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## Product

SA2634-KIT Slurry Analysis System

## Headline

Slurry Analysis System for LiB Conductivity Evaluation

## Short Description

Software-based slurry analysis system for lithium-ion batteries, evaluates slurry conductivity and dispersion through DCR, R-ratio and Uniformity; impedance measurements 4 Hz to 8 MHz, for aqueous and NMP-based slurries

## Banner Specs

- Slurry conductivity and dispersion evaluation (DCR, R-ratio, Uniformity)
- Automated equivalent-circuit fitting
- For aqueous and NMP based slurries
- Impedance data from 4 Hz to 8 MHz

## USPs

- Combines frequency-sweep EIS with automated equivalent-circuit fitting for quantitative slurry evaluation
- Provides three proprietary metrics (DCR, R-ratio, and Uniformity) for consistent assessment of conductivity and dispersion

## Applications

- Optimization of slurry manufacturing conditions (e.g. mixing time, conductive agent content, dispersant ratio) in R&D and production
- Material research and evaluation using electrical dispersion analysis and comparative conductivity metrics
- Quality assurance and performance screening of lithium-ion battery slurries in production environments

## Product Description

The SA2634-KIT Slurry Analysis System is a software-based solution that quantifies the electrical characteristics of lithium-ion battery (LiB) slurries through impedance analysis. The KIT includes the SA2634 analysis software, the IM3536 LCR Meter, the SA9002 Test Fixture, and one pack each of disposable slurry sample containers SA9001 (for NMP-based slurries) and SA9001-01 (for aqueous slurries). By combining these components, the system enables

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standardized and repeatable evaluation of slurry conductivity and dispersion across a wide frequency range from 4 Hz to 8 MHz.

## Measurement and Analysis Principle

Using electrochemical impedance spectroscopy (EIS), the IM3536 acquires the impedance spectrum of the slurry. The SA2634 software models this data with an equivalent circuit to extract three proprietary parameters: DCR, representing the total resistance of the conductive path; R-ratio, indicating the relative contribution of conductive additives within that path; and Uniformity, reflecting the evenness of the conductive network distribution.

Together, these metrics provide a quantitative understanding of how well conductive additives are dispersed and connected within the slurry. They help engineers identify the optimal ratio between active material and conductive agent, assess the homogeneity of dispersion, and directly link electrical behavior to electrode performance.

## Measurement Process and Practical Application

For each measurement, approximately 1 ml of slurry is dispensed into a disposable sample holder. The SA9001 slurry sample container is used for N-Methyl-2-Pyrrolidone (NMP)-based slurries, while the SA9001-01 is intended for aqueous (water-based) slurries. The filled sample holder is placed into the SA9002 Test Fixture, a fixture developed specifically for this measurement system, where it establishes a stable electrical connection to the IM3536 LCR Meter. Once secured, the system performs an impedance sweep across a user-defined frequency range between 4 Hz and 8 MHz. Each measurement takes approximately one minute, minimizing changes in the slurry's state during testing.

By combining automated equivalent-circuit fitting with batch processing of up to 1,000 datasets, the SA2634 software significantly streamlines data handling and comparison between multiple samples. Over time, accumulated measurement data provide traceable reference values for long-term process control and quality assurance, enabling consistent evaluation across R&D and production environments. The SA2634 system establishes a standardized, quantitative framework for early-stage formulation studies, process optimization, and quality control, helping maintain uniform electrode conductivity and reproducibility from lab scale to mass production.

## What's in the box

- SA2634 Analysis Software (USB dongle key)
- IM3536 LCR Meter
- SA9002 Test Fixture
- SA9001 Slurry Sample Container (pack of 50, for NMP solvents)
- SA9001-01 Slurry Sample Container (pack of 50, for aqueous solvents)

## Related Products

- RM2610 Electrode Sheet Measurement System
- IM3536 LCR Meter
- SA9002 Test Fixture
- SA9001 Slurry Sample Container (pack of 50, for NMP solvents)

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- SA9001-01 Slurry Sample Container (pack of 50, for aqueous solvents)

<b>Version</b>	<b>Date</b>	<b>Author</b>	<b>Approved</b>	<b>Document changes</b>
1.0	28.10.2025	YA, KS	KS	First Release
1.1	10.11.2025	KS	KS	Added related products