

# Rechargeable Batteries

Lab Equipment and  
Integrated Weighing  
Solutions to Support  
Battery Manufacturing

Simplifying Progress

**SARTORIUS**

# Rechargeable Battery QC & Research - Solutions for a Powerful Future

Material refiners, battery manufacturers, OEMs and recyclers are all invested in meeting global carbon neutrality goals and developing the super battery. Developing safe, durable rechargeable batteries that satisfy “green” mobility initiatives requires significant investment in research and development (R&D) and quality control (QC), as well as expertise in production stages.

## Sartorius Products for the Battery Industry



### Analytical Balances

Delivering the right dose of components is critical in battery manufacturing. With configurable hardware, software, and connectivity, the Cubis® II high-performance balance aligns with your unique needs.

- Seamless connectivity enhances productivity, efficiency, and data integrity in your laboratory
- Customizable modularity with 45 weighing modules, 2 user interfaces, and 7 draft shields
- Adaptable QApps software for different applications
- Long-term flexibility to enhance hardware and software configuration over time

### High Precision OEM-Weigh Cells

High-throughput dispensing applications are common in the battery industry for controlling the delivery of electrolytes, gap fillers or glue. Dispensing heads must be metrologically controlled and adjusted according to the ambient conditions, density, or viscosity of the delivered liquids.

Sartorius' integrated weigh cells are ideal for calibrating dispensing heads by automatic mass calculation and detection of value drifts over time.

- Designed for high-precision industrial applications; resolution of up to 0.001 mg
- Configurable for accurate weighing of moving samples or unstable environments
- Internal/external calibration weight for easy checks and necessary adjustments
- Simple communication via the data interface



Download whitepaper  
**Driving the Future: Precision Production of  
Lithium-Ion Batteries for Electric Vehicles**



### High Purity Water Systems

In battery production, total ion-free water is mandatory for preparing water-based slurries and samples or simply rinsing the battery cases to avoid interferences on the charged poles.

Sartorius Arium® water purification systems offer a wide range of options to meet your laboratory water needs regarding quality (ultrapure, pure or Reverse Osmosis water), daily volume usage and flexibility:

- System selection specifically for your application
- Perfect integration into any laboratory
- Display with touch function and intuitive menu
- Favorites function with direct access for recurring volumes



### Particle Separation for Analysis

Filters may be used to separate specific constituents for further chemical or physical characterization in basic research, recycling or non-conformity testing. Sartorius laboratory filtration products are engineered to support every filtration application.

- Membrane filters made of Regenerated Cellulose (RC), Polyamide (PA), Polytetrafluoroethylene (PTFE), or Polycarbonate (PC)
- Quartz Microfiber filters are especially suited for emission monitoring at high temperatures and wherever filters of the highest purity are needed
- Ash-free filter papers for multiple quantitative, qualitative, and gravimetric analyses



### Pipetting Steps

Using inadequate tools to pipette solvents can lead to unintentional consequences, such as aerosol contamination of your sample or pipette, or dissolution of the tip by the solvent.

Proline® Plus mechanical pipettes offer:

- A wide variety of adjustable single and multi-channel models as well as fixed single-channel
- Volume range from 3  $\mu$ L to 10 mL
- Materials with high chemical resistance, increasing pipette lifetime
- Best-fitting tips—ensuring the performance of Sartorius pipettes and repeatability of results like no other tip can

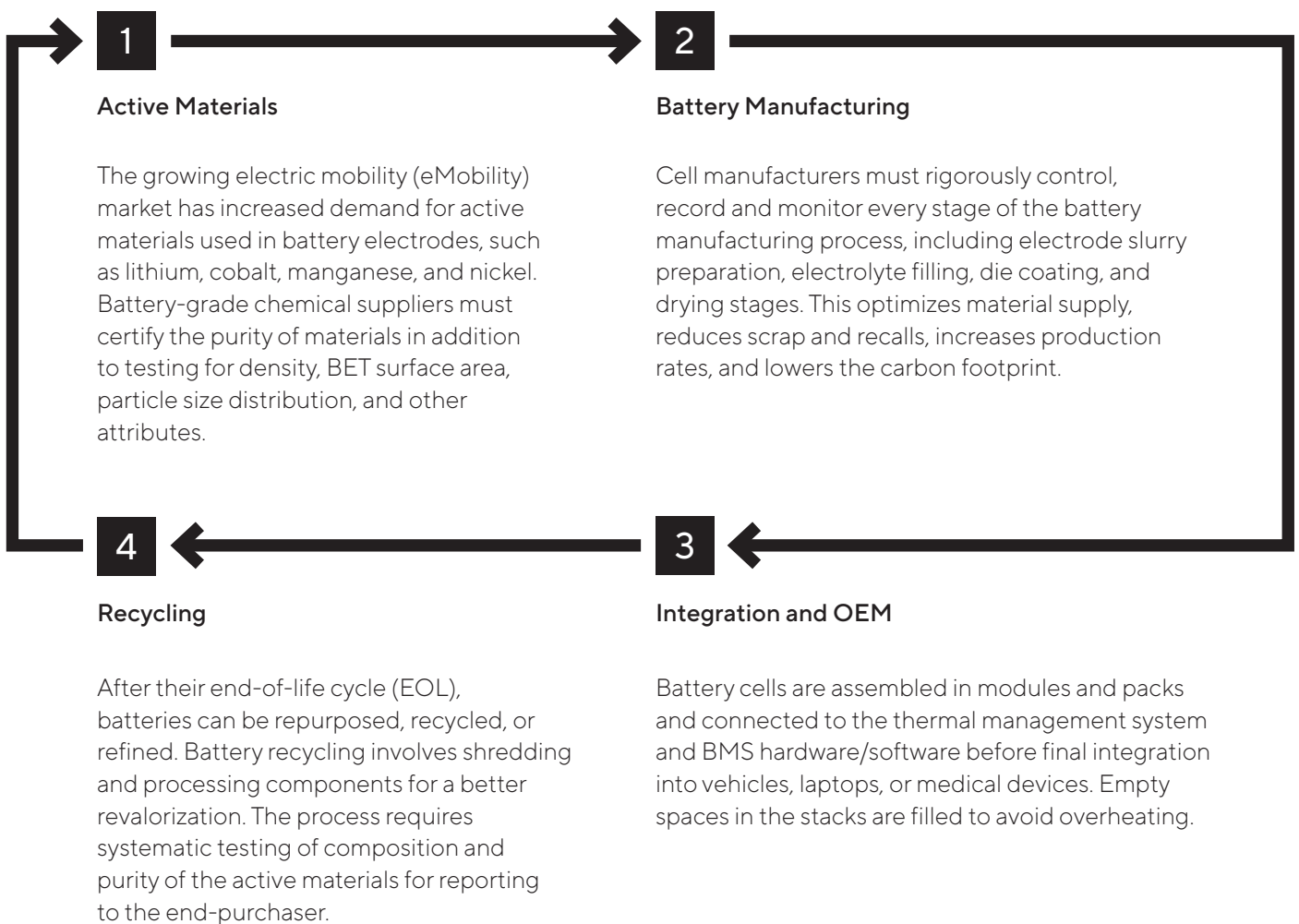
# Exploring the Life Cycle of the Rechargeable Battery

Battery production is subject to many constraints:

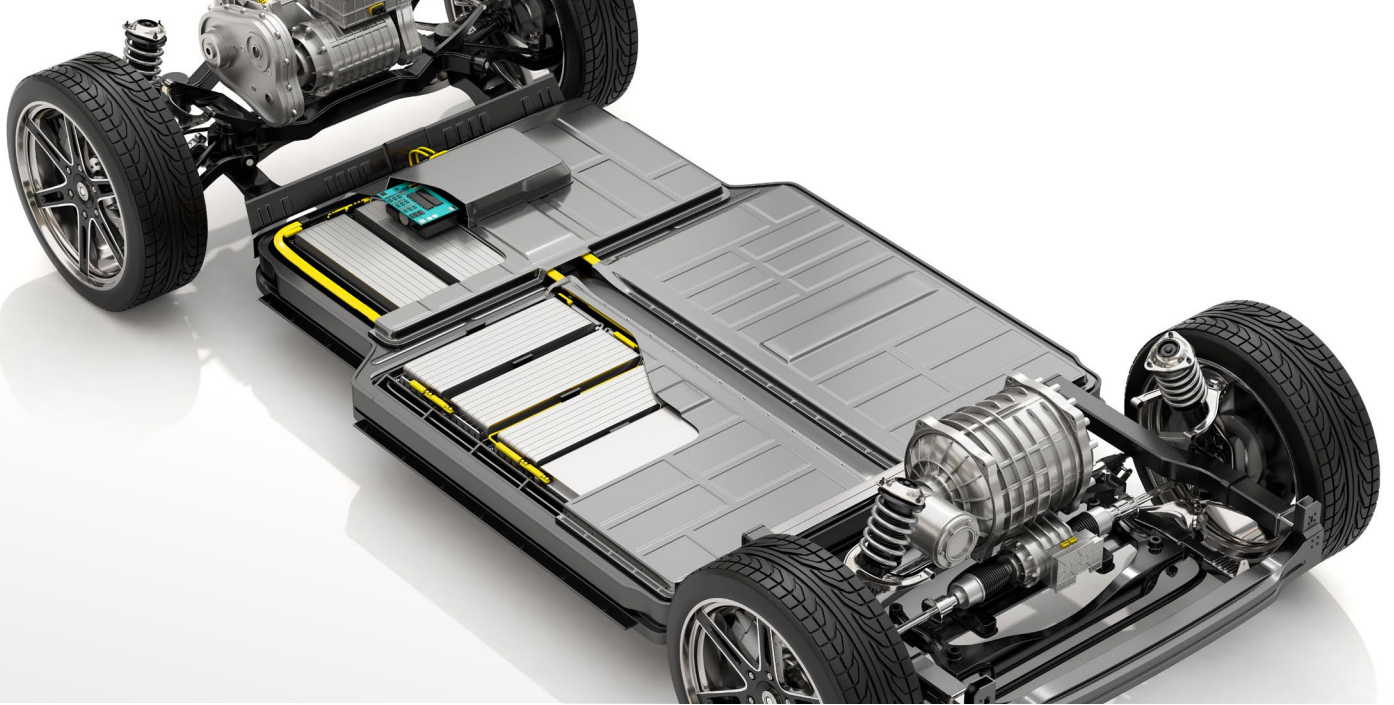
- **Ecological**—Carbon neutrality objective
- **Economic**—Reaching parity price for OEM manufacturers
- **Political**—No geopolitical dependence
- **Transport**—Safety or disruption of the supply chain
- **Technological**—New chemistries and increased energy density

These challenges can be overcome by building successful local partnerships across the supply chain, from active materials to manufacturing, vehicle assembly, and recycling.

## The Life Cycle of the Rechargeable Battery



Read blog  
**Making Good on the  
Promise of Solid-State Batteries**



## Sartorius Applications for Battery Producers



### Gravimetric Uniformity Checking

High precision balances offer numerous possibilities for non-destructive QC from checking die coating homogeneity and measuring the density of raw materials, to ensuring the accurate dispensing of electrolytes.



### In-Process Control Weighing

Control dispensing heads and check for correct assembly by weight with high-precision weigh cells embedded in your production line.



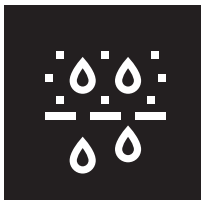
### Moisture Determination

Strictly monitoring humidity along the production steps helps prolong battery life and stability. Discover our solutions for determining moisture within minutes.



### Deionized Water

Are you developing water-based slurry or cleaning specific process steps? Discover the benefits of a purified water system with the lowest conductivity and easiest maintenance.



### Separation and Particle Analysis

High-performance filtration units are crucial for monitoring wastewater, capturing particles or separating components in the black mass.



### Sample Preparation

Impurity testing relies on accurate results from ICP | HPLC standards, pipetting, and gravimetric analysis.



### Data Analytics

Predicting battery life, optimizing your process or designing your experiments—easy-to-use data analytics software from Sartorius will help you get there.




Find out more  
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battery-manufacturing](http://www.sartorius.com/battery-manufacturing)

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