

Conamix

Contact:

Anne Klingeberger

917-439-8388

aklingeberger@kivvit.com

Conamix Launches Out of Stealth to Solve the Toughest Problem in Batteries: A Cobalt-Free High Energy Cathode

Industry- and lab-tested team previews sulfur-powered, cobalt- and nickel-free battery technology aimed at the EV revolution

ITHACA, NY (MARCH 9, 2021) – Conamix, a venture-backed battery materials startup based in Ithaca, NY, today announced progress to develop an EV-ready, cobalt-free battery. In a presentation at the International Battery Seminar, Conamix shared that their sulfur cathodes will address a major issue that has stumped scientists and prevented the development and widespread use of sulfur-based lithium batteries: how to make cheap, readily available sulfur work at commercially relevant performance levels as a replacement for cobalt compounds in lithium-ion batteries.

“We are seeing major developments from groups working on lithium-metal anodes that give us confidence that practical high energy lithium-metal batteries with conventional cathodes will be available at commercial scale.” said Conamix CEO Charlie Hamilton. “Conamix is set to meet the moment by providing the step change improvement to the counter electrode: the cathode. When we solve this problem, Conamix materials will be a powerful, safe and low-cost part of EV batteries around the world.”

Founded in 2014, Conamix has been operating in stealth to reach energy storage’s holy grail: a low-cost, high-energy alternative to the expensive and scarce cobalt and nickel found in current electric vehicle (EV) batteries.

Led by CTO Bart Riley, cofounder and CTO of lithium-ion battery innovator A123 Systems and CDO/CSO of QuantumScape through 2016, Conamix’s technical team has decades of experience developing and commercializing disruptive energy storage technology.

“Collectively, my teams have developed and launched some of the most important automotive battery tech in the last 20 years,” said Riley. “We’re looking to do it again with Conamix.”

Conamix is backed by Volta Energy Technologies, Hegemon Capital, New York Ventures and other early stage investors.

“Conamix’s team understands more about the materials and chemistry challenges of building an automotive-grade sulfur battery than anyone Volta has seen,” said Volta Energy Technologies CEO Jeff Chamberlain. “They have made significant progress towards a cleaner, safer, longer-lasting cobalt-free battery, and we are truly excited about the potential of their product.”

Cobalt and high-purity nickel prices have fluctuated wildly over the past several years as global demand for lithium-ion batteries has increased. The supply chain for these materials is complex, with social, environmental and geopolitical challenges due to limited supply.

Sulfur has long been recognized as an inexpensive, abundant alternative to cobalt. It has the best combination of energy and cost for lithium-based batteries, and is a byproduct of the global oil and gas industry. However, significant materials and chemical barriers have prevented past lithium-sulfur efforts from competing with conventional technology.

Conamix is on track to make lithium-sulfur work on a global scale by using a ‘stack’ of multi-functional materials technologies that will address the barriers that blocked past efforts. The Conamix Sulfur Stack™ includes:

- **Meta particles** with gradient structures that balance the transport of ions and electrons for improved power capability, energy density, and life
- **Bi-functional cathode additives** that simultaneously store Li and conduct electrons, replacing expensive and space wasting carbons
- **A new ‘binding’ molecule** that spatially constrains the electrochemical reaction storing the energy and thereby extends life
- **Novel electrolyte components** that improve the basic efficiency of the electrolyte providing improved energy density
- **A novel cathode design** that enables a new level of safety and energy density

Conamix's technology is protected by over 30 interlocking patent families and is based on innovations developed at Cornell, Stanford, the University of Waterloo, Berkeley Lab and other leading global research institutions.

"Our team has been working on the sulfur problem in stealth since 2016," said Conamix CTO Bart Riley. "We've made great strides in developing a safe, cost-effective cobalt-alternative that can be dropped into existing methods of manufacturing EV batteries, and we are proud to finally go public with our efforts."

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About Conamix

Conamix is commercializing new low-cost high-energy materials for the global lithium battery market. The company's materials are designed to drop-in to existing manufacturing infrastructure to both improve the energy density and lower the cost of lithium-ion systems. Founded in 2014, the company is led by an experienced team of chemical and battery industry leaders and has intellectual property agreements with multiple leading global research institutions. For contact information, visit conamix.com.