Waters

NEWS RELEASE

Waters' New Battery Cycler Microcalorimeter Solution Accelerates Real-World Testing from Months to Weeks

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News Summary:

- New Battery Cycler Microcalorimeter Solution collects up to six times more data than other commercially available calorimeters.i
- Integrated real-time data analysis accelerates validation of battery safety, quality, and performance testing by up to 75%.ii
- Up to 12 batteries can be tested simultaneously for charge-discharge and thermal testing to design experiments in multiple configurations.

PHILADELPHIA--(BUSINESS WIRE)-- PITTCON 2023 — Waters Corporation (NYSE:WAT) today announced a new **Battery Cycler Microcalorimeter Solution** from its TA Instruments™ Division for high-resolution characterization of battery cells. The instrument and software combination enables non-destructive testing under real-world operating conditions and significantly reduces experiment time from months to weeks, while providing decisive insights for greater battery efficiency, safety, and stability.

New Battery Cycler Microcalorimeter Solution from Waters' TA Instruments Division accelerates validation testing of battery safety, quality, and performance by up to 75%. The hardware-software combination accepts up to 12 batteries simultaneously for charge-discharge and thermal testing allowing scientists to design experiments in multiple configurations. (Photo: Business Wire)

"Innovations like our in-operando Battery Cycler Microcalorimeter Solution are revolutionary for the future of battery R&D," says Jianqing Bennett, Waters Corporation Senior Vice President of the TA Instruments Division. "It significantly reduces testing time by up to 75%, while helping researchers learn more about how batteries and their materials behave and change under both thermal

and electrochemical conditions. The precise data it provides scientists is essential to help ensure battery performance and safety."

The solution combines the TA Instruments high-resolution **TAM IV Isothermal Microcalorimeter** and integrated **TAM Assistant Software** platform with a BioLogic VSP-300 potentiostat (battery research instrument) to deliver accurate, rapid detection of parasitic heat reactions, an early indicator of battery efficiency. The Battery Cycler Microcalorimeter supports testing of three common battery types – coin, pouch, and 18650 cylindrical – for charge/discharge and thermal testing in parallel. It can maximize researcher efficiency with support for testing and data collection of up to 12 coin-sized batteries simultaneously – six times more than competitive offerings.

The easy-to-read TAM Assistant Software reduces technical barriers to training while enabling researchers to define parameters and plotting options, as well as interpret aggregated data to make informed decisions for their experimental or process strategy. This novel solution enables researchers to better predict electrolyte calendar life, which aids in the development of new electrolytes and electrode materials.

See Waters' Battery and Polymer Innovations at PittCon 2023

At PittCon Booth #2406, the **TA Instruments Division** will showcase a full suite of innovative instruments, accessories, and software designed to advance research and development for both battery and sustainable polymer designs. Attendees can see demos and learn more about new solutions for simplifying, automating, and accelerating polymer melt rheology testing with the Discovery Hybrid Rheometer **Auto-Trim Accessory**. Also in the booth will be the **Powder Rheology Accessory**, which accelerates product development and process optimization of powder materials, helping to characterize the behavior of raw materials or new formulations during storage, dispensing, processing, and end-use.

Additional Resources

- Learn more about the **Battery Cycler Microcalorimeter Solution**
- Visit the Waters **online press kit for PittCon '23 news** and product images
- Follow and connect with Waters via **LinkedIn**, **Twitter**, and **Facebook**

About Waters Corporation (**www.waters.com**)

Waters Corporation (NYSE:WAT), a global leader in analytical instruments and software, has pioneered chromatography, mass spectrometry, and thermal analysis innovations serving the life, materials, and food sciences for more than 60 years. With more than 8,200 employees worldwide, Waters operates directly in more than 35 countries, including 14 manufacturing facilities, and with products available in more than 100 countries.

i Based on Waters/TA Instruments analysis of publicly available information from competitor portfolios. The TAM IV can test and gather data for up to 12-coin cell batteries simultaneously, versus a maximum of 2 in competitor products.

ii Based on Waters/TA Instruments analysis of traditional electrolyte screening methods = 2 months of testing, but this ranges from 2-4 months on average. Waters/TA Instruments internal data shows typical experiment time for full cycle parasitics measurement using Battery Cycler Microcalorimeter Solution is ~ 2 weeks. Further time savings can be realized when narrowing to a specific voltage range (i.e., 4 to 4.2 V).

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