CLAIRITY™

ImageProVision™
IMAGE ANALYTICS. REIMAGINED.

CLAIRITY™ SEAM





Automated Seam Thickness & Sealing Analysis for Soft Gelatin Capsules

Soft gelatin capsule integrity starts at the seam. Imperfections in sealing - such as inadequate thickness, misalignment, or sharp angle profiles - can lead to leakage, brittleness, and dissolution failure.

CLAIRITY™ SEAM offers an intelligent, automated platform for quantifying seam thickness and sealing percentage with micron-level precision. Designed for capsule manufacturers and QA teams, this system combines high-resolution imaging with AI-based analytics to deliver traceable, repeatable, and regulatory-compliant measurements.

Built to meet 21 CFR Part 11, CLAIRITY SEAM transforms a manual, error-prone task into a streamlined, high-throughput inspection process.

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Core Capabilities & Technology

High-Accuracy Seam Thickness Measurement

01 Calculates **primary, secondary,** and **maximum seam thickness**

02 Detects inconsistencies across capsule batches with precise visual validation

Advanced Imaging & Measurement Workflow

01 Supports sample preparation with **cross-sectional slicing** for exposed seam analysis

02 High-resolution optics for capturing **clean edge definition** at different magnification

03 Seam interface is auto-aligned for consistent angle and thickness evaluation

Automated AI-Driven Analytics

01 Real-time image processing with a**utomatic edge detection**

02 Micron-level dimension calculation across multiple ROIs (regions of interest)

03 Supports **seam angle profiling** and **thickness uniformity scoring**

Visual Reporting & Compliance

01 Auto-annotated images with dimension overlays

02 Embedded **electronic audit trails,** operator tagging, and e-signature support

03 Customizable PDF reports with **sample metadata, time-stamps, and seal limits**

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Target Applications



01 Seam Quality Evaluation

For QA and R&D during encapsulation process

02 Production Line Sampling

Assess sealing strength before drying stages

03 Ribbon Thickness Monitoring

Validate uniformity of shell material

04 Formulation Compatibility Checks

Identify seal failures from formulation interactions

05 Stability Batch Studies

Detect seam degradation over storage duration

Key Advantages

- Eliminates operator subjectivity with AI-guided analytics
- Reduces batch rejection risk through early detection
- Enhances visualization of seam profile for documentation and audits
- Ensures proper sealing threshold as per compliance
- Standardizes QA/QC across encapsulation lines

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Compliance & Traceability

Fully **21 CFR Part 11** compliant with secure, role-based access

Traceable data logging with version history and user-specific audit trails

Seamless integration with QA documentation systems



Output Formats

01 PDF reports with annotated images and seal ratio calculations

02 CSV exports of measurement logs

03 JPEG snapshots of individual ROIs for visual record keeping

Installation Options

CLAIRITY™ SEAM is available as:

- **Standalone Workstation**
- **Client-Server Architecture** (for enterprise-wide deployments)
- **Cloud-Based Setup with C-Sync Enabled** (for remote access and collaboration)

Summary

CLAIRITY™ SEAM offers unmatched clarity in capsule seam inspection - making sealing validation not just more efficient, but more scientific.

Optimize your soft gelatin manufacturing with confidence, speed, and compliance.

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