

Press Release

Battrion and Hilti present jointly built high-power lithium-ion battery cell prototypes that outperform the industry standard



Schaan (FL) / Dübendorf, ZH (CH) June 30, 2020 - In a joint development project [Battrion AG](#), an [ETH Zurich](#) spin-off, and [Hilti Group](#), one of the leading power tool manufacturers, have built lithium-ion battery cell prototypes that show a significant performance increase compared to commercially produced, state-of-the-art cells that are used in power tools today. The cell prototypes are based on Battrion's Aligned Graphite® technology. They exhibit an increase in their discharge performance of up to 20 % in power tool applications, leading to substantially higher performance of Hilti's cordless power tools. For other cell designs and applications, battery cells with Aligned Graphite show an increase in discharge performance by up to 40 %, and a charging time reduction of up to 50 % compared to commercially available cells.

The performance gains are particularly noteworthy as they do not come at the price of decreased lifetime and because the underlying technology can be implemented at scale and low cost. Furthermore, the higher charging and discharging performance does not lead to further heat generation and therefore extends the time in which the battery can be safely operated.

Successful collaboration between start-up and global tech company

The collaboration between Battrion and Hilti dates back to 2014, a year before Battrion's foundation, when Martin Ebner, Battrion's co-founder, was awarded the Hilti Prize for Innovative Research at ETH Zurich for his work on lithium-ion batteries. The groundwork for Battrion's technology was laid, built on the excellent infrastructure found at ETH Zurich and supported through their pioneer-fellowship program.

The goal of Battrion and Hilti's close working relationship is to bring the performance gains achieved through Battrion's Aligned Graphite® technology to Hilti power tools. *"Through our collaboration with Hilti, we've gained important industrial insights, particularly to the power tool market. The built prototypes mark an important step as they demonstrate external validation of the claims of our technology by a market leader,"* says Dr. M. Ebner, CEO of Battrion.

For Dr. Andreas Bong, Head of Corporate Research at Hilti, this collaboration serves as a role model for technology transfer: *"This is further proof of the benefits of long-lasting relationships with leading universities and the openness to collaborate with young start-ups. Hilti honors and strongly supports research that combines scientific excellence with practical application."* Vice President of Research at ETH Zurich, Prof. D. Günther, who has been following the collaboration between the companies, states: *"It excites me to see when research that originated in an academic setting at ETH Zurich progresses towards industrial applications, particularly in such an important and competitive field as lithium-ion battery technology."*

About Battrion

Battrion is an ETH Zurich spin-off founded in 2015. Battrion operates a research lab and production facility in Dübendorf, Switzerland, where it develops its Aligned Graphite® technology, a fabrication technology for lithium-ion batteries that improves the microstructure of negative electrodes. The technology significantly increases the charge- and discharge performance of lithium-ion batteries and is particularly suited for EV and high-power applications. Battrion produces and markets standardized and customized negative electrodes with Aligned Graphite® and offers its technology on a license basis. More information can be found at: <http://www.battrion.com>

About Hilti

The Hilti Group supplies the worldwide construction and energy industries with technologically-leading products, systems, software, and services. With 30,000 team members in over 120 countries, the company stands for direct customer relationships, quality, and innovation. Hilti generated annual sales of CHF 5.9 billion in 2019. The headquarters of the Hilti Group has been located in Schaan, Liechtenstein, since its founding in 1941. The company is privately owned by the Martin Hilti Family Trust, which ensures its long-term continuity. The Hilti Group's strategic orientation is based on a caring and performance-oriented culture and the goals of creating enthusiastic customers and building a better future. Through its own research and development activities in the field of lithium-ion battery technology, Hilti has built up the internal competencies to evaluate prospective battery technologies. This has put Hilti in a position to adopt the role of an intermediary between the start-up and cell suppliers.