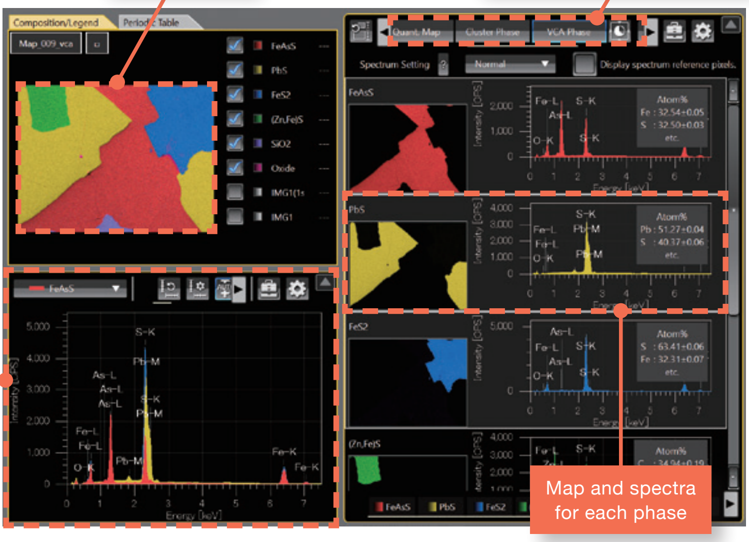
Solutions for Innovation | JEOL

Simple phase analysis with EDS

～EDS Phase Analysis Software2～

Automatic one-click creation of chemical compound maps

EDS mapping is a way to visualize elemental distribution across a specimen. Phase Analysis is an extension of EDS map analysis for visualization of the chemical distribution.
With one click, Phase analysis automatically creates equivalent chemical composition area (phase map) as well as phase spectra and quantitative results.


Phase map overlay

Selecting elemental map/ phase map

Phase spectra comparison

Map and spectra for each phase

Two analysis modes optimized for different specimen types and applications

Cluster Phase Analysis

Filled color map

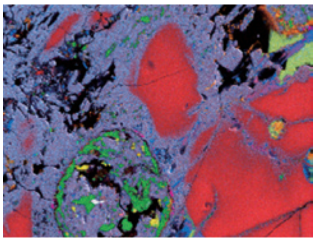
- ✓ Area fraction of each phase
- ✓ For analysis of materials interface, bonding surface

VCA Phase Analysis

VCA: Vertex Component Analysis

Gradient color map

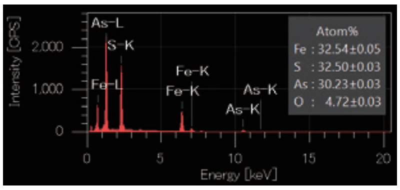
- ✓ For areas with heterogeneous chemical composition
- ✓ For non-flat specimens
- ✓ For finding small grains



Useful functions

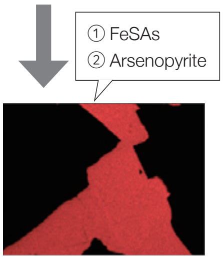
【Automatic labeling】

Automatically generates spectra for each phase.
Two types of labeling are available.



① Labeling by constituent elements
Labeling based on the qualitative and quantitative analysis of the spectra.

② Labeling with QBase
Labeling based on spectral match with JEOL's QBase. The label will be the same as that registered in QBase.
QBase: Qualitative Analysis Database

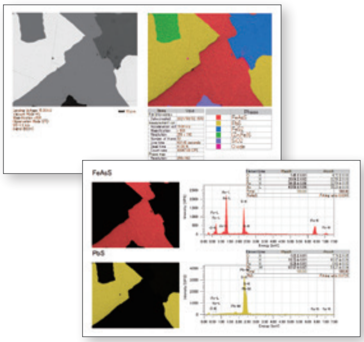


【Reanalysis Preview】

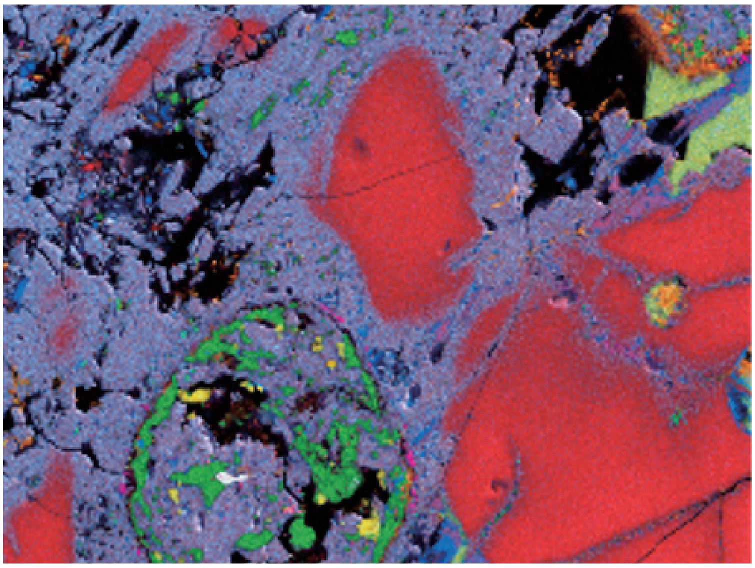
Preview results when manually changing the number of phases.

【One-click report creation】

One-click report creation of the Phase Analysis results.



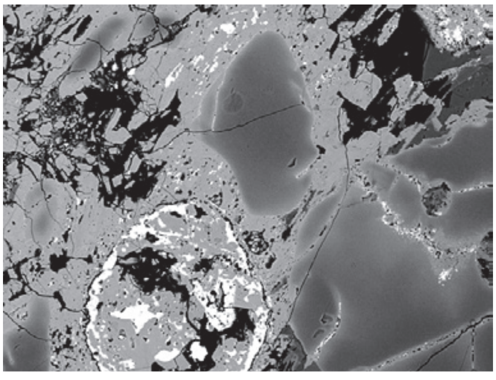
VCA Phase Analysis Mode



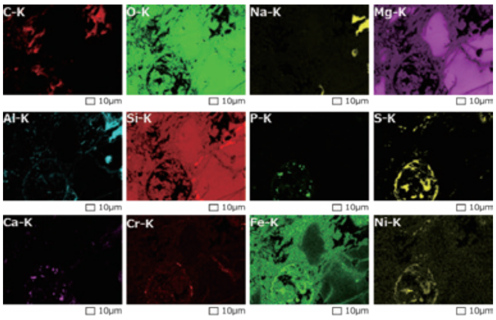
Phase map
overlay image

- 🟥 silicate (Mg, Fe)
- 🟦 silicate (Mg, Ca, Al)
- 🟦 silicate (Mg, Fe)
- 🟧 silicate (Al, Mg, Fe)
- 🟩 silicate (Al, Na)
- ⬛ resin
- 🟩 Fe, Ni sulfide
- ⬜ Fe, Ni metal
- 🟨 Ca phosphate
- 🟪 oxide (contains Cr)

Backscattered electron compositional image

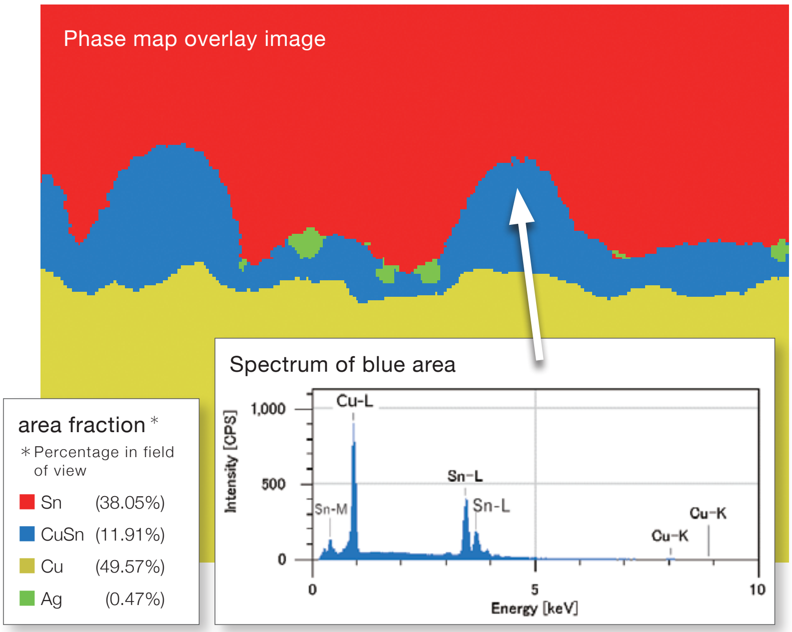


Elemental map



Sample: chondrite meteorite

Cluster Phase Analysis Mode

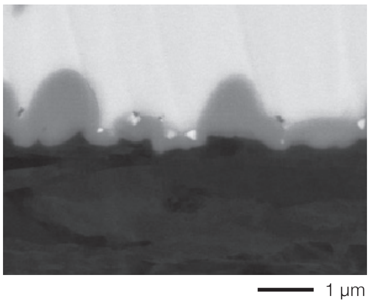


area fraction＊

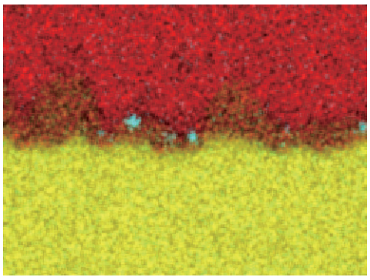
＊Percentage in field of view

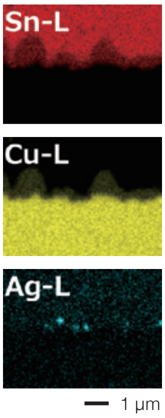
🟥 Sn	(38.05%)
🟦 CuSn	(11.91%)
🟨 Cu	(49.57%)
🟩 Ag	(0.47%)

Backscattered electron compositional image



Elemental map overlay image





Sample: boundary of Cu substrate/
SnAgCu Pb-free solder

Applicable Instruments

JCM-7000＊, JSM-IT510＊, JSM-IT210, JSM-IT710HR ＊Upgrade may be required for some units
JSM-IT200＊＊, JSM-IT500＊＊, JSM-IT700HR＊＊, JSM-IT800＊＊, JIB-PS500i＊＊ ＊＊Offline operation using the Offline Data Processing Software (EX-37390SVL)

- EDS Phase Analysis Software 2 (EX-36430PHA2) is optional software for JEOL's EDS system.
- Playback Analysis function is available (Standard Software for EDS (EX-36271STD) is required).

＊Specifications subject to change without notice.

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