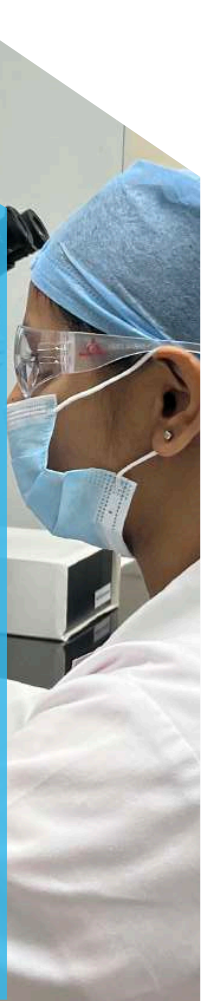
CLAIRITY™

ImageProVision™
IMAGE ANALYTICS. REIMAGINED.

CLAIRITY™ THERMAL

AI-Powered Hot Stage Microscopy for Thermal Characterization

Visualize Thermal Transitions with Scientific Precision



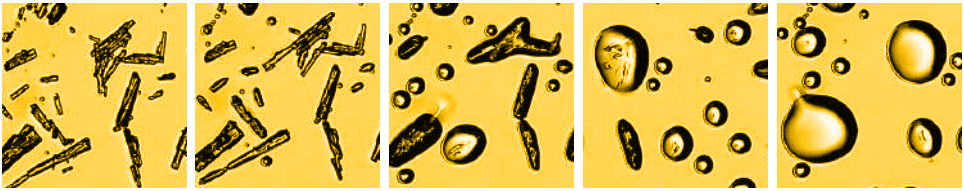
CLAIRITY™ THERMAL combines advanced hot stage microscopy with intelligent image analysis to deliver real-time insight into structural and phase changes in pharmaceutical and material samples. It enables precise tracking of thermal events - melting, crystallization, polymorphic shifts, and degradation - by capturing high-resolution images synchronized with temperature and time.

Designed for use during both heating and cooling cycles, the system supports programmable temperature profiling and allows full recording of thermal behavior, ensuring reproducible and traceable data for every sample.

Whether optimizing formulations, screening excipients, or studying stability, CLAIRITY™ THERMAL transforms visual transitions into statistically validated metrics - bringing scientific clarity to complex thermal events.

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Temperature : 20.17°C	Temperature : 169.68°C	Temperature : 171.03°C	Temperature : 172.27°C	Temperature : 190.05°C

Thermal Imaging Reimagined for Analytical Precision

01 AI-Based Morphological Profiling

Automatically segments and tracks individual particles during heating/cooling cycles. Measures size, circularity, aspect ratio, morphological, and texture evolution.

02 Real-Time Morphokinetics

Captures **D10, D50, D90,** and shape-related metrics at every temperature interval with overlay comparison.

03 Phase-Resolved Analytics

Detects and differentiates polymorphic forms, recrystallization, fusion, and eutectic behavior.

04 Dynamic Volumetric Analysis

Enables AI-assisted comparison with laser diffraction data. Integrates morphology and size distribution in one validated report.

05 Programmable Ramp Control

Supports temperature profiles from - 195°C to 1200°C with multi-stage control (heating/cooling/hold cycles). Repeatable protocols for method validation and stress testing.

06 Frame-Correlated Audit Logging

Every observation is tagged with temperature, time, and frame data, making reports traceable, auditable, and submission - ready.

07 User-Defined Particle Classification

Classify API, excipients, and multiple components based on melting points.



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Applications in Drug Development, Material Science & QC

Use Case	Description
Polymorph Screening	Monitoring polymorphic forms and monitor phase transitions through time- and temperature-resolved morphological screening.
Deformulation Studies	Compare RLD vs generic formulations - identify and map excipient-API combinations.
Thermal Stability Testing	Assess degradation, fusion, and sublimation under accelerated stress.
Excipients & Co-formers	Examine compatibility and detect undesired phase changes.
Emulsion/Globule Tracking	Detect phase separation, droplet coalescence, and crystallization.
API-Excipient Interactions	Evaluate structural consistency across batches or stress profiles.

Regulatory Confidence

- 21 CFR Part 11 & EU Annex 11-compliant
- Role-based access, audit trails, e-signatures
- Archive & restore complete sessions, including image, method, and metadata
- Traceable reporting with analyst details, time-stamped frame-by-frame records

Statistics

Type	Particle	Agglomerate	Total
Min Length (µm)	4.07	35.02	4.07
Max Length (µm)	122.15	35.02	122.15
Average Length (µm)	7.95	35.02	8.1
Standard Deviation	9.66	0	9. 85
Aspect Ratio	0.65	0.49	0.65
Count	178	1	179
Percentage	99.44	0.56	100

DI0 D50 D90 Values

Type	Particle	Agglomerate	Total
D10	4.07	35.02	4.07
D50	6.51	35.02	6.51
D90	11.4	35.02	12.21
Span	1.13	0	1.25

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Key Differentiators

CLAIRITY™ THERMAL Highlights

01 Supports reverse engineering via AI-based inference

02 Enables in-process multi component segregation

03 Built-in calibration/validation reporting modules

04 Frame-aligned overlay for visual proof of polymorphic events

05 Swap original vs processed images for quality assurance

06 Flexible configuration: software-only, integrated stage, or full system

07 Validation with particle-wise morphology

08 Compatible with standard microscopy systems (polarized, Differential Interference Contrast)

Deployment Options

Software-Only

Integrate with your existing hot-stage microscope

Semi-Integrated

CLAIRITY THERMAL with stage control module

Fully integrated

Complete system with validated configuration, support & training

Explore the power of CLAIRITY™ THERMAL
turning microscopic thermal transitions into meaningful decisions.

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