JSM-IT700HR InTouchScope™ Scanning Electron Microscope

Application

Application JSM-IT700HR

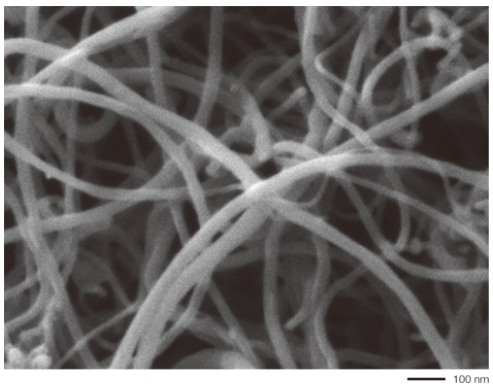
- CLEMnote
- Introducing Cryo Scanning Electron Microscopy

I see all >

Expanding the microscopic world through JSM-IT700HR

Nanomaterials

Carbon nanotube



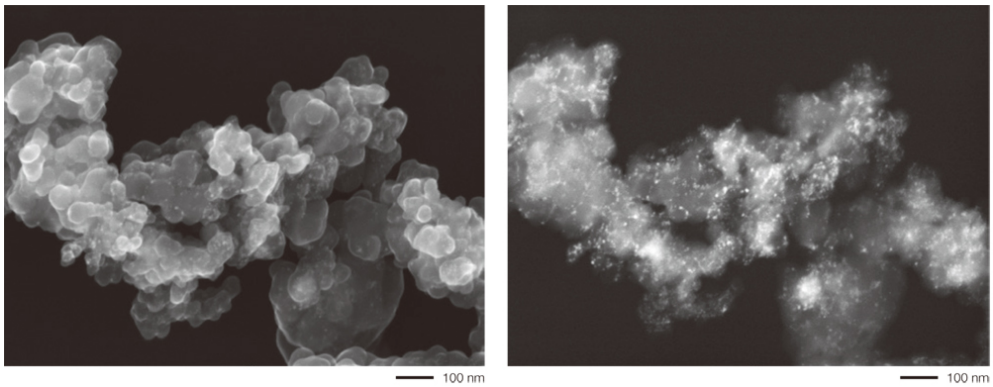
Accelerating voltage: 2 kV, Signal:

Secondary electrons, Magnification:

×100,000

Observation at low accelerating voltage clearly reveals the surface structure.

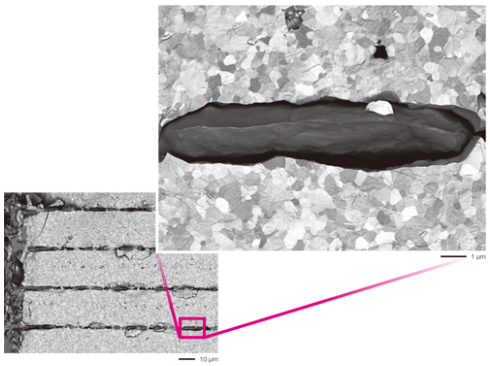
Catalyst Pt on carbon



Accelerating voltage: 10 kV, Signal: Secondary electrons (left), Backscattered electrons (right), Magnification: ×100,000

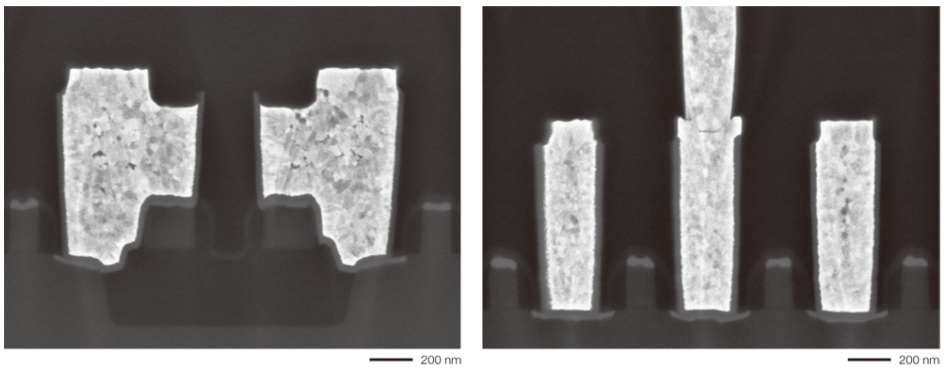
Electronic products

Fractured surface of ceramic capacitor



Accelerating voltage: 5 kV, Signal: Backscattered electrons, Magnification: ×1,000 (left) ×10,000 (right)

CP-milled section of semiconductor SRAM



Accelerating voltage: 5 kV, Signal: Backscattered electrons, Magnification: ×60,000 (left, right)

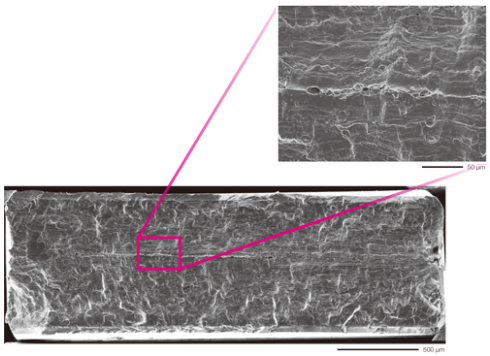
CP is an instrument for preparing a cross section of a specimen using a broad Ar ionbeam and shield plate. In recent years, CP has been widely used to prepare cross sections of metal, ceramics, plastic,and other materials.

Learn more ›

Metals

Large area montage analysis

Fracture surface of stainless



Accelerating voltage: 15 kV, Signal:

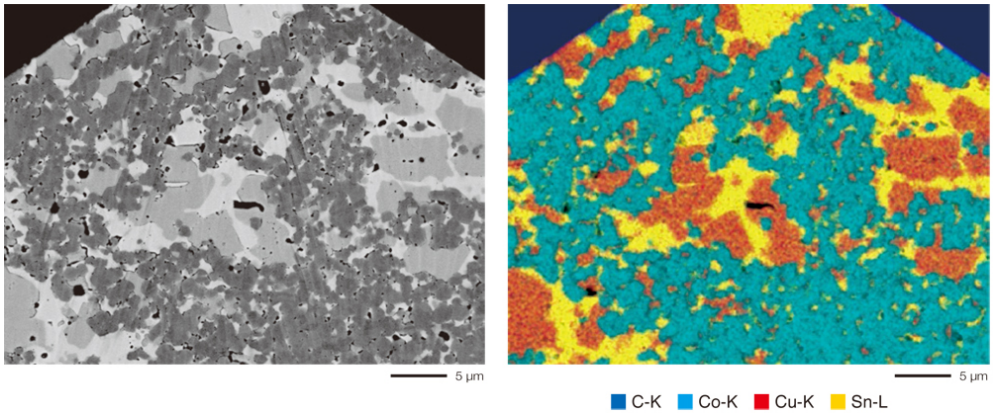
Secondary electrons, Magnification: ×500,

Montage result: 13×6

By observing the entire area of a fracture surface, a detailed analysis of the fracture mechanism can be made. In this specimen, typical fatigue failure, such as the striation pattern and dimple microvoids, are observed.

Elemental analysis: EDS map

CP-milled section of precision cutting blade



Accelerating voltage: 15 kV, Signal: Backscattered electrons (left) EDS map

(right), Magnification: ×3,000

Using overlay map, the distribution of heavy metal elements in the precision cutting blade is made clear.

High magnification EBSD analysis

CP-milled section of stainless wire along the longitudinal direction

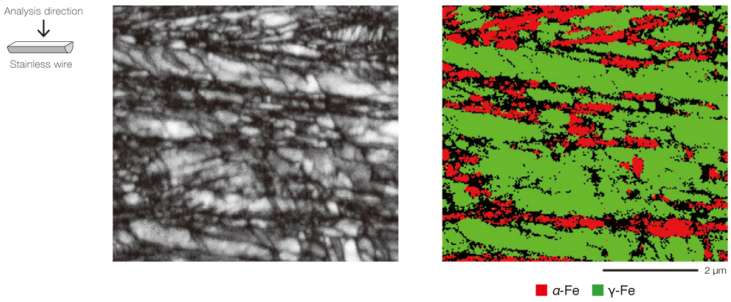
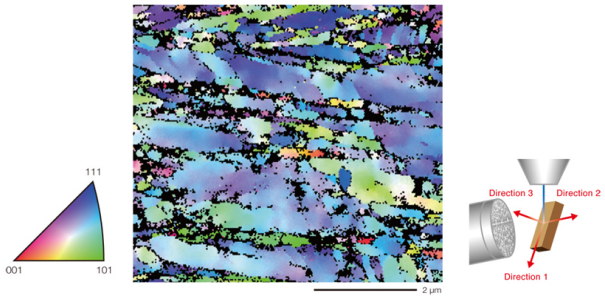


Image Quality Map(left), Phase map image(right)

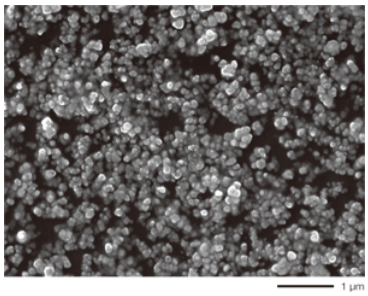
EBSD map image (direction: Direction 3)



Accelerating voltage: 10 kV, Probe current: 5 nA, Magnification: ×10,000

Soft materials

Carbon black in the rubber

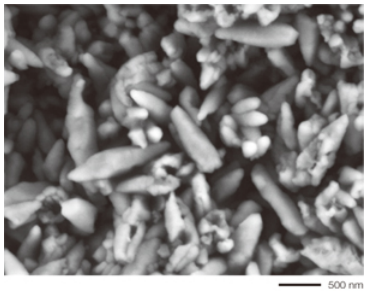


Accelerating voltage: 15 kV

Signal: Secondary electrons

Magnification: ×20,000

Plastic glove

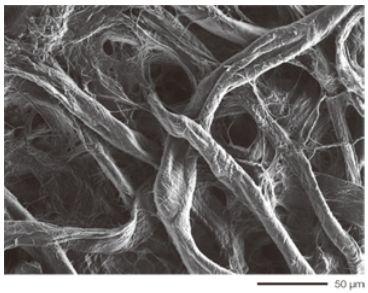


Accelerating voltage: 5 kV,

Signal: Low vacuum backscattered electrons

Magnification: ×30,000

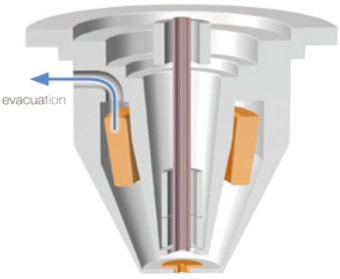
Membrane on a chicken eggshell



Accelerating voltage: 5 kV,

Signal: Low-vacuum secondary electrons

Magnification: ×500

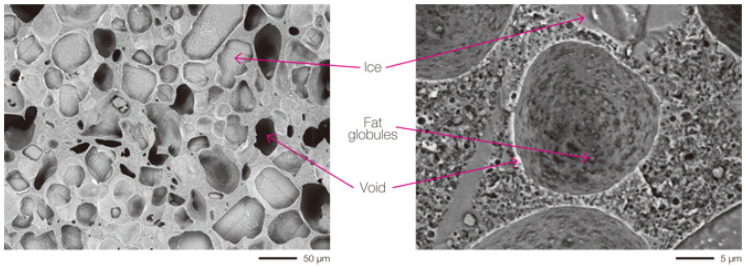


Low-vacuum mode

Low vacuum mode allows for observation of non-conductive materials without treatment. Evacuation at the objective lens improves image quality in low vacuum mode.

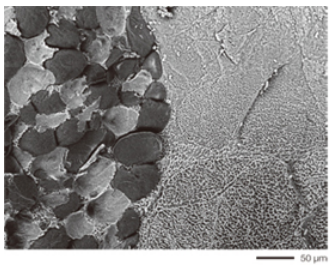
Food

Ice cream

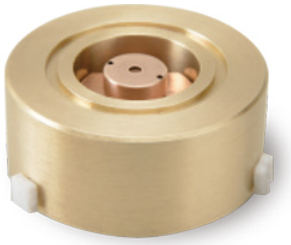


Accelerating voltage: 7 kV, Signal: Low vacuum backscattered electrons, Magnification: ×300 (left) ×30,000 (right)

Fat globules and muscle fiber of chicken



Accelerating voltage: 10 kV
Signal: Low-vacuum backscattered electrons
Magnification: ×300



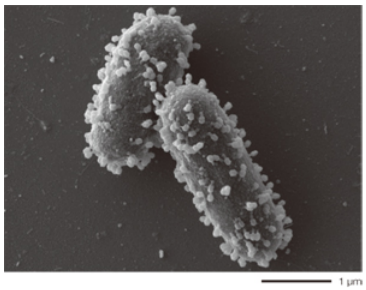
LV cryo-holder*1

LV cryo-holder keeps a specimen frozen without water loss.
A hydrous specimen like food can be observed. It is possible to visualize the texture by understanding the size of ice and the diameter of muscle fibers.

*1 Optional

Biology

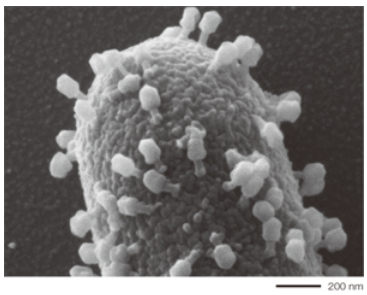
E. coli and T4 phage



Accelerating volage: 2.5 kV

Signal: Secondary electrons

Magnification: ×25,000



Accelerating volage: 2.5 kV

Signal: Secondary electrons

Magnification: ×80,000

Mitochondria of mouse kidney

Accelerating voltage: 2.5 kV

Signal: Secondary electrons.

Magnification: ×50,000

JFD-320 Freeze Drying Device*2

This freeze drying device minimizes the effect of surface tension, suitable for drying hydrous specimens.
Specimen preparation of E. coli and T4 phage: Critical point drying after Glutaraldehyde and OsO_4 treatment.
Specimen preparation of mouse mitochondria: Freeze drying after OsO_4 maceration treatment.

* 2 Optional

YouTube Facebook Twitter @JEOL_Japan Social Media accounts