OPTIKA®
MICROSCOPES
ITALY

SWPROMET

Material Science Image Analysis System

SWPROMET - *Material Science Image Analysis System*

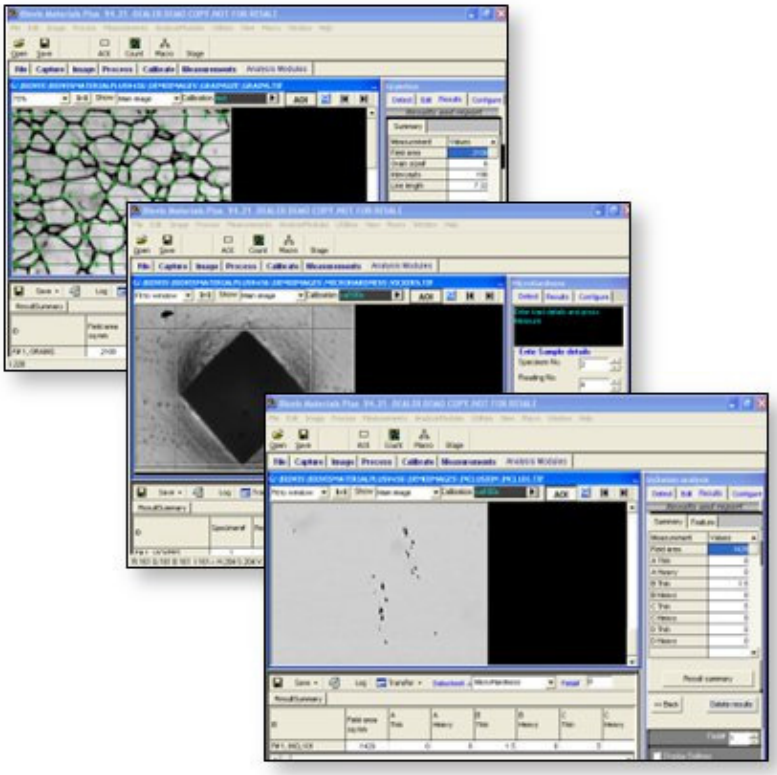
SWPROMET is a powerful imaging system designed for high performance analysis for metallographic or material science samples.

The system is designed to meet the different requirements of routine or research analysis in the field of materials science.

It is excellently suited to the routine activities of a quality control laboratory as well as to research activities in the field of R&D.

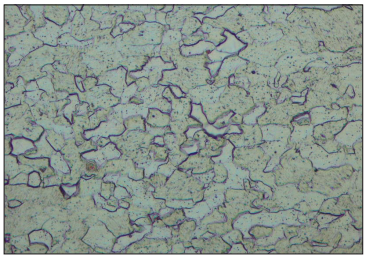
This system is capable of generating efficient workflows in any application area and enables accurate and reproducible results with just a few mouse clicks.

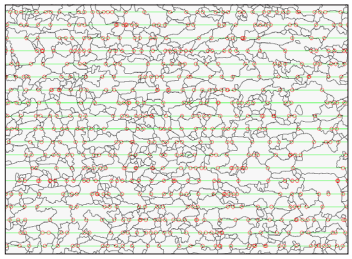
The software incorporates all of modules for the analysis of metallographic or materials science samples.



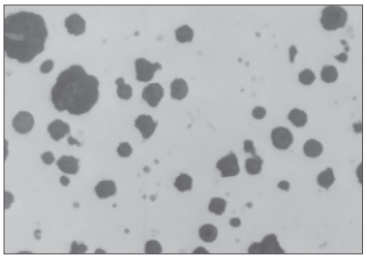
- Wide range of specific modules for microstructure analysis in materials science
- Minimal user intervention is required during most analyses to ensure repeatability and accuracy
- All analysis modules comply with international standards such as ASTM, ISO, JIS
- Ability to automate the entire analysis process on batches of up to 500 images without the need for supervision
- Easy and professional report generation with pre-configured templates
- Customised development of solutions according to customer requirements

Analyses are performed in accordance with the various international norms and standards (ASTM, ISO, JIS, etc.).





Grain size analiysis using
Planimetric ASTM E112

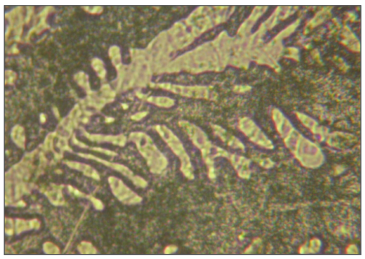


Graphite nodules

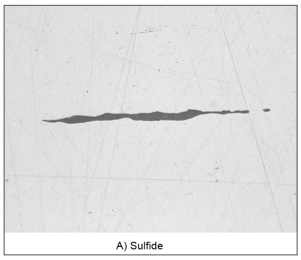
Graphite flakes

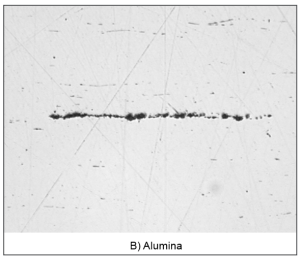
SWPROMET - *Features*

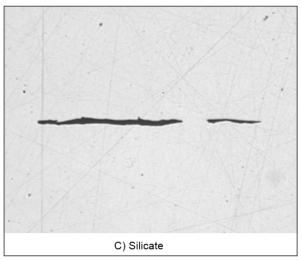
- Live image acquisition with high-resolution colour camera.
  One-click sequential acquisition of several sample fields possible.
- Automatic analysis to avoid manual image thresholding.
- The system allows up to 16 binary masks to be prepared from a single image and each mask can be used for separate analysis.
- Batch-run function to perform unattended analysis on several image fields and automatically generate a complete report.
- All modules come with pre-built macros to facilitate analysis.
- The Macro Editor allows customisable macros to be generated to handle different types of samples.
- Generate reports with images and tables of results that can be printed directly or saved in Word. The report can be customised to company standards.
- Data and results can be exported in Text, Word or Excel format for easy retrieval and archiving.

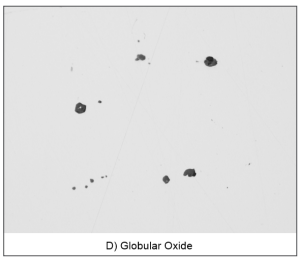


Dendrites









Non-metallic inclusions

SWPROMET - *Modules*

Grain Size	Grain size measuring using Planimetric or Intercept methods, with Advanced grain boundary identification algorithms. Measure according to **ASTM E112 and E1382**.
Inclusions	Detection and classification of non-metallic inclusions as per ASTM E45/ E1122 methods.
Phase / Volume Fraction	Measure phase percentages or volume fractions by Automatic or Manual thresholding of phases as per ASTM E562 standard.
Nodularity	Identification of graphite nodules and measure size, % Graphite and % nodularity. Nodules classification based on size (ASTM A247 or user defined).
Graphite Flake	Graphite flakes analysis to obtain % Graphite area. Measure and classification of graphite flakes according to length.
Porosity	Discrimination of pores in the image to estimate amount of Porosity of material. Measures sizes and porosity percentage. Also measures apparent porosity according to ASTM B276.
Coating Thickness	Measurement of cross sectional thickness of coatings or layers. Selection of different methods for automatic or interactive measurements.
Decarburization depth	Measurement of total or partial decarburization depths with interactive tracing or auto-detection methods.
Banding	Measurement of the degree of banding and orientation according to ASTM E1268
Dendritc Arm Spacing	Statistical analysis of the spacing between the dendrite arm structures. An interactive method of drawing test lines is utilized for proper selection of dendrite arms.
Microhardness	Measurement of Knoop and Vickers hardness values from an indentation image. Reports as perASTM E1384.

Headquarters and Manufacturing Facilities

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