

Electrode Height Wettability Tester

▶ CHT Series

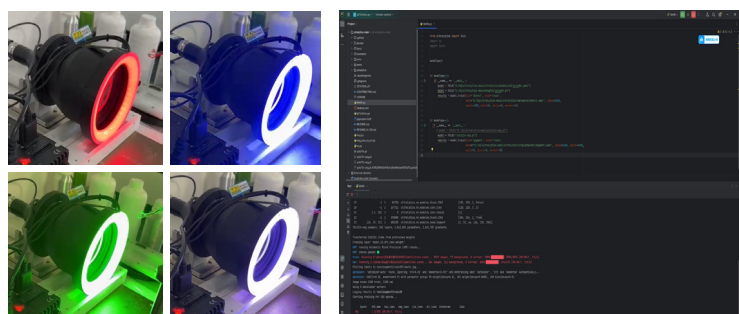


Background and Significance

Importance of Electrode Wettability Testing: Evaluating electrode wettability is an indispensable part of lithium-ion battery R&D and manufacturing, as electrode wetting performance directly affects manufacturing process adjustments and product performance design. As a porous electrode, whether its internal pore structure can be fully and rapidly wetted by the electrolyte is one of the key factors determining battery consistency, rate performance, and cycle life. During battery R&D and manufacturing, wetting performance also directly affects electrolyte filling efficiency and production takt time. Insufficient wetting can increase interfacial impedance and hinder lithium-ion transport, leading to increased local overpotential and reduced active-material utilization. In severe cases, it may even induce lithium plating, creating safety hazards and accelerating capacity degradation. Therefore, accurate characterization of electrode electrolyte wettability is essential.

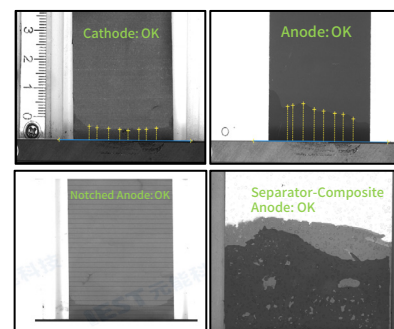
Innovative Solution

The CHT-2000 Pro electrode electrolyte wetting testing solution is an optimized and enhanced version of the existing CHT-2000 system. Upgrades to the light source and detection unit have delivered a substantial improvement in measurement accuracy. By innovatively combining a multi-color light source with AI-powered detection, the system offers a greater adaptability to a wider range of samples types. Furthermore, the integration of an automatic sampler greatly increases testing throughput and minimizes manual intervention.



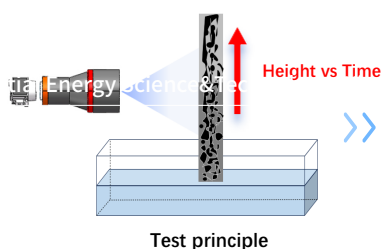
Multi-color ring light source

Proprietary AI algorithm

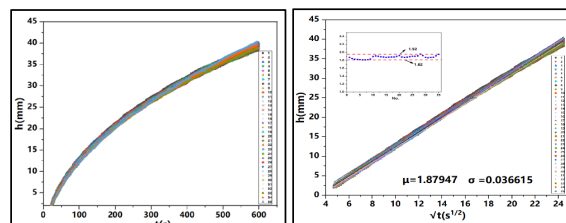


Applicability across multiple sample types

Analysis Method



The electrode sheet is vertically immersed in an electrolyte bath. As the electrolyte spreads upward along the electrode surface, a high-precision vision system captures the wetting line height and correlates it with time to calculate the wetting coefficient K.



Wetting test data for 35 sets of anode electrode sheets: wetting height vs. time (left); wetting height vs. $\sqrt{t}$ (right)

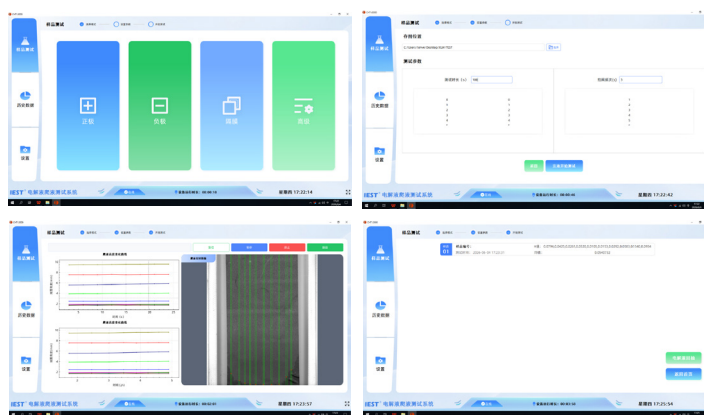
Key Features

- Equipped with a high-precision CCD camera and a multi-color ring light source, the system enables wetting tests on cathode, anode, and composite separator.
- The integration of AI-based detection backed by a large sample database further enhances test accuracy.

Software Interface

Key software features

- Offering simple operation with intuitive display of test samples and test modes, thereby streamlining the testing workflow;
- Recording the relationship between wetting-line height and time in real time, and saving images at key stages as required;
- Displaying the slope of the $h-\sqrt{t}$ curve, i.e., dh/dt ;
- Enabling retrieval and display of historical test data , as well as export of $h-\sqrt{t}$ curves .

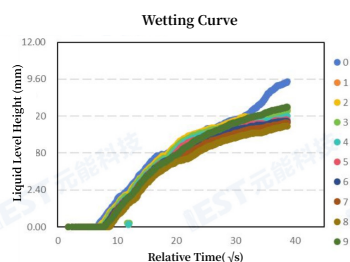
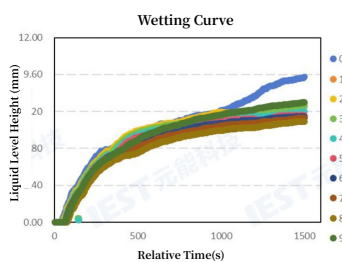


Application Cases

Wetting performance testing of notched anode electrode sheets, with the results shown below:



Photo of Sample After Testing



Test Data

Wetting performance testing of separator-composite cathode electrode sheets, with the results shown below:

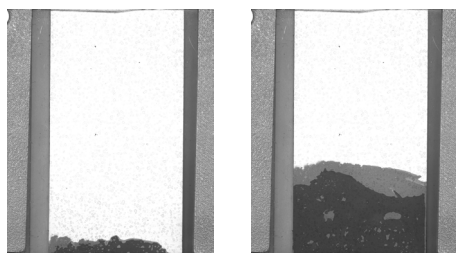
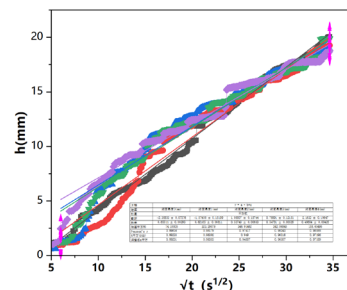
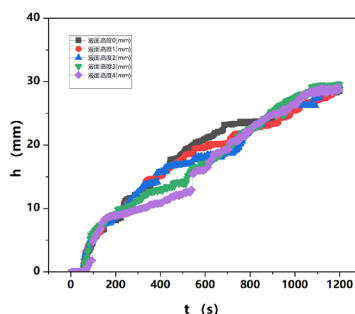


Photo of Sample After Testing



Test Data

Specifications

Model	CHT-2000pro
Equipment Dimensions	Customizable to Sample Requirements
Test Time	0~20min
Pixel Accuracy	100μm
Electrode Size	70*40mm
Sample Chamber Capacity	10 Samples

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