing infrastructure. It is designed as a drop-in upgrade, not a platform replacement.

At 530 mAh/g — compared to graphite's ≈370 mAh/g — SiNTL composite anodes now demonstrate a meaningful performance advantage at laboratory scale, with the 600 mAh/g target representing a further ~20% improvement above current commercial silicon-enhanced benchmarks.

The SiPHyR® Integration Opportunity

What further distinguishes 1414 Degrees' position in the battery materials value chain is the potential to integrate SiNTL with its SiPHyR methane-pyrolysis technology. SiPHyR produces low-emissions hydrogen alongside solid carbon as a co-product. Combining that carbon with SiNTL's aluminium-coated silicon nanoparticles could deliver a streamlined, single-step pathway to finished silicon-carbon composite anode material — eliminating multiple intermediate processing steps typical of conventional approaches and potentially reducing production costs significantly.

The Company is actively evaluating this integrated pathway. If validated, it would give 1414 Degrees a distinctive position controlling both the silicon nanoparticle IP and the carbon feedstock required to produce finished anode material at scale — an unusual combination in the emerging battery materials supply chain.

Executive Chairman Dr Kevin Moriarty said:

> "Surpassing the 500 mAh/g milestone and doing so ahead of schedule is a meaningful result for the SiNTL program. The 530 mAh/g figure is not just a number — it demonstrates that our aluminium-coating approach is working as designed under real test conditions, and that the pathway to 600 mAh/g is credible.
>
> Silicon-enhanced anodes are increasingly recognised as essential to the next generation of battery performance, and what differentiates SiNTL is the combination of a manufacturable, hazard-free process with compatibility with existing production lines. We're not asking battery manufacturers to rebuild their factories.
>
> The potential integration with SiPHyR represents a further opportunity to create a uniquely integrated, lower-cost production pathway — one that would be difficult for competitors to replicate quickly. We look forward to reporting further results as both programs advance."

Testing continues at GWU with ongoing work focused on improving specific capacity performance, extending cycle life validation, and progressing scalability assessment toward commercial battery applications. Cycle life characterisation is progressing as part of the ongoing validation programme and will be reported as results become available. The program's is advancing towards a milestone of 600 mAh/g, with ongoing testing expected to deliver further results in the coming months.

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Dr Kevin Moriarty, Executive Chairman on behalf of the Board of Directors

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ABOUT 1414 DEGREES LIMITED

1414 Degrees (ASX:14D) is advancing an integrated clean-energy and industrial decarbonisation platform spanning grid-scale storage, industrial heat, hydrogen and advanced battery materials.

The Company's strategy combines near-term infrastructure revenue with scalable technology commercialisation, underpinned by deep expertise in energy-dense silicon systems and materials engineering. 1414 Degrees owns the Aurora Energy Precinct in South Australia, a development-ready energy and industrial site designed for firmed renewable electricity and co-located high-demand users. The Stage 1 140 MW / 280 MWh Battery Energy Storage System (BESS) represents a near-term revenue opportunity, with expansion potential aligned to customer demand.

Core Platforms:

SiBrick®: Silicon-based thermal energy storage media forming the foundation of the Company's long-duration energy storage systems.

SiBox® (Industrial Heat-as-a-Service): Long duration energy storage technology that converts low-cost renewable electricity into dispatchable high-temperature heat, supporting industrial decarbonisation across energy-intensive sectors.

SiPHyR®: A silicon-based methane pyrolysis reactor integrating thermal storage to produce low-emissions hydrogen and solid carbon.

SiNTL™: A silicon-enhanced anode material designed to increase lithium-ion battery energy density while remaining compatible with existing manufacturing processes.

1414 Degrees' technologies are unified by a single materials platform — leveraging silicon to store, convert and enhance energy across multiple sectors.

For more information, visit www.1414degrees.com.au

Forward-looking statements

This announcement includes forward-looking statements which may be identified by words such as 'anticipates', 'believes', 'expects', 'intends', 'may', 'will', 'could', or 'should' and other similar words that involve risks and uncertainties. These forward-looking statements are based on the 1414 Degrees' expectations and beliefs concerning future events as at the date of this announcement. Forward-looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of 1414 Degrees, which could cause actual results to differ materially from such statements. 1414 Degrees makes no undertaking to update or revise the forward-looking statements made in this announcement to reflect any change in circumstances or events after the date of this announcement.