



Scientific / Metrology Instruments
Scanning Electron Microscope

Solutions for Innovation

JSM-IT500HR



JEOL Ltd.

 Touch*Scope*[™] series

JSM-IT500HR

***Seamless transition from optical image
to high magnification SEM image***





Zeromag / Live Analysis / SMILE VIEW™ Lab

Three key functions for Fast and Easy Analysis!

JSM-IT500HR Debuts!
Introducing the JSM-IT500HR!

Zeromag

Locate the specimen area or specify analysis positions with Holder Graphics or CCD image.*¹ This provides a seamless transition from the CCD image to high-resolution SEM image.

Integrated data management software... SMILE VIEW™ Lab

Central data management software links all images and data. Generate a report with a single click.

The user log links observation positions, observation & analysis results, etc. You can easily review or re-analyze already-acquired data.

The screenshot displays the SEM software interface. The main screen shows a circular specimen holder with several small samples. A 'Main Screen' label is overlaid on the image. Below the image, an 'Element' analysis window shows 'C', 'O', and 'Si'. A 'Spectrum' graph is visible, showing peaks for 'C' and 'Si'. On the right side, there is a 'List of captured images' panel. At the bottom right, a 'Data management button' is highlighted. The interface includes various control panels for 'Stage', 'Snap Shot', and 'Holder' information (Holder: 51 mm, Height: 0 mm, Specimen Data Name: Smp_001). The bottom status bar shows parameters like 'BED-S', '10.0 kV', 'WD 10.0 mm', 'High-RC 50.0', 'HighVac.', 'x2,500', '10 um', 'F.O.V.: 51.20 x 38.40 um', 'NOR', '0%', '56 cps', '0000', '2016 12 19', and 'WAIT'.

Live Analysis*²

The characteristic X-ray spectrum from the measurement area, automatic qualitative analysis results and the main constituent elements are always displayed.

*¹ To take a CCD image, SNS (option) is required.

*² This function is applicable to LA (Low Vacuum & Analysis) versions.

True Integration of Optical and SEM imaging



Easy search of the specimen area with Holder Graphics or CCD Image*

Zeromag is a function that links the SEM image with the Holder Graphics or CCD image* where all are linked to the stage coordinates. This facilitates navigation with seamless transition from the CCD image to the high magnification SEM image.

Sharp live image for simple image adjustment

The JSM-IT500HR provides a sharp live SEM image even at low accelerating voltage.

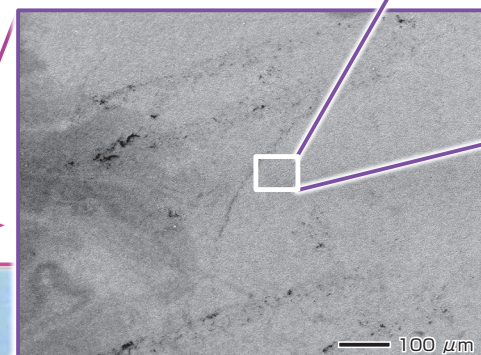
Seamless transition to high magnification SEM image (× 100,000)

High resolution observation is at your fingertips with our new high-brightness electron gun and lens system.

Features of Zeromag

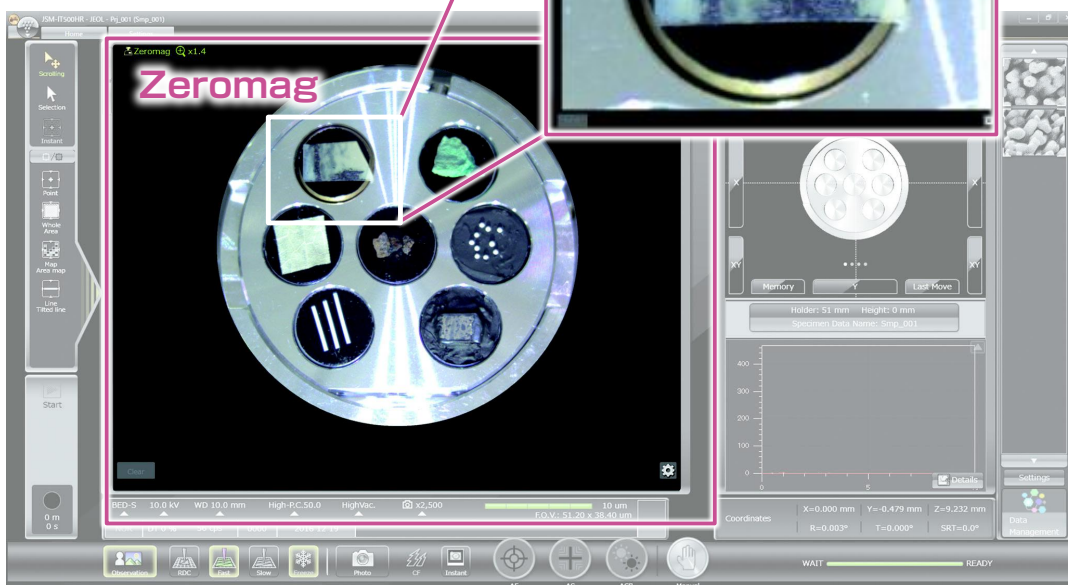
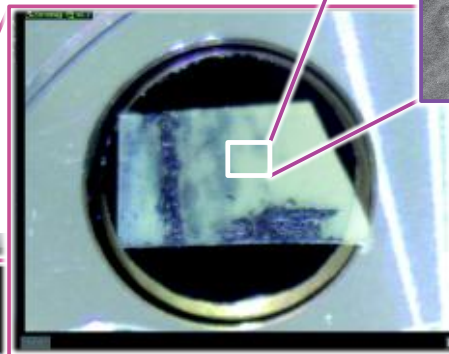
- Seamless transition from optical to SEM image.
- Can pre-set multiple analysis positions across your specimen set.
- Displays the areas analyzed for easy review or fast return for additional study.

Magnify SEM image



Magnification : × 500

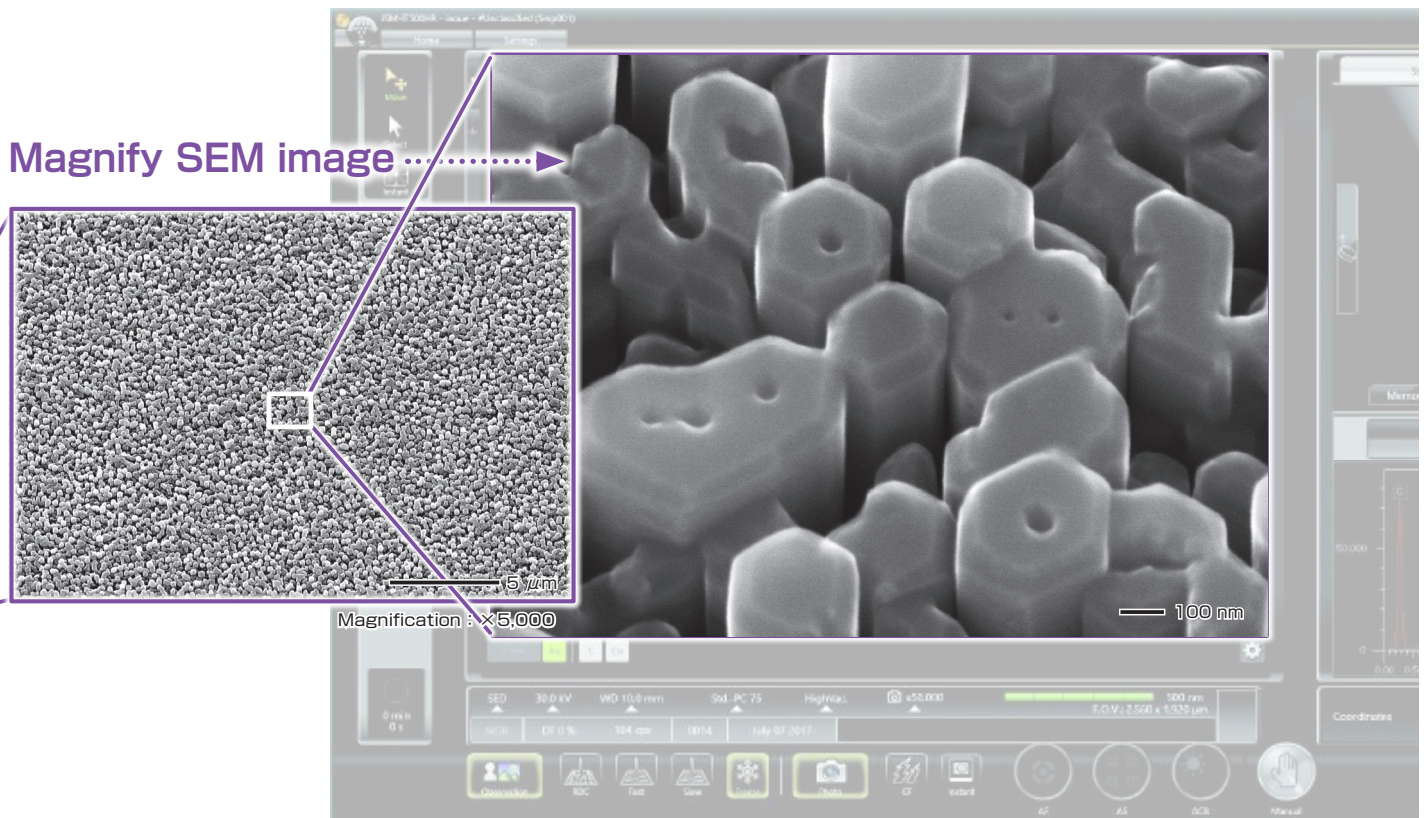
Magnify OM image



Zeromag image displayed on the main screen

- Secondary electron image

This example shows a high magnification image of zinc oxide grown on a sapphire substrate, which highlights fine surface morphology of the oxide particles.



Specimen : Zinc oxide grown on a sapphire substrate,
Accelerating voltage : 25 kV
Magnification : $\times 100,000$
High-vacuum mode, Secondary electron image
Specimen courtesy :

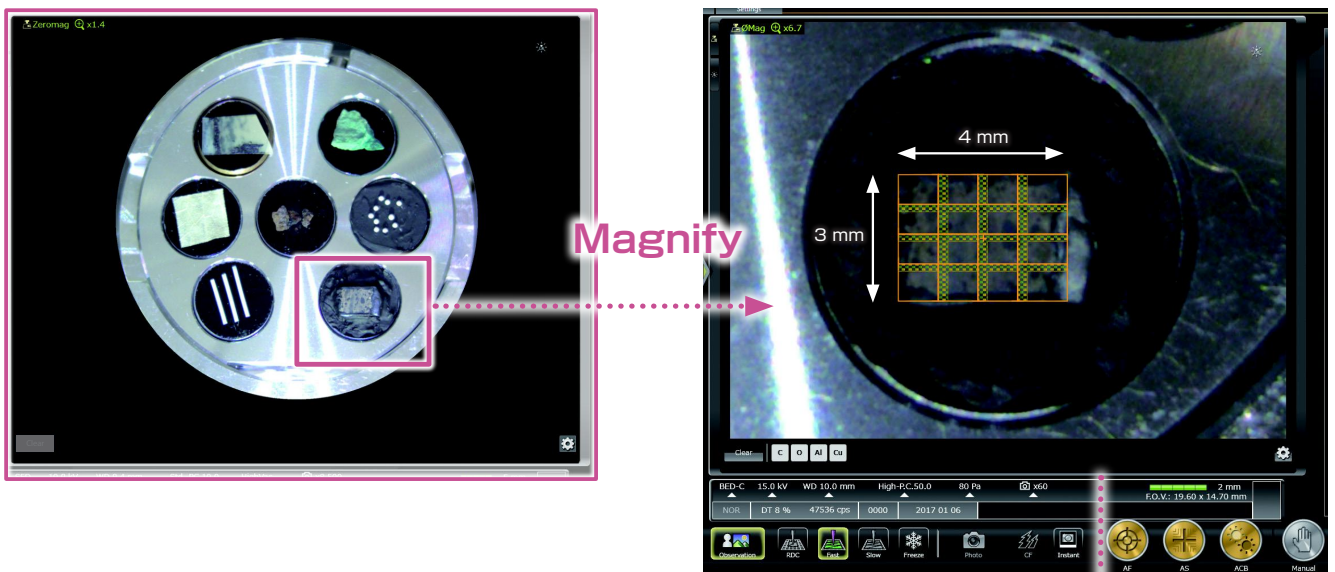
Mutsukura & Shinoda Laboratory
Dept. of Electronic Engineering, School of Engineering,
Tokyo Denki University

* To take a CCD image, SNS (option) is required.

Montage

Automated large-area observation and analysis using Zeromag.

Montage is an effective function for analyzing materials over large areas. With Zeromag, it is easy to set up one or more montage areas for imaging and analysis. "Tilt Correction", Field Overlap and "Autofocus Point Setting" functions are built in.

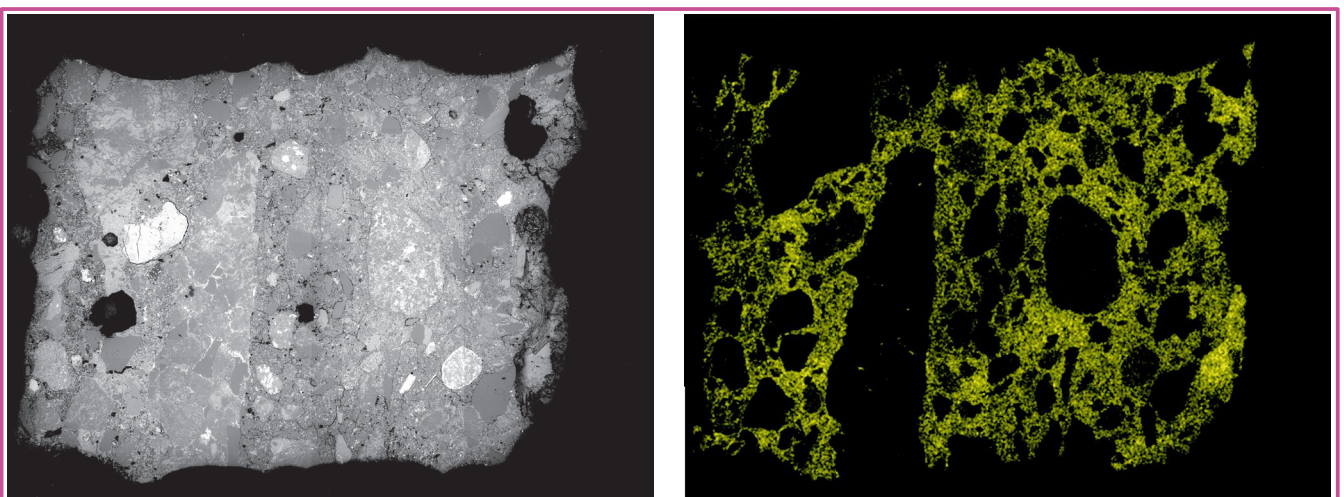


Montage setup with Zeromag.

Fast specimen information from a large area :
(approx : 4 mm × 3 mm)

Montage is an effective function to acquire detailed information across a specimen area.

Montage result



Montage result : 4 × 4 (Left : Backscattered electron composition image. Right : Ca map)
Specimen : Concrete, Accelerating voltage : 15 kV, High-vacuum mode

Seamless Analysis



Live Analysis*

Real time display of elemental analysis results during observation of a high-magnification SEM image.

With our Analytical series, seamless transition is made from high-magnification SEM imaging to elemental analysis. The embedded EDS system shows a real time EDS spectrum during image observation, making it easy to find elements of interest.

Features of Live Analysis

- Always displays the characteristic X-ray spectrum.
- Display of the main constituent elements including unexpected elements.
- Alert display of elements of interest.



Specimen : Au particles on carbon, Accelerating voltage : 20 kV, Magnification : ×50,000
High-vacuum mode, Secondary electron image

Spectrum

The characteristic X-ray spectrum from the measurement area, automatic qualitative analysis results and the main constituent elements are always displayed.

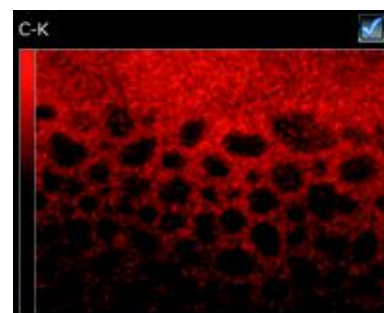
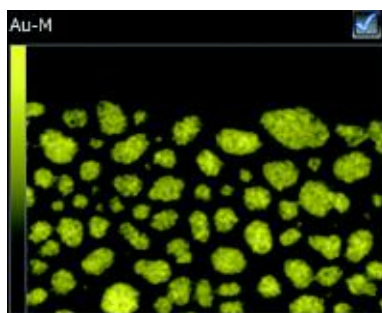
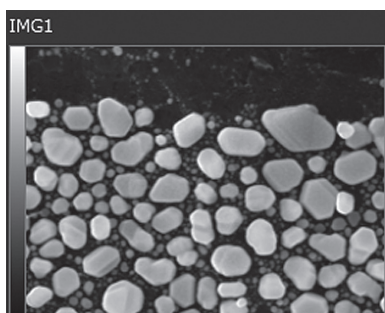
Element

The main elements detected in the measurement area are displayed. You can display an "Alert" by specifying an element.



Supports fast mapping along with long acquisitions

The JSM-IT500HR has a high-brightness, long life emitter with stable probe current which is ideal for large area mapping or other long acquisitions. When speed is required, our large area EDS detectors allow for ultrafast analyses. Collect X-ray maps in seconds!



Specimen : Au particles on carbon, Accelerating voltage : 20 kV, Magnification : ×50,000
Map acquisition time : 70 s

200 nm

* This function is applicable to LA (Low Vacuum & Analysis) versions.

Seamless report generation

Integrated data management software SMILE VIEW™ Lab

SMILE VIEW™ Lab is a fully integrated data management software which links the CCD image*¹, SEM images, EDS analysis results*², and corresponding stage coordinates for fast report generation or recall of specimen position for further study.

SMILE VIEW™ Lab Data management screen

SMILE VIEW™ Lab Data management screen allows you to easily handle all your data. Our data manager links the observation position, observation & analysis results, and a low magnification image acquired by Holder Graphics or CCD image*¹. You can review or re-analyze already-acquired data and export selected data to a report.

Features of SMILE VIEW™ Lab

- Performs integrated management of CCD image*¹ data, SEM image data and EDS analysis results*².
- Allows for immediate understanding of data in each field.
- Enables various data search.
- Screen layout is easy to change.

The screenshot shows the SMILE VIEW™ Lab software interface. It includes a file tree on the left, a central image viewer displaying a circular specimen with multiple analysis points, and a data table at the bottom. Callouts provide the following information:

- Name of each field is displayed.**: Points to the file tree on the left.
- Data search is enabled from specimen name, creation time, data type, etc.**: Points to the search icon in the top toolbar.
- Positions of each field are displayed on Holder Graphics or CCD image*¹.**: Points to the central image viewer.
- Data is displayed in list form, which includes analysis data, quantitative analysis result of elemental map, spectra, etc., in the selected fields.**: Points to the data table at the bottom.

Mark	Name	User name	Creation date/time	Modified date/time	Folder name	Data type	Coord	C	O	Mg	Al	Si	F	Cl	K	Ca	Sum	
	Grp_001				Pj_001\Grp_001	Map												
	Map_001	JEOL	2016/12/21 17:44	2016/12/21 17:53	Pj_001\Grp_001	Map												
	Sem_BED-C_001	JEOL	2016/12/19 11:41	2016/12/19 11:41	Pj_001\Grp_001	FEI Image												
	Sem_BED-C_002	JEOL	2016/12/19 11:44	2016/12/19 11:44	Pj_001\Grp_001	FEI Image												
	Sem_BED-C_003	JEOL	2016/12/19 11:46	2016/12/19 11:46	Pj_001\Grp_001	FEI Image												
	Sem_BED-C_004	JEOL	2016/12/19 11:52	2016/12/19 11:52	Pj_001\Grp_001	FEI Image												
	Sem_BED-C_017	JEOL	2016/12/21 17:34	2016/12/21 17:34	Pj_001\Grp_001	FEI Image												
	Sem_SED_001	JEOL	2016/12/21 16:47	2016/12/21 16:47	Pj_001\Grp_001	FEI Image												
	Smp_0001	JEOL	2016/12/19 11:35	2016/12/21 18:09	Pj_001\Grp_001	Sample I...												
	Spc_001	JEOL	2016/12/21 17:59	2016/12/22 17:48	Pj_001\Grp_001	Spectrum		8.44	47.23	2.87	30.11				1.25	10.31	100.00	
	Spc_001	JEOL	2016/12/19 11:47	2016/12/19 11:48	Pj_001\Grp_001	Spectrum		47.74	41.88	0.58	0.17	7.34	0.19	0.50	1.54		100.00	
	Spc_002	JEOL	2016/12/19 11:52	2016/12/22 17:34	Pj_001\Grp_001	Spectrum												

* 1 To take a CCD image, SNS (option) is required.
 * 2 This function is applicable to LA (Low Vacuum & Analysis) versions.

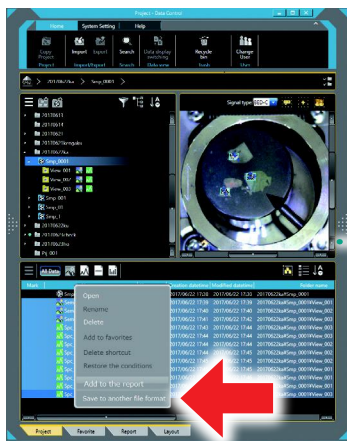


Automatic layout function

Patent applied for

The SEM image data is linked with its EDS data. The report is automatically laid out with all related data included.

If the data set is large, additional pages are allocated automatically. When you change the layout, all related data is replaced by a single click.



Select the data for report generation and click "Add to the report".



Based on the layout chosen, the linked data is automatically included.



When you select another layout button, only the layout is changed with the data kept.

User layout

You can create templates for your reports.



User layout

Offline analysis software

Option

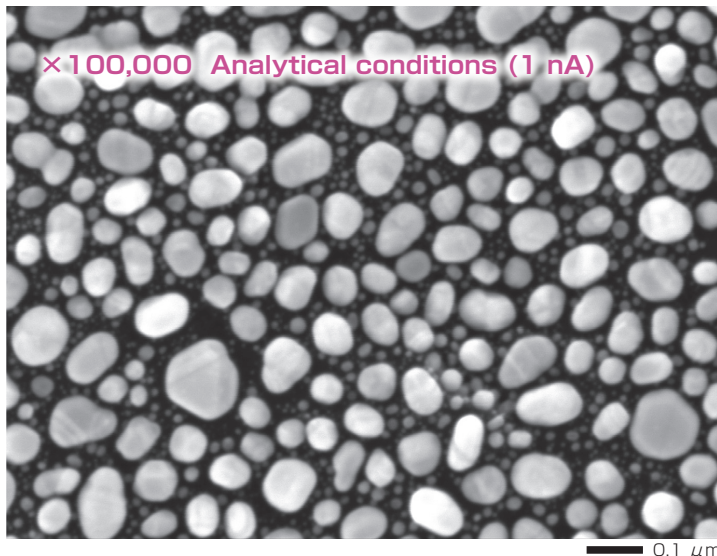
Improving productivity

Offline analysis software is available. You can process all your data offline and generate reports. You can create quantitative maps and extract spectra (Pop-up Spectrum) from elemental mapping.

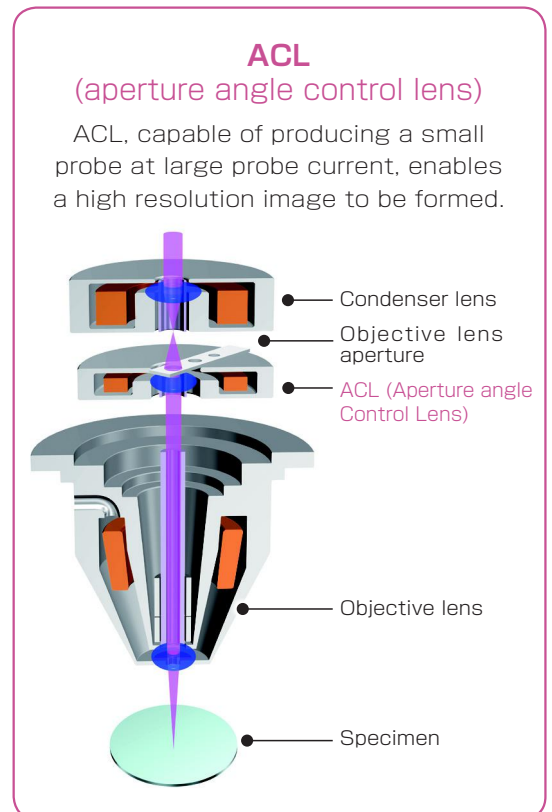
SEM functions

Collect high-magnification images even at analytical conditions or low accelerating voltage

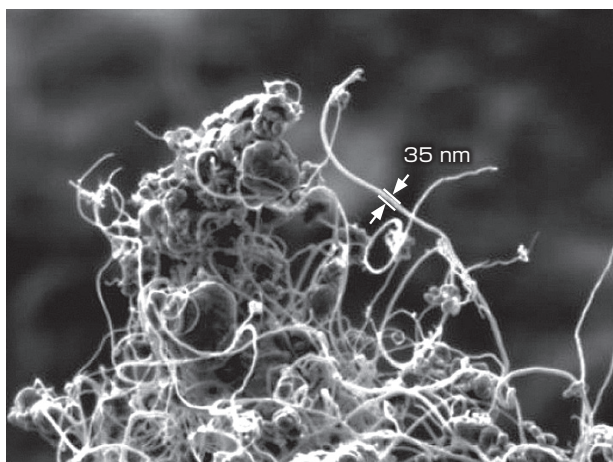
SEM images can be formed with the same acquisition conditions, from low- to high-magnifications and observation to analytical conditions. This capability dramatically shortens adjustment time.



Specimen : Au particles
Accelerating voltage : 15 kV, Magnification : ×100,000
High-vacuum mode, Secondary electron image

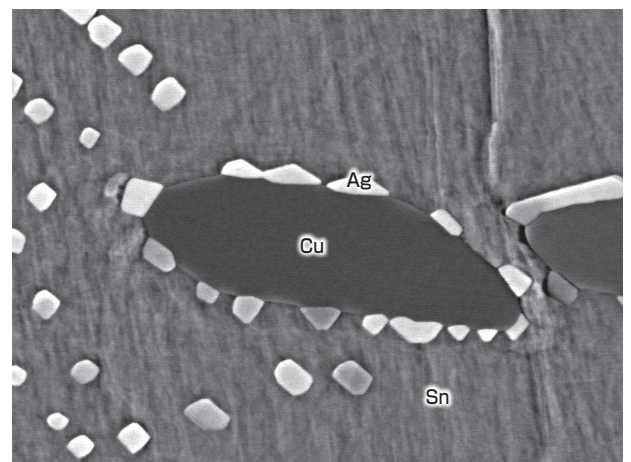


The combination of a low accelerating voltage (1.5 kV) and advanced scan system reduces charging, enabling high-magnification observation of fine structures of each carbon nanotube.



Specimen : Carbon nanotube (CNT)
Accelerating voltage : 15 kV, Magnification : ×30,000
High-vacuum mode, Secondary electron image

Compositional distributions are readily observed with our backscattered electron detector. Low-voltage observation reveals more detailed compositional difference on the specimen surface.



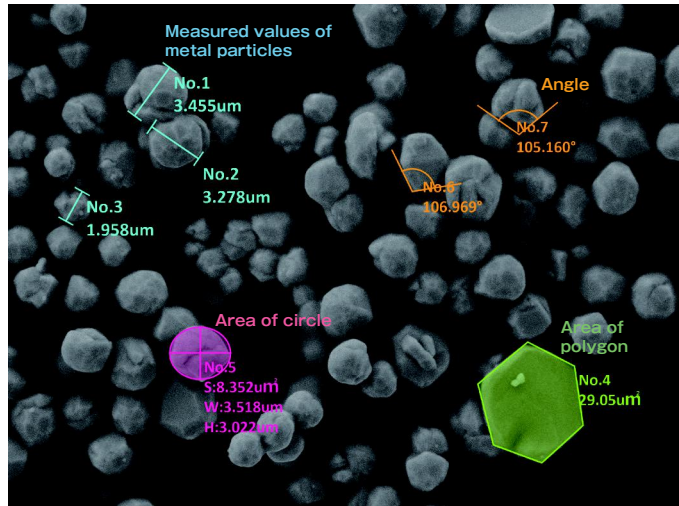
Specimen : Solder
Accelerating voltage : 5 kV, Magnification : ×30,000
High-vacuum mode, Backscattered electron composition image

Measurement functions

Several measurement functions are built in.

Measurement

Measurements are performed on the observation screen, and their results (distance, angle, area, etc.) can be recorded and saved on SEM images.



Specimen : Metal particles.

3D imaging

Optional software for creation of 3D image and analysis.



● Anaglyph

Step-by-step guide to collecting images for creation of an anaglyph image.

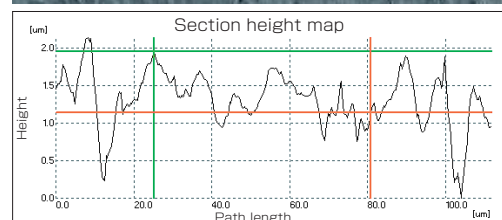
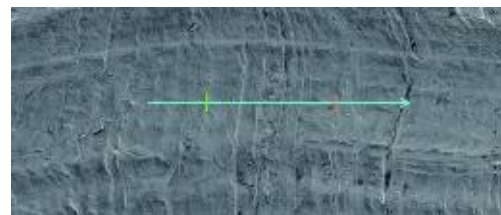
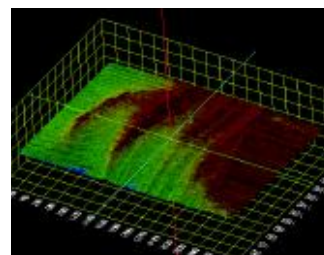


Specimen : Jumping spider (salticid)

● 3D measurement image

Option

Dedicated software for 3D measurement. A 3D image can be created from two SEM images. The topographic status of the specimen surface can be measured using the 3D image.



Functions to facilitate observation and analysis

● Recipe function

Set SEM conditions automatically. Standard recipes are built in which automatically set conditions based on sample category and analysis. Custom recipes can be created that are optimized for your application.

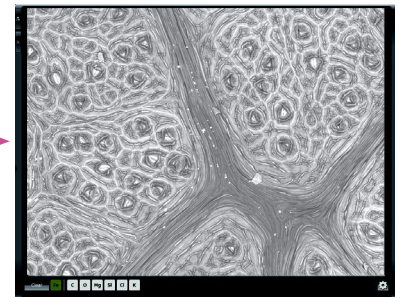
Observation example using the standard recipes



① Select a specimen area. In this image, plant leaves (biological specimen) is selected.



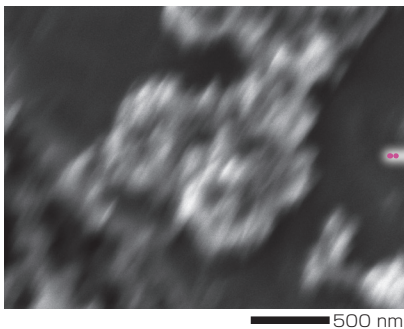
② Select a specimen type from the left side of the screen. Next, check the specimen status, etc., in the right side of the screen.



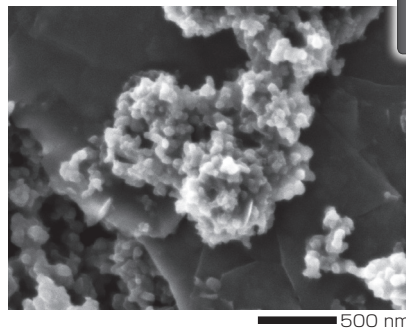
③ Appropriate conditions are automatically set and an image automatically generated.

● Auto functions

Advanced auto function algorithms make operation simple. Automatically adjust Focus, Contrast/Brightness and Stigmator with a single click.



Auto



Photography



Specimen: Carbon paste
Accelerating voltage : 3 kV
Magnification : ×50,000
High-vacuum mode
Secondary electron image

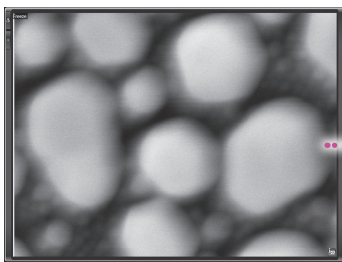
New function

● Auto Beam Alignment (ABA) built-in

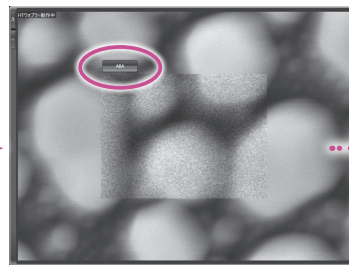
To observe a sharp, high-magnification image, an adjustment called "beam alignment" is required.

The JSM-IT500HR automatically executes beam alignment with ABA.

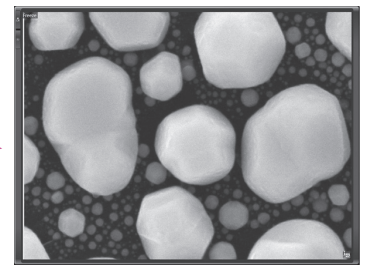
The combined use with AF (auto focus), AS (auto stigmator) and ACB (auto contrast & brightness) allows you to obtain an optimum image with no manual adjustment.



The image is out of focus.



Click the Wobbler button and then, click the "ABA" button.



Automatic alignment is completed within 10 seconds.

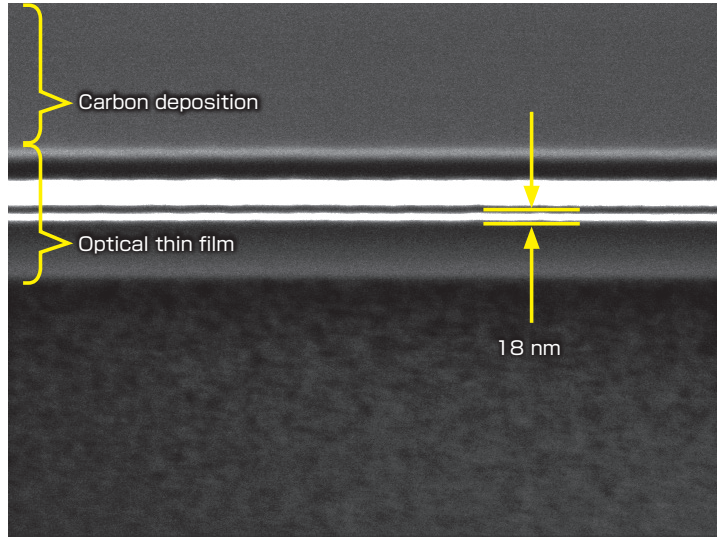
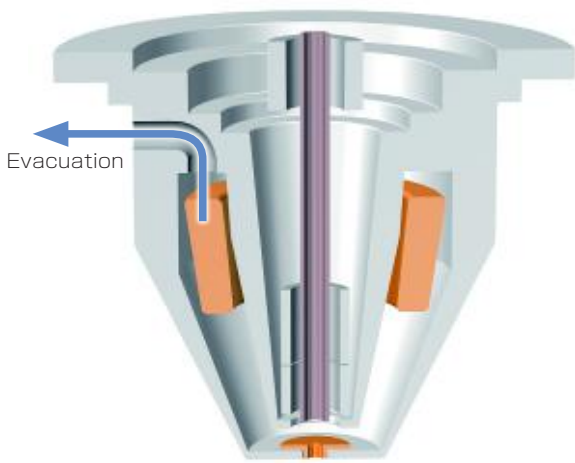
● Three year Warranty for Electron gun

The warranty period of the electron gun for JSM-IT500HR is three years. Thus, this long-life electron gun ensures stable analysis over a long period.

Low-vacuum mode

The low-vacuum function enables observation of insulating materials without conductive coating. Differential pumping, performed near the objective lens, has greatly improved the image quality in low vacuum mode. Owing to a stable vacuum in the microscope column, a high-magnification image in low vacuum can readily be observed.

Overview of vacuum evacuation near the objective lens



Specimen : Cross section of optical thin film milled by FIB.
 Accelerating voltage: 3 kV, Magnification : ×50,000
 Low vacuum mode, Backscattered electron composition image

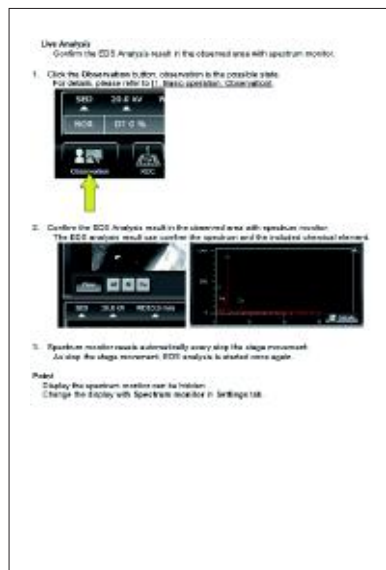
Help Guide

The help guide, makes it easy to understand operation methods of SEM and EDS, as well as maintenance procedures. With this guide, novice users can quickly achieve results.

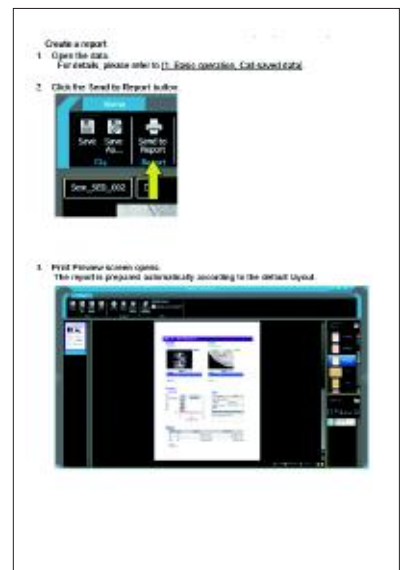
Condition setting



Analysis



Report



Help guide

EDS functions

Qualitative & quantitative analysis

With Zeromag, you can preselect analysis points, partial areas or map positions on multiple fields for automated serial analyses.

Identification of elements

● Qualitative analysis

Automatic qualitative analysis is performed during observation. Double-clicking on small peaks identifies the corresponding elements. Identification of elements can also be made during the spectral acquisition.

● Analysis region types

To specify the analysis region, various types are available. They include "Point," "Area," and also "Particle" which allows you to specify the analysis area from the intensity difference in an image.




Particle
Specifies areas with the same image intensity.




Polygon
Specifies the inside of an arbitrary shape enclosed by a circle.




Point
Performs spectral analysis of a specified point.



Whole Area
Acquires a spectrum from the whole observation area and/or a specified area.

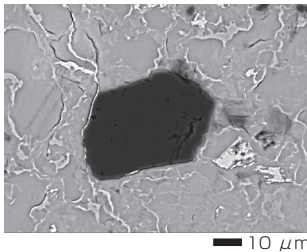


Ellipse
Specifies an area inside a circle.

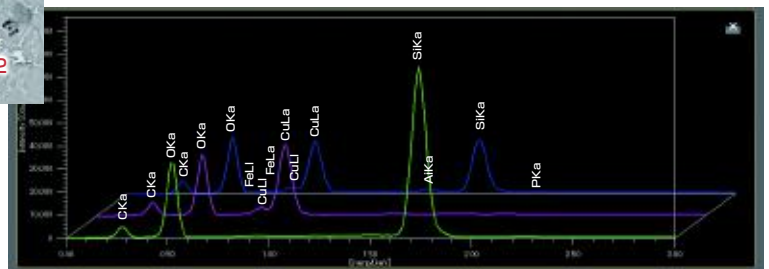
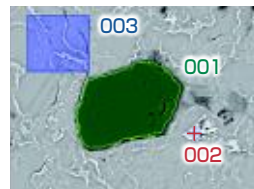


Free Line
Specifies an elongated region (grain boundary, etc.).

● Analysis example



Specimen : Chrysocolla.
Accelerating voltage : 15 kV.
Magnification : x700
High-vacuum mode : C coating.
Backscattered electron composition image



003
002
001

Examination of the element volume

● Standard-less quantitative analysis

When you click the quantitative analysis result tab on the analysis detail display screen, quantitative analysis results will be displayed. ZAF correction is built in and PRZ method is available. The quantitative analysis result is displayed as the mass concentration and the ratio of the number of each element.

● Standard quantitative analysis

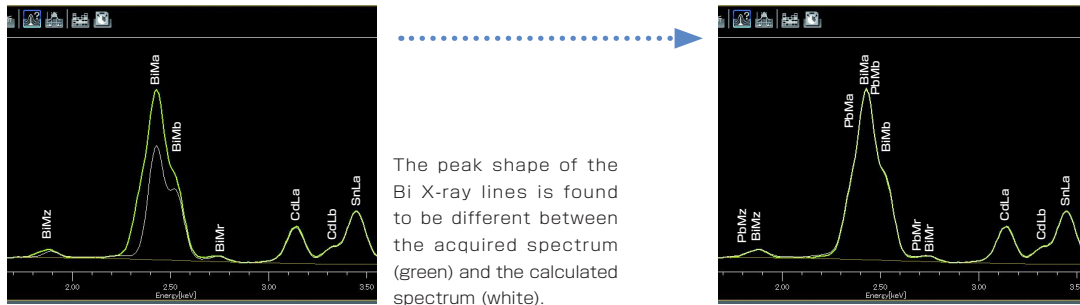
The ability to perform quantitative analysis with standards is also built in. You can obtain quantitative analysis results without normalizing to 100%.

Displayname	C	O	Al	Si	Ca	Fe	Cu	Total
Spc_002	20.83	43.60	0.17	33.70	0.01	0.09	1.60	100.00
Spc_003	15.19	33.17	0.14	0.18	0.00	0.48	50.85	100.01
Spc_001	18.69	32.52	0.90	13.92	0.29	2.96	30.70	100.00
Average	18.24	36.43	0.40	15.93	0.10	1.18	27.72	
StandardDeviation	2.32	5.08	0.35	13.76	0.13	1.28	20.22	

Accuracy improvement for qualitative analysis

● Visual Peak ID (VID)

This function enables you to confirm whether the constituent elements are correctly identified in the qualitative analysis result. A spectrum is reconstructed based on the X-ray intensity of the elements identified.



Drift compensation for long data acquisitions

With long data acquisitions, the probe tracking system periodically compares the SEM image at analysis start with the current image, so as to maintain the same analysis area. This capability helps you to monitor any change in a specimen or specimen drift during long acquisitions.

Relocating analysis areas

The stage position and magnification are linked with the analysis data. Return to any analysis area for additional study.

Pinpoint Navi

Automatic serial analysis can be made by specifying multiple areas in advance. Pinpoint Navi detects small image shifts by probe tracking, for precise repositioning of the analysis area.

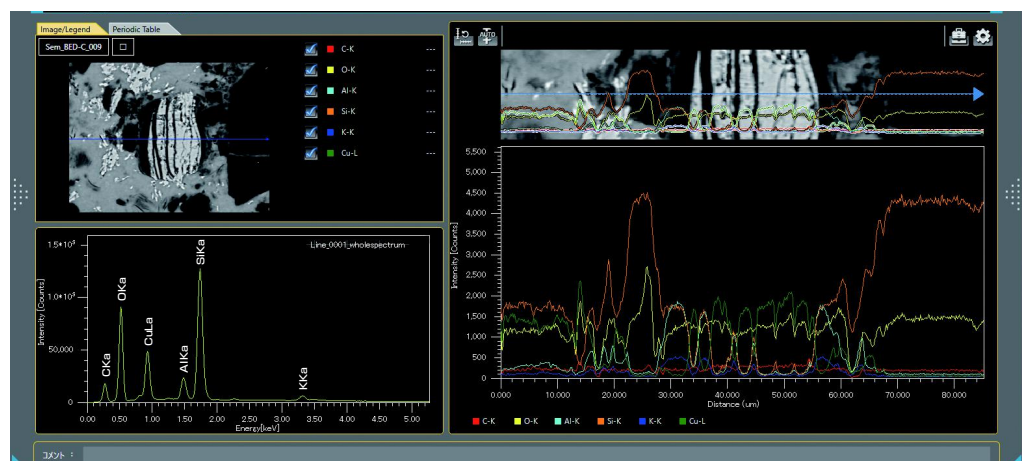
Line analysis

Finding the concentration change of elements along a line

Line analysis performs elemental analysis along a line set on the SEM image. The X-ray intensity of the specified elements is plotted to show the change in concentration across the line. You can change elements to show during or after completion of data acquisition.



Line analysis result



Elemental map

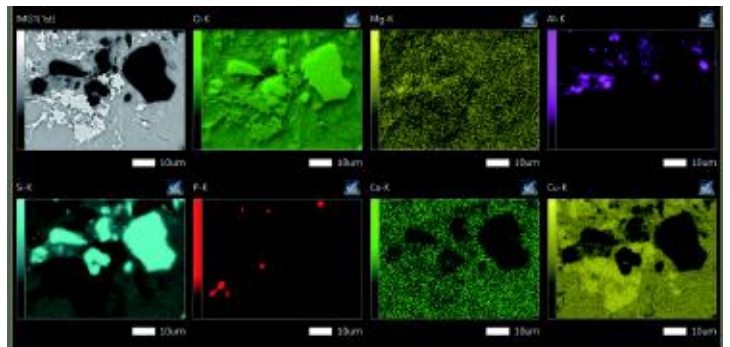
Elemental map allows you to acquire the elemental distribution from the whole area displayed on the SEM observation screen or in an area specified. Since the spectral information is saved at each pixel, you can acquire map data sets without specifying elements as well as add or modify elements during and after data acquisition. Display of the net map can be made in real time.



Displaying the elemental distribution with selected area

● Count map

The count map displays the X-ray intensity distribution from a specified energy region. The whole map acquires the distribution from the entire area. Area map acquires image and maps from a specified area.



Backscattered electron composition image and elemental maps
Specimen : Chrysocolla

Improved accuracy of elemental map

● Net map

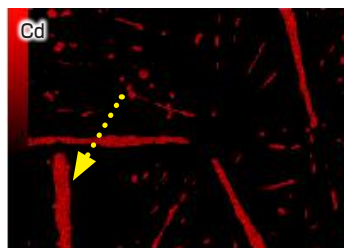
The Net map separates spectral peaks at each pixel and shows an elemental map with a reduced effect of close peaks. Compared to the count map which unavoidably reflects the peak intensity of other elements close to a specified element, the Net map enables a real-time display of an inherent intensity elemental map even from a specimen containing many elements.

● Quantitative map

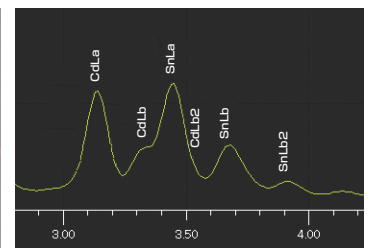
The quantitative map, which adds correction calculations to the Net map, shows a map with quantitative values. In addition to the Net map that shows the inherent intensity elemental map, the quantitative values can be displayed with image contrast.

● Comparison of Intensity map and Quantitative map

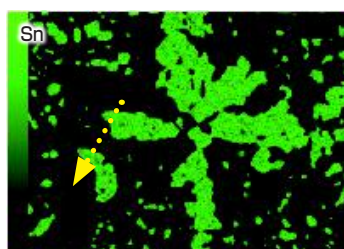
Spectral peaks of Cd-L β (3.316 keV), Cd-L β 2 (3.528 keV) and Sn-L α (3.443 keV) are close to each other. Thus in the intensity map, it is difficult to separate Cd from Sn. Applying the quantitative map enables you to confirm the inherent Sn distribution.



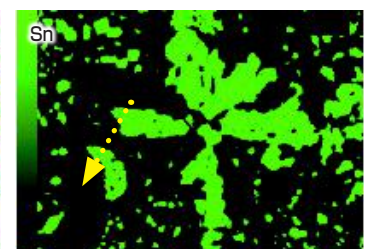
Cd intensity map



Peaks of Cd and Sn



Sn intensity map
Specimen : Wood metal

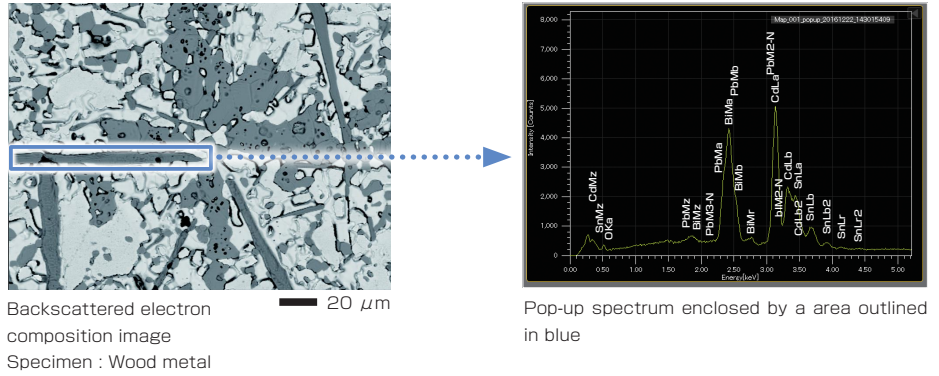


Sn quantitative map

Real time analysis using elemental map

● Pop-up spectrum

Since the stored map has spectral information, you can extract spectra from anywhere within the map data set. If there is an area that was not displayed in the specified elemental map, spectral display of that area is performed, thus allowing for confirmation of whether or not elements were missed.

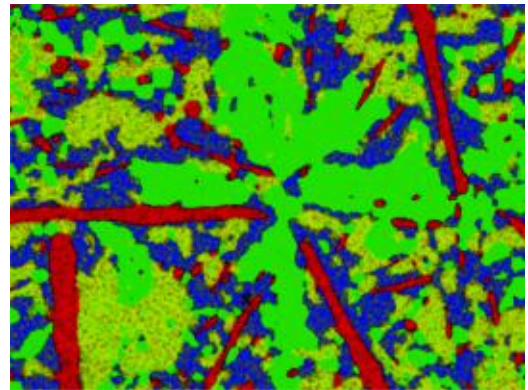


Locating the positions of an elemental map on an SEM image

● Color-overlay display of an elemental map

The system allows you to overlay elemental maps on the SEM image in real time where multiple elements overlap, the area is displayed with a composite color.

Red	Cd-L
Green	Sn-L
Blue	Pb-M
Yellow	Bi-L



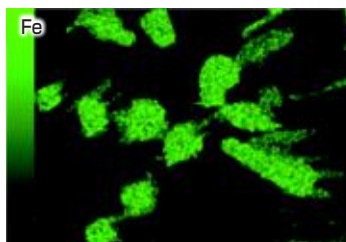
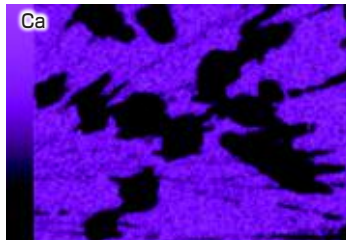
Multi-color overlay display
Specimen : Wood metal

Confirming the elemental distribution quickly

● Real-time filter

The system allows for image processing during a map acquisition to improve the signal to noise ratio. This feature provides fast confirmation of the elemental distribution.

Specimen : Black ore
Dwell time : 0.1 ms
Number of frames : 4 frames
Pixels : 512 × 384 pixels



Real-time filter ON
Average (5 × 5)

Real-time filter OFF

10 µm

Particle analysis

Option



Automatic analysis for particles and foreign materials

● Particle analysis

Particle analysis can be performed based on the intensity difference in a backscattered electron composition image as well as by size and shape. This feature extends to applications such as inclusions in addition to particles collected filters.

● Example of automatic analysis (asbestos)

The system detects the target particles from the specimen and performs automatic EDS analysis of each particle to determine whether or not the analyzed particle is asbestos. In addition, the system identifies the type of asbestos from composition, and classifies the particles and performs statistical processing. After the analysis completes, you can re-confirm each particle and analysis results.

Particle analysis conditions	0001
Total	33
Crocidolite	9
Amosite	1
Chrysotile	4
Unknown	19

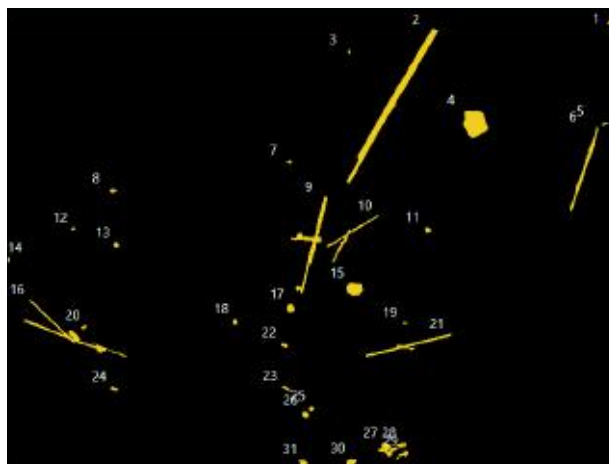
Classified asbestos

Features of Particle Analysis Software

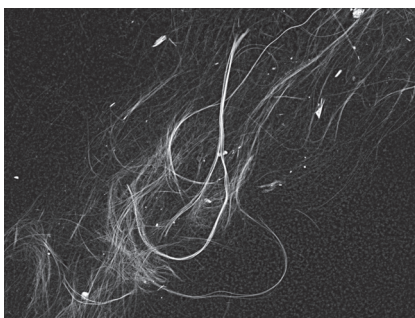
- Specifies the measurement area on the CCD image.
- Automatically extracts and analyzes the target object in the specified area.
- Routine tasks are simplified using Recipes.

● Statistical processing

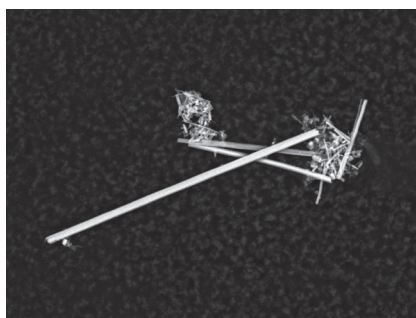
For each particle, EDS analysis results and particle-shape information (particle diameter, area, etc.) are recorded. You can create graphs or tables from the information for statistical processing. The processed result can be saved in CSV file format, allowing for flexible editing.



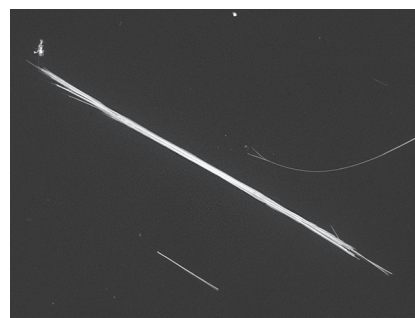
Particle analysis result



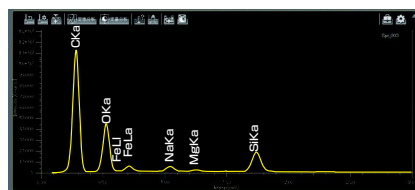
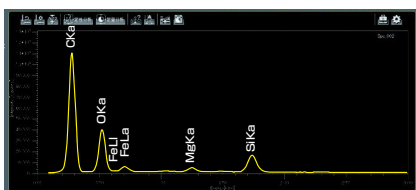
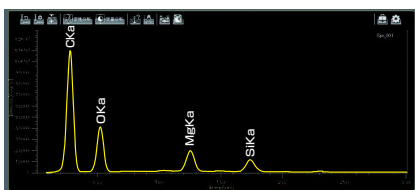
Chrysotile



Amosite



Crocidolite



Particle analysis software identifies foreign materials without searching

● Foreign material analysis

When searching for foreign materials over large areas, the particle analysis software enables you to rapidly and easily acquire the analysis result. Since the specified area is automatically measured, foreign materials present in the selected area will be detected. Recipes are very useful for guiding multiple operators performing routine tasks. This merit allows any operator to obtain an accurate comparison result. Also, the long-life electron gun provides stable analysis for long hours, including overnight operation.

● Analysis example of inclusions in AI

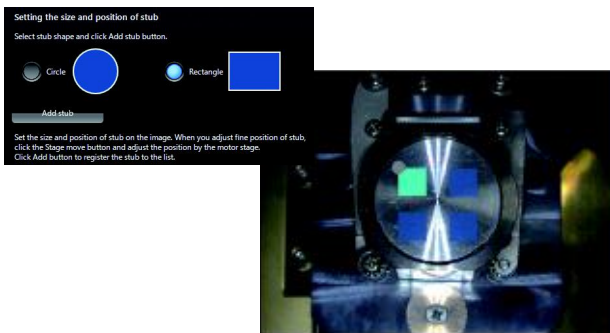
Inclusions in AI were analyzed using the particle analysis software. Extraction of inclusions, measurement of their shape and diameter and EDS analysis are conducted automatically. The final analysis results are displayed in a list.



Specimen : Inclusions in AI

① Area setting

Set an area you intend to measure on a CCD image.*



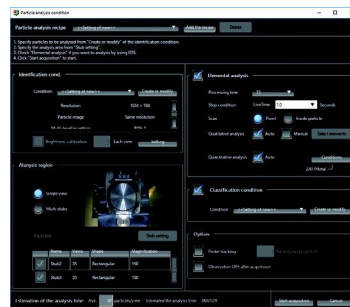
③ Particle extraction

Automatically extracts the particles that satisfy conditions for EDS analysis.



② Condition setting

Set the conditions for particle extraction and EDS analysis. You can also create a recipe for routine tasks.



④ Analysis result

The analysis result is displayed in a list. You can recall the particles of interest for re-analysis.



* To take a CCD image, SNS (option) is required.

Operation screen

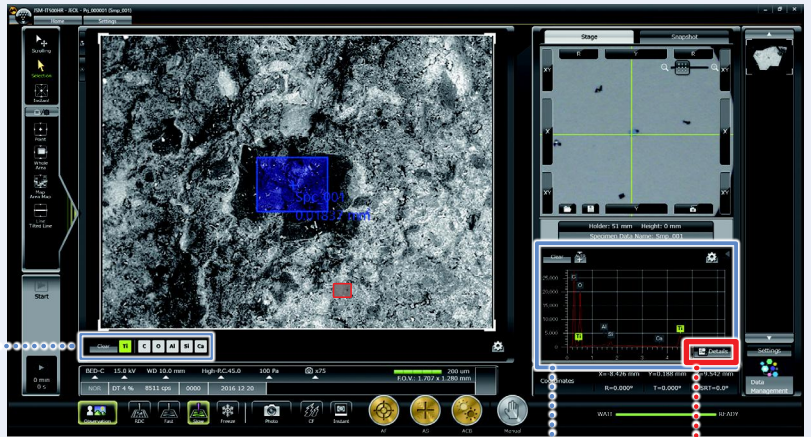
SEM observation screen (JSM-IT500HR)

You can confirm spectra during SEM observation. Then, the confirmed spectra can be analyzed on the Analysis Detail display screen.



Element

The main constituent elements detected in the measurement area are displayed. You can display an "Alert" by specifying an element.



Spectrum

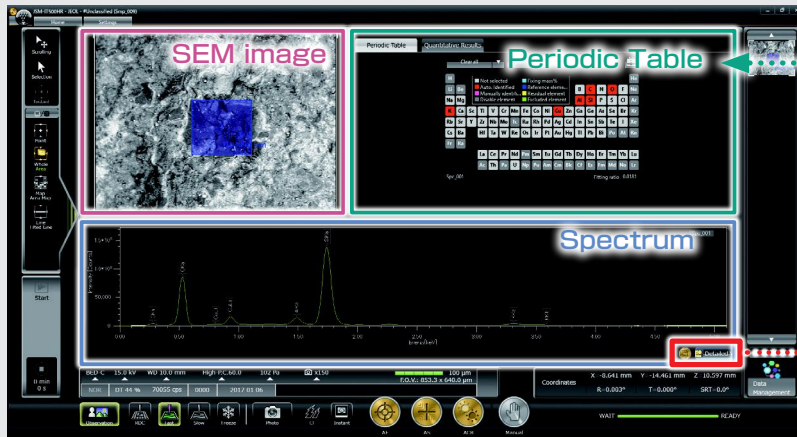
The characteristic X-ray spectrum from the measurement area and automatic qualitative analysis result are always displayed.

Single-click enables you to switch between the SEM observation screen and analysis detail display screen.

Analysis Detail display screen

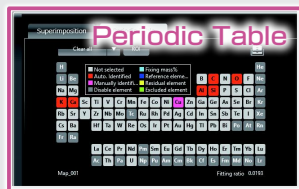
You can perform qualitative and quantitative analysis, collect spectral maps and line scans through the Analysis Detail display screen. Even during analysis, you can generate reports from acquired data (through the Data management screen).

Spectral analysis screen

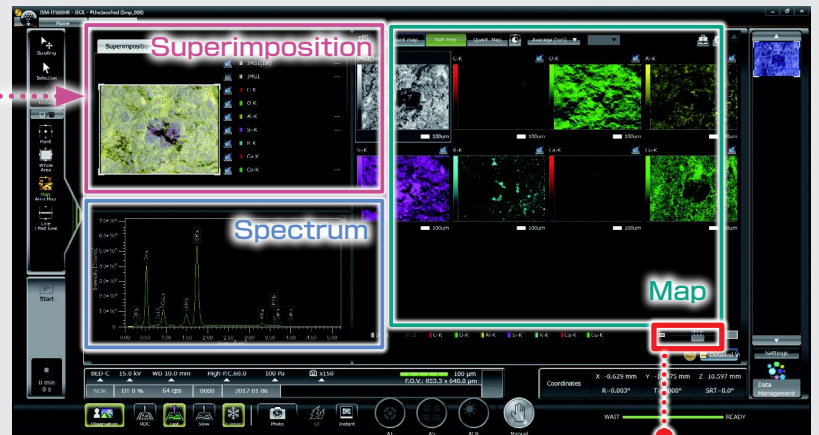


You can also switch between "Periodic Table" and "Qualitative Results."

Elemental map analysis screen



You can switch between a composite map view and periodic table.



You can also switch from "Map" screen to the Electron Microscope operation screen.

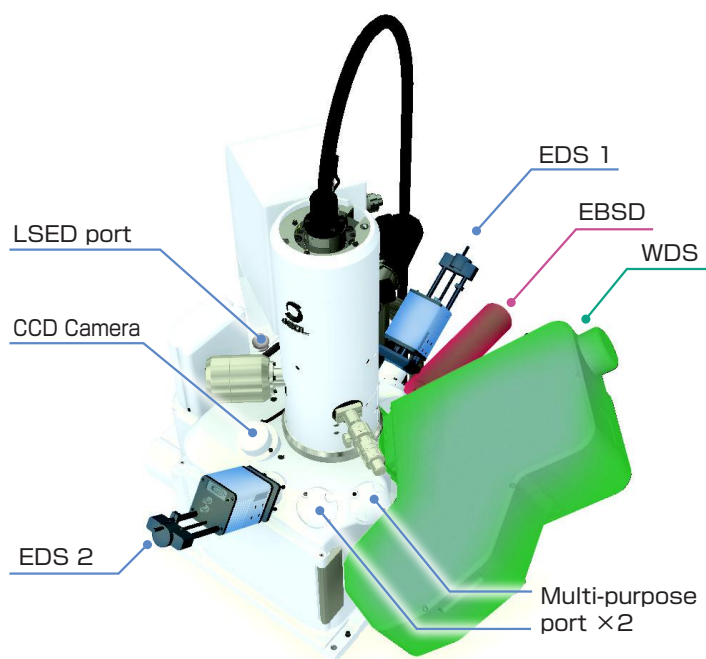
Specimen Exchange Navi & Large analytical specimen chamber

Multi-purpose chamber

Several attachments can be placed

On this multi-purpose chamber with 11 ports, the location of each detector is optimized. EDS, EBSD and WDS analysis can be performed at the same working distance (10 mm).

Coaxial EDS and EBSD ports allow for simultaneous analysis. Twin EDS detectors (180° apart) can be supported for high throughput as well as minimizing shadows with topographic samples.



Example of Multi-purpose chamber with two EDSs, WDS and EBSD

High-speed, high-precision motor stage and high-speed vacuum system

High-speed, high-precision motor stage

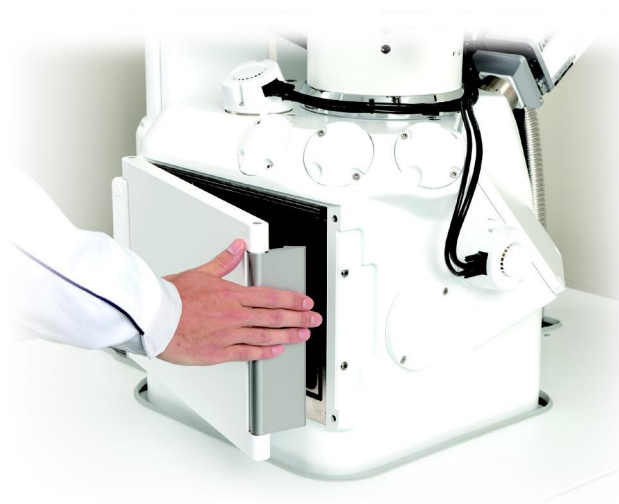
The JSM-IT500HR comes with a 5-axis motor stage that accommodates a maximum load of 2 kg.

- High-speed, High-precision
- Maximum load : 2 kg

High-speed evacuation

Owing to the optimized vacuum system, evacuation of the large-specimen chamber occurs within 3 minutes.* Installation of the optional load lock chamber (LLC) provides for even faster specimen exchange while maintaining high vacuum in chamber.

- Evacuation :
Approximately within 3 minutes*



* The evacuation time depends on the room environment and specimen type or shape.

■ Safe and easy! Specimen Exchange Navi

Guided operation from sample introduction to observation

The navigation flow guides you from sample introduction to observation.



Set sample height



Navigation flow

- Safe specimen exchange

When venting the chamber, the stage is automatically set to the exchange position for fast and easy specimen exchange. Can input a height offset for tall samples.

- Recipes built into automatically set observation conditions

During evacuation, the navigation flow allows you to acquire CCD image*, specify the observation field and set observation conditions using Recipes.

* To take a CCD image, SNS (option) is required.

■ Specimen Navigation

Functions to support specimen navigation

- Holder Graphics

Holder Graphics allows you to immediately confirm the specimen position by showing the current specimen position including specimen tilt and rotation.

- Stage Navigation System (SNS)

The specimen position can be set by acquiring a color image of the specimen and double-clicking the image. Displaying the color image on the Zeromag screen allows for an easy search of the specimen area.

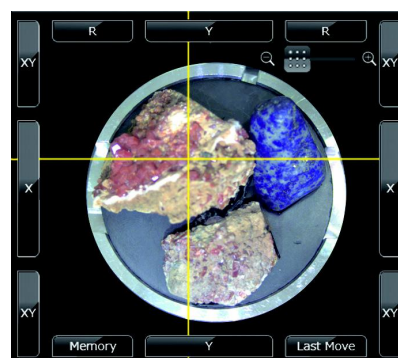
Option



Top view



Side view



CCD image area :
10 × 10 cm
Number of pixels :
5,000,000 pixels
Digital zoom : To ×20



- "Image at designated magnification" of the target area is displayed immediately after the completion of chamber evacuation.

A stage where

- Target observation area was specified.
- Observation conditions were set.
- Image adjustment was executed.

Specimen exchange

Maximum specimen size : 200 mm dia.
Maximum specimen height : 90 mm (H)

Draw-out method

The stage is mounted in the chamber which allows a user to secure large or odd shaped specimens on the stage and position under the objective lens prior to closing the door and evacuating the chamber.

Load lock chamber (LLC)

LLC (pre-evacuation chamber) is available for even faster specimen exchange.

Option

Safety mechanism built in

- Entering specimen height

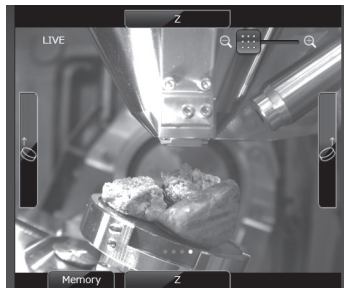
The user can input specimen height offset to further enhance stage safety limits.



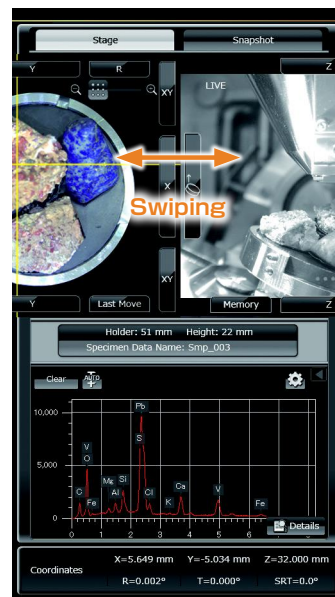
- Chamber Scope (CS)

A camera which displays the relationship of the specimen to the detectors and objective lens pole-piece, is available.

Option



You can switch between Holder Graphics view, Stage Navigation System and Chamber Scope view with a quick swipe on the display.





JEOL Ltd.

3-1-2 Musashino Akishima Tokyo 196-8558 Japan Sales Division Tel. +81-3-6262-3560 Fax. +81-3-6262-3577
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ARGENTINA
COASIN S.A.C.IyF,
Virrey del Pino 4071,
C1430CAM-Buenos Aires
Argentina
Tel. 54-11-4552-3185
Fax. 54-11-4555-3321

AUSTRALIA & NEW ZEALAND
JEOL(AUSTRALASIA) Pty.Ltd.
Suite 1, L2 18 Aquatic Drive
- Frenchs Forest NSW 2086
Australia
Tel. 61-2-9451-3855
Fax. 61-2-9451-3822

AUSTRIA
JEOL (GERMANY) GmbH
Gute Aenger 30
85356 Freising, Germany
Tel. 49-8161-9845-0
Fax. 49-8161-9845-100

BANGLADESH
A.Q. CHOWDHURY SCIENCE & SYNERGY PVT. LTD.,
87, Suhrawardy Avenue, Floor 2
Baridhara, Dhaka 1212
Bangladesh
Tel. 8802-9682272, 8953450, 8953501
Fax. 8802-9654428

BELGIUM
JEOL (EUROPE) B.V.
Planet II, Gebouw B
Louvainssteenweg 542,
B-1300 Zaventem
Belgium
Tel. 32-2-720-0560
Fax. 32-2-720-6134

BRAZIL
JEOL Brasil Instrumentos Cientificos Ltda.
Av. Jabaquara, 2958 5º andar conjunto 52 ;
04046-500 Sao Paulo, SP
Brazil
Tel. 55-11-5070 4010
Fax. 55-11-5070 4000

CANADA
JEOL CANADA, INC.
3275 Tere Rue, Local #8
53-Huber, QC J3Y8Y6, Canada
Tel. 1-450-676-8776
Fax. 1-450-676-8694

CHILE
ARQUIMED INNOVATION
Arturo Prat 828,
Santiago, Chile
Tel. 56-2-634-6266
Fax. 56-2-634-4633

CHINA
JEOL(BEIJING) CO., LTD.
Zhongkeziyuan Building South Tower 2F,
Zhongguancun Nanshan Street No. 6,
Haidian District, Beijing, P.R.China
Tel. 86-10-6804-6321
Fax. 86-10-6804-6324

JEOL (BEIJING) CO., LTD., SHANGHAI BRANCH
Room 1505/1506, Nof 3000X Kang Road,
Jing an Dist., Shanghai, 200040, China
Tel. 86-21-6249-4693/4487/4537/4404
Fax. 86-21-6248-4075

JEOL (BEIJING) CO., LTD., GUANGZHOU BRANCH
M1601, World Trade Center Building,
#371-375, Huan Shi Road East, Guangzhou,
Guangdong Prov., 510095, P.R.China
Tel. 86-20-8778-7848
Fax. 86-20-8778-4268

JEOL (BEIJING) CO., LTD., WUHAN BRANCH
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Hubei, 430071, P.R.China
Tel. 86-27-8713-2567
Fax. 86-27-8713-2567

JEOL LTD. (BEIJING) CO., LTD., CHENGDU BRANCH
1807A Zongfu Building,
NO. 35 Zhongfu Road, Chengdu, Sichuan, 610016
P.R. China
Tel. 86-28-86622554
Fax. 86-28-86622564

EGYPT
JEOL SERVICE BUREAU
3rd Fl. Nile Center Bldg., Nawal Street,
Dokki, (Cairo), Egypt
Tel. 20-2-3335-7220
Fax. 20-2-3339-1188

FRANCE
JEOL (EUROPE) SAS
Espace Claude Monet, 1 Allée de Giverny
79290, Croissy-sur-Seine, France
Tel. 33-13015-3737
Fax. 33-13015-3747

GERMANY
JEOL (GERMANY) GmbH
Gute Aenger 30
85356 Freising, Germany
Tel. 49-8161-9845-0
Fax. 49-8161-9845-100

GREAT BRITAIN & IRELAND
JEOL (U.K.) LTD.
JEOL House, Silver Court, Watchmead,
Welwyn Garden City, Herts AL7 1LT, U.K.
Tel. 44-1707-377117
Fax. 44-1707-373254

GREECE
N. ASTERADIS S.A.
56-56, S. Tirkoupi Str. P.O. Box 26140
GR-10222, Athens, Greece
Tel. 30-1-823-5383
Fax. 30-1-823-9567

HONG KONG
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Unit No. 1009, 10/F., Prosperity
663 King's Road, North Point, Hong Kong
Tel. 852-2815-7299
Fax. 852-2581-4635

INDIA
JEOL INDIA Pvt. Ltd.
Unit No. 305, 3rd Floor,
ABW Elegance Tower,
Jasola District Centre,
New Delhi 110 025, India
Tel. 91-11-4672-2578
Fax. 91-11-4060-1235

JEOL India Pvt. Ltd., Mumbai Branch
Regus Mumbai
Levels Ground & 1, Trade Centre Bandra Kurla Complex 1108,
Bandra (E) Mumbai, 400051, India
Tel. : +91-22-40700700

INDONESIA
PT. TEKNOABINDO Penta Perkasa
Komplek Gading Bukit Indah Blok I/11
Jl. Bukit Gasing Raya Kelapa Gading Permai,
Jakarta 14240, Indonesia
Tel. 62-21-45847057/58
Fax. 62-21-45842729

ITALY
JEOL (ITALIA) S.p.A.
Palazzo Pacinotti - Milano 3 City,
Via Ludovico il Moro, 6/A
20080 Basiglio(MI) Italy
Tel. 39-02-9041431
Fax. 39-02-90414343

KOREA
JEOL KOREA LTD.
Dongwoong Bldg., 7F., 1443, Yangje Daero,
Gangdong-Gu, Seoul, 05355, Korea
Tel. 82-2-511-5801
Fax. 82-2-511-2635

KUWAIT
Ashraf & CO. Ltd.
P.O.Box 3555 Safat 13036, Kuwait
Tel. 965-1805151
Fax. 965-24335373

MALAYSIA
JEOL(MALAYSIA) SDN.BHD.
508, Block A, Level 5,
Kelana Business Center,
97, Jalan SS 7/2, Kelana Jaya,
47301 Petaling Jaya, Selangor, Malaysia
Tel. 60-3-7492-7722
Fax. 60-3-7492-7723

MEXICO
JEOL DE MEXICO S.A. DE C.V.

Arkansas 11 Piso 2
Colonia Napoles
Delegacion Benito Juarez, C.P. 03810
Mexico D.F., Mexico
Tel. 52-5-55-211-4511
Fax. 52-5-55-211-0720

Middle East
JEOL GULF FZCO
P.O. Box No. 371107
Dubai Airport Free Trade Zone East Wing 5EA No. 404,
Dubai, UAE
Tel. 971-4-609-1497
Fax. 971-4-609-1498

PAKISTAN (Karachi)
ANALYTICAL MEASURING SYSTEM (PVT) LTD.(AMS LTD.)
14-C Main Sehar Commercial Avenue Lane 4,
Khayaban-e-Sehar,
D.H.A-VII, Karachi-75500, Pakistan
Tel. 92-21-35345581/35340747
Fax. 92-21-35345582

PANAMA
PROMED S.A.
Parque Industrial Costa del Este
Urbanización Costa del Este
Apartado 0816-01755, Panama, Panama
Tel. 507-303-3100
Fax. 507-303-3115

PHILIPPINES
PHILAB INDUSTRIES INC.
7487 Bagtikan Street, SAV Makati,
1203 Metro, Manila Philippines
Tel. 63-2-896-8658
Fax. 63-2-897-7732

PORTUGAL
Izasa Portugal Lda.
R. do Proletariado, 1
2790-138 CARNAXIDE, Portugal
Tel. 351-21-424-73-00
Fax. 351-21-418-60-20

RUSSIA
JEOL (RUS) LLC
Krasnoprolenskaya Street, 16,
Bld. 2, 127473, Moscow,
Russian Federation
Tel. 7-495-748-7791/7792
Fax. 7-495-748-7793

SAUDI ARABIA
ABDULREHMAN ALGOSAIBI G.T.C. (Riyadh)
Algosaiji Building-Old Airport Road
P.O. Box 215, Riyadh-11411, Saudi Arabia
Tel. 966-1-477-7932

SCANDINAVIA
JEOL (Nordic) AB
Hammarbacken 6A, Box 716, 191 27 Sollentuna
Sweden
Tel. 46-8-28-2900
Fax. 46-8-29-1647

SINGAPORE
JEOL ASIA PTE.LTD.
2 Corporation Road
#01-12 Corporation Place
Singapore 618494
Tel. 65-6366-9889
Fax. 65-6366-7552

SOUTH AFRICA
ADI Scientific (Pty) Ltd.
370 Angus Crescent,
Northlands Business Park, 29 Newmarket Road
Northriding, Randburg, Republic of South Africa
Tel. 27-11-462-1383
Fax. 27-11-462-1466

SPAIN
IZASA Scientific SLU,
Argoneses, 13, 28108 Alcobendas,
Madrid, Spain
Tel. 34 902 20 30 80
Fax. 34 902 20 30 81

SWITZERLAND
JEOL (GERMANY) GmbH

Gute Aenger 30
85356 Freising, Germany
Tel. 49-8165-77346
Fax. 49-8165-77512

TAIWAN
JIE DONG CO., LTD.
7F, 112, Chung Hsiao East Road,
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Tel. 886-2-8990-1779
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Taiwan (R.O.C.)
Tel. 886-3-571-5656
Fax. 886-3-571-5151

THAILAND
BEETHAI BANGKOK EQUIPMENT & CHEMICAL CO., Ltd.
300 Phrayothin Rd., Phayathai, Bangkok 10400,
Thailand
Tel. 66-2-615-2929
Fax. 66-2-615-2350/2351

JEOL ASEAN TECHNICAL CENTER (JATC)
MTEC building room 533
114 Moo9, Thailand Science Park
Phrayothin Rd., Klong 1, Klong Luang,
Pathumthani 12120
THAILAND
Tel. 66-2-564-7738
Fax. 66-2-564-7739

THE NETHERLANDS
JEOL (EUROPE) B.V.
Lireweg 4, NL-2153 PH Nieuw-Vennep,
The Netherlands
Tel. 31-252-623500
Fax. 31-252-623501

TURKEY
Iksier A.Ş.
Kartal Cad. No: 55/3 Inonu Wah,
Atasehr 34755, Istanbul, Turkey
Tel. 90-216-5736470
Fax. 90-216-5736475

USA
JEOL USA, INC.
11 Osarton Road, Peabody, MA 01960, U.S.A.
Tel. 1-978-535-5900
Fax. 1-978-536-2205/2206

JEOL USA, INC. WEST OFFICE
5653 Stoneridge Drive Suite #110
Pleasanton, CA 94588, U.S.A.
Tel. 1-925-737-1740
Fax. 1-925-737-1749

VENEZUELA
GOMISA Service and Supply C.A.
Urbanization Montalban III
- Residencias Don Andrés - Piso 7 - Apartamento 74
Avenida 3, entre calles 7 y 6
Montalban, Caracas, Venezuela
Tel. 58-212-443-4342
Fax. 58-212-443-4342

Vietnam
TECHNICAL MATERIALS AND RESOURCES
IMPORT-EXPORT JOINT STOCK COMPANY(REXCO)
Hanoi Branch
SALES & SERVICE
155-157 Lang Ha Street, Dong Da District, Hanoi, Vietnam
Tel. +84 (43) 582 0516
Fax. +84 (43) 853 2511