

LeydenJar and Highpower, a Leader in Battery Production, Sign Partnership for Production of Next-Generation Batteries

LEIDEN, ZUID-HOLLAND, NETHERLANDS, October 2, 2025 /EINPresswire.com/ -- [LeydenJar](#), a Dutch clean-tech scale-up and global leader in 100% silicon anode technology, and [Highpower Technology](#), a Chinese battery manufacturer with over 20 years of expertise in designing and mass-producing advanced lithium-ion cells, today announced a strategic collaboration. By combining LeydenJar's breakthrough silicon anodes with Highpower's proven cell design and manufacturing capabilities, the two companies will produce a new generation of batteries with ultra-high energy density. These high capacity batteries will power new small fitness trackers and smart devices with AI-functionalities.

LeydenJar develops the critical silicon anode while Highpower integrates it into advanced cell designs and prepares them for large-scale production. The collaboration not only bridges cutting-edge innovation with industrial-scale manufacturing, but

also enables rapid customer feedback through Highpower's global customer base, allowing the technology to be validated and improved in close cooperation with leading consumer electronics brands. With AI now driving demand for more powerful and energy-hungry devices, the parties are uniquely positioned to meet the requirements of next-generation AI-enabled consumer



LeydenJar lab in The Netherlands



Highpower battery production

electronics.

Delivering Record Energy Density

Modern consumer electronics demand batteries that are smaller, lighter, and longer-lasting, while powering increasingly sophisticated features. The collaboration between LeydenJar and Highpower is driving the performance beyond what conventional lithium-ion technology can achieve. LeydenJar's 100% silicon anodes store significantly more energy than standard graphite anodes, increasing energy density and battery capacity by at least 50%.

Highpower's advanced cell design and manufacturing expertise ensure that this additional capacity is delivered reliably, with stable cycle life and safety, at scale.



LeydenJar produces Silyte™ in their production facility in Eindhoven, The Netherlands

In the laboratory, LeydenJar's cells have already demonstrated 500 cycles without any external compression. The companies are now translating these results into production-ready cells, targeting an energy density up to 1350 Wh/L (nominal stack level), establishing a new benchmark for consumer electronics batteries. The companies have already shipped thousands of prototype cells built on a pre-production assembly line to major consumer electronics customers.

Christian Rood, CEO of LeydenJar, said: "We are no longer talking about possibilities. We are producing thousands of cells together and delivering them to leading consumer electronics companies. By combining our 100% silicon anodes with Highpower's manufacturing expertise, we are already demonstrating record energy density and performance in real devices. This collaboration proves that next-generation batteries are not just on the horizon. They are here now."

Path to Mass Production

To scale these results, LeydenJar and Highpower are validating 100% silicon anodes in Highpower's manufacturing lines and developing high-volume production technologies. Already this year, pre-production cells have been built at Highpower, ramping up to 10,000s batteries for consumer electronics qualification in 2026. With LeydenJar's Eindhoven manufacturing facility PlantOne, full rate production of battery cells starts in 2027.

Leo Liao, CTO of Highpower, commented: "Energy density will define the future of consumer electronics, with AI's heavy power requirements pushing the limits of today's devices. By applying LeydenJar's 100% silicon anodes in our advanced cell architecture, we are achieving breakthrough Wh/L levels without compromising cycle life or safety. This provides a solution for

AI products' high energy density requirements, aligning with Highpower's strategic vision of being a pioneer in 'New Energy Solutions for Edge AI+ Hardware.' This positions us and our customers at the forefront of battery technology innovation."

Unlocking New Market Opportunities

The collaboration also includes joint development with OEMs to tailor batteries for high-demand applications, from fitness trackers and wearables to smartphones, laptops, and AR/VR devices. With proven prototypes in customer hands and mass production on the horizon, LeydenJar and Highpower are together setting a new standard for battery performance in consumer electronics.

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