CLEMEX
Pixel-Perfect Analysis

Clemex VISION

AUTOMATED IMAGE ANALYSIS MADE FLEXIBLE AND SIMPLE

A single software solution for all your microscopy needs

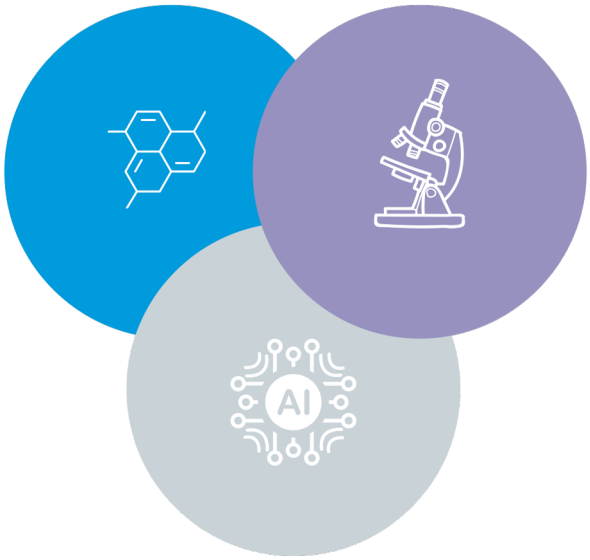
No Ph.D. needed

CLEMEX VISION

Clemex Vision is a fully integrated image analysis system for labs seeking traceable, repeatable, fast and accurate results. This powerful microscope control system includes a great range of computer vision functions, catering for various applications in industry and research.

Automated image analysis

Take advantage of 30 years of experience in developing routines for various applications in our reputed software



Microscope automation

We can develop algorithm for clients and integration while keeping their code

AI tools

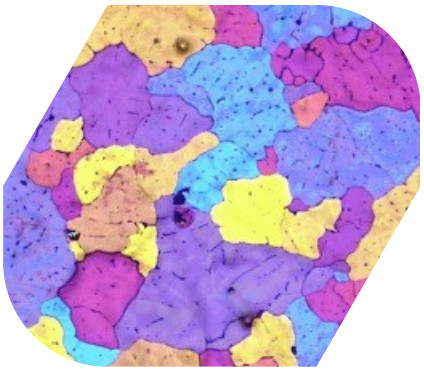
Easy to use tools, professional services for advanced algorithm development.

APPLICATION EXAMPLES

APPLICATION PACKAGES

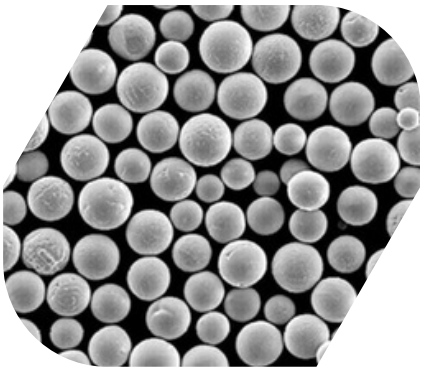
These contain a number of pre-built routines for a certain type of application.

- Al grain size ASTM E112
- Layer Thickness
- Particle Sizing
- Phase Analysis
- Aluminum/Magnesium



CUSTOMIZE YOUR ANALYSIS

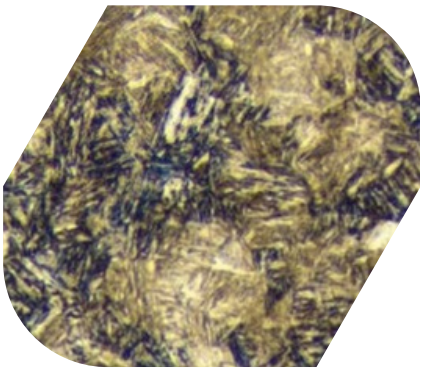
Detect, characterize and measure phases or objects of interest using our extensive instruction library. You can easily combine any set of instructions and create your own routine.



Source: Tekna

ADVANCE AUTOMATION WITH AI

Development of analysis routines by our specialists now has the added advantage of AI. AI is used to improve accuracy, reproducibility and robustness of image analysis.

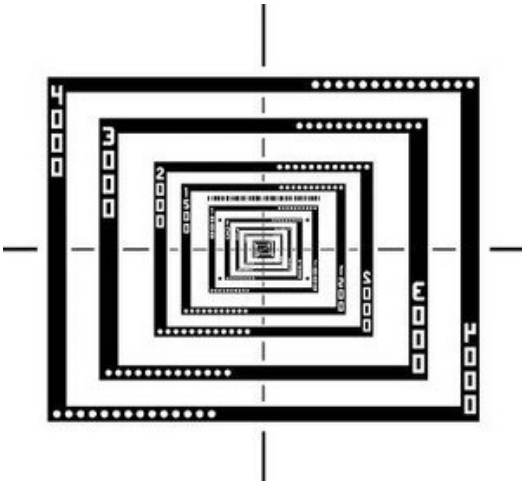


Source: Universal Stainless

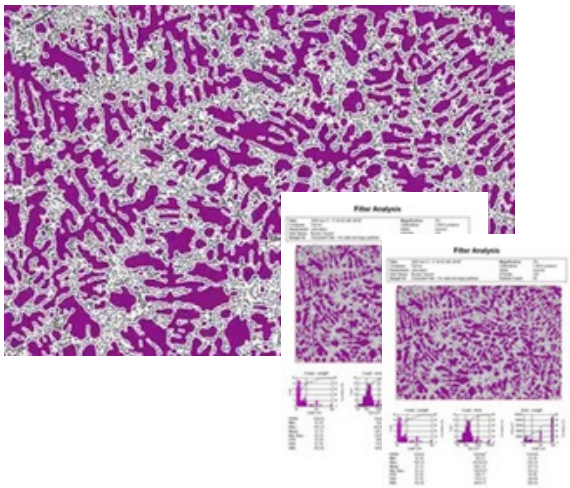
ACCURATE RESULTS

NIST TRACEABLE CALIBRATION

Regularsystemcalibrationis performed automatically using our NIST traceable stage micrometer to ensure accuracy and compliance with regulations and standards.



> **CLEMEX OFFERS HIGH QUALITY PRODUCTS AND PROFESSIONAL SERVICES TO INDUSTRIES AND LABORATORIES.**
>
> ***Lorraine Blais, P.Eng.. -Solutions Novika***

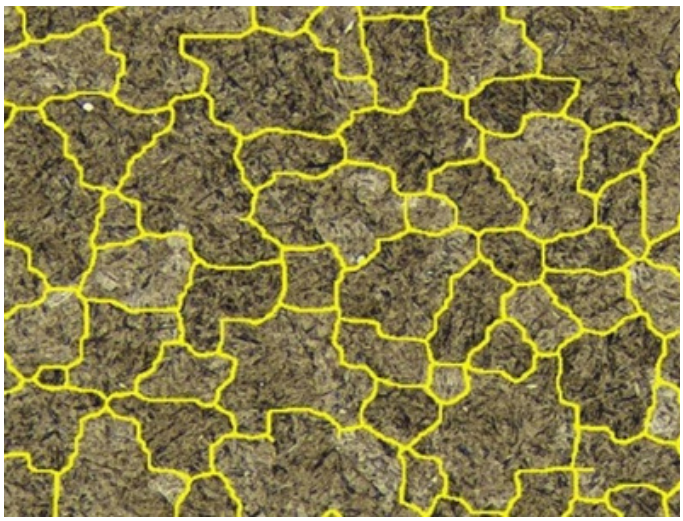


AUTOMATED ROUTINES

Clemex systems analyze samples withoutuserinput and are robust enough to operate autonomously. Depending on the needs, analysis routines are developed for specific applications or taken from a library of existing applications.

Once the system is calibrated, a routine is run on any number of samples and produces accurate, reproducible, and reliable results.

ADVANCED TECHNIQUES



FASTER AND SIMPLER

Machine Learninghas started toplay a key role in enhancing image analysis routines. Seamless integration of these algorithms into our systems have allowed new applications such as the universal grain size algorithm.

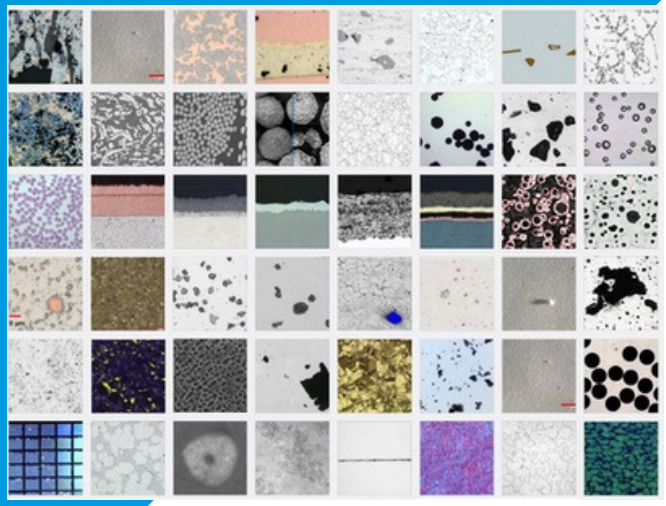
This new technique substantially improves the throughput of complex image analysis. Automating manual techniques mitigates operator repeatability errors.

> **“A WELL-DESIGNED TESTING SOFTWARE THAT IS USER FRIENDLY AND RELIABLE.”**
>
> ***Al Mabee -Triumph Group***

FUTURE ANALYSIS NEEDS

Oursoftware isconstantlyevolving. New features and algorithms allow you to keep existing equipment for a longer period with regular software releases and a new bridge to machine learning (or ai) capabilities.

Hardware components can be added or replaced to adapt to new specifications. The value of your initial investment is therefore maintained.

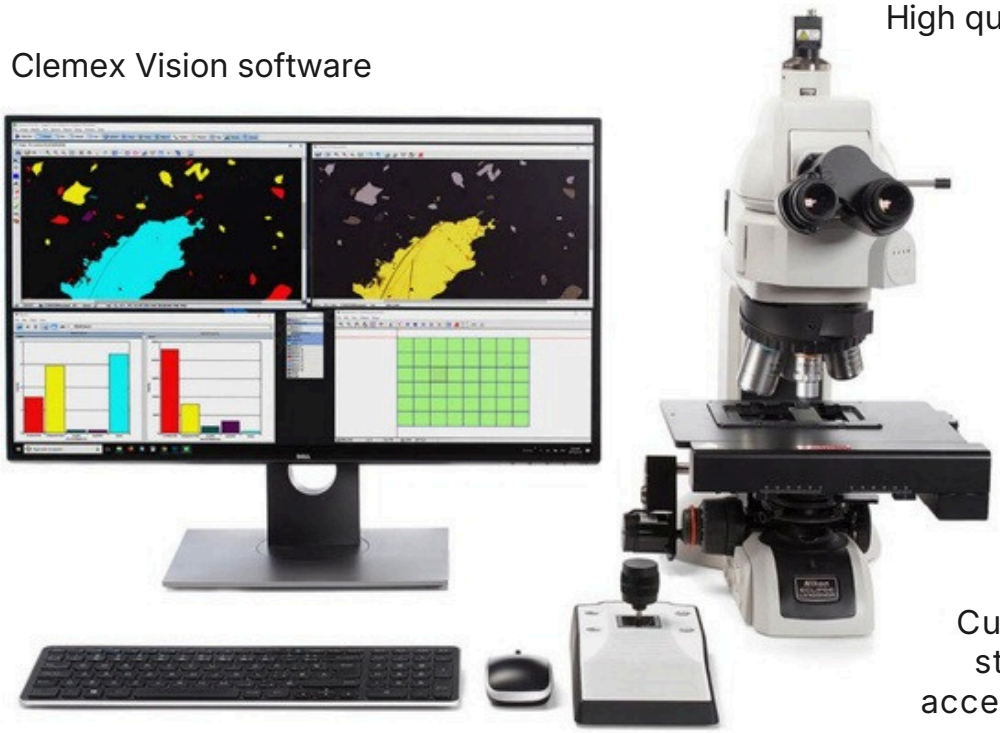


ELEMENTS OF A CLEMEX SOLUTION

Providing customers with high quality data to improve their processes has been our goal for over 30 years. We offer reliable expert service to accompany your lab at every step from purchase to maintenance.

Clemex Vision software

High quality cameras for microscopy



Compatible with several brands of microscopes
Nikon Leica
Olympus Zeiss

Custom stage accessories

Motorized stage control

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ABOUT CLEMEX

Clemex specializes in the integration of advanced computer vision, building out tailor- made software/hardware solutions that best suit our clients' needs.

PROFESSIONAL SYSTEM START-UP SERVICES

Installation and training are delivered by skilled application experts.

VERSATILE

Our systems are highly customizable with a set of tools that can be adapted to a wide range of workflows and methods.

PERFORMANCE

Fully tested high quality components make a difference in image acquisition and processing.

EASE OF USE

More automation has been added for the sake of simplicity.

AFTER MARKET SERVICE

Let our systems evolve with your requirements, with support of our dedicated team of specialists.

ROI

Longer system life keeps your initial purchase and operating costs optimized. Ensure your investment is ready when you are.

STANDARD APPLICATIONS

TYPES OF ANALAYSIS

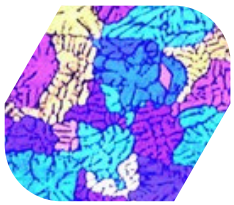
Banding	Flake size	Nodularity
Cell size	Gamma prime	Object orientation
Custom Measurements	Grain size	Particle size and shape
Dentritic arm spacing	Layer thickness	Phase analysis
Density	Morphology	Porosity

STANDARDS

ASME B46.1	Surface Texture (Surface Roughness, Waviness, and Lay)
ASTM A247/ ISO 945	Microstructure of Graphite in Iron Castings
ASTM B487	Measurement of Metal and Oxide Coating Thickness
ASTM E1077	Depth of Decarburization of Steel Specimens
ASTM E112/ISO 643	Average Grain Size
ASTM E1245	Inclusion or Second-Phase Constituent Content of Metals
ASTM E1268	Degree of Banding or Orientation of Microstructures
ASTM E562	Volume Fraction by Systematic Manual Point Count
ASTM E45 (A & E)	Inclusion Content of Steel (Semi-autmatic)

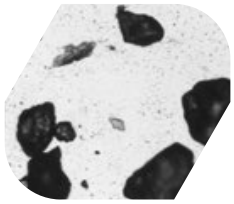
And many others...

APPLICATION STANDARDS

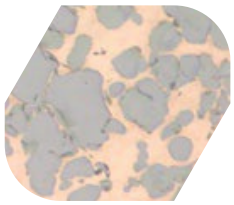


Grain intercept, intercept counts, intersection counts, grain boundary length, and grain areas in accordance with ASTM E 112, ASTM E 930, and ASTM E 1382. Includes instructions for martensitic, austenitic and ferritic steel.

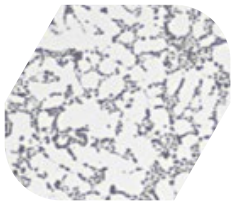
Thickness of thin surface layers on metals, alloys, carbides, and oxides (ASTM B 487).



Size and shape of particles as small as 0.5 micron. Statistical and individual data on a large sample of particles.



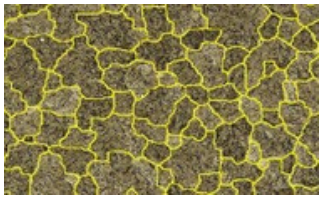
Count any number of clearly distinguishable phases within a microstructure. Statistical estimation of the volume fraction of different phases.



Dendrite cell spacing (DCS), average percent eutectic and mean linear dendrite spacing (MLDS) for all magnifications and camera resolutions.

Customer-specific algorithms allow **Clemex Vision** to leap beyond traditional image analysis techniques.

KEY FEATURES

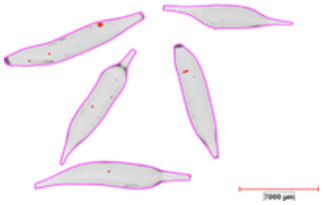


Universal Grain Size Analysis

These powerful instuctions based on machine- learning are inserted at the beginning of a routine to detect the boundaries of grains. Several parameters allow the user to fine-tune detection.

CFR 21 Part 11 compliance

With the User Management module, administrators can add users, create user groups, and trace events in the audit trail. This optional module allows electronic signature embedding and is secure and reliable



Customize your analysis

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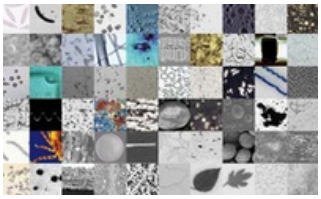
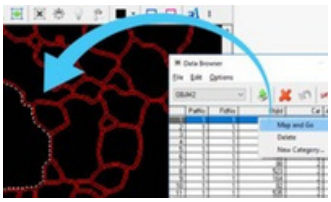


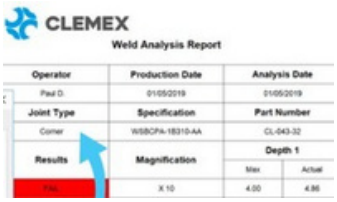
Powerful process automation

Quicker analysis time is made possible with this robust software capable of processing thousands of images and generating data all day long without human intervention.



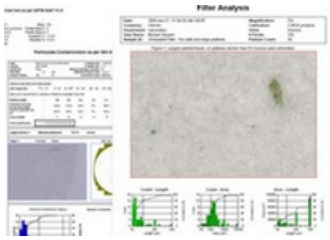
Traceable data

Quicker analysis time is made possible with this robust software capable of processing thousands of images and generating data all day long without human intervention.



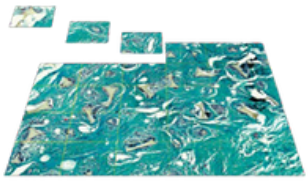
Analysis properties

Customize analysis metadata with analysis properties, where operators can insert information such as: part number, part type, process information or any other information that needs to be traced along with your analysis.



Automated reporting

Information from property fields can be automatically inserted into reports, file names or folder names. Use standard properties such as Magnification, Date or Sample Name or create custom fields.



Mosaic image stitching

Reports are generated automatically after each analysis and can be adapted to suit your needs. Add a company logo, images captured during analysis, graphs and statistics, and save your results as a csv, xlsx or pdf file

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MORE FEATURES

Accurate detection	Detect objects that are difficult to distinguish because of their transparency, low contrast or faint outlines.
Classify objects	Classify objects based on any measurement type (length, width, aspect ratio, roughness, etc.) and additional variables such as If greater than / less than / equal to etc.
Conditional instructions	These are based on measurement criteria and additional variables such as If greater than / less than / equal to etc.
Direct measures & annotations	Annotate your images on-the-fly during your analysis; include results and visuals in reports.
Extended depth of field	Obtain a sharp composite image made up of several image slices, perfect for uneven surfaces.
External device control	Activate external devices such as valves, locking devices, alarms, lights.
Image optimization	Shading correction, auto-exposure, white balance, auto-focus, and parfocality for each magnification.
Motorized stage control	Controlled through the software, scanning regions can be defined using pre-built templates.
NIST-traceable calibration	Eliminate operator subjectivity by automatically calibrating each lens using a NIST-traceable micrometer.
Separate objects	Separate adjacent objects automatically prior to performing measurements.
Scan region automation	Automated stage pattern creation based on detected objects or sample reference points.
Third party images	Import images from various sources, such as SEMs or scanners.

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