

Electron Backscattered Diffraction (EBSD)

Electron backscatter diffraction (EBSD) is a crystallographic characterization technique based on scanning electron microscopy (SEM). It is commonly used to study crystalline or polycrystalline materials and can provide information about the structure, crystal orientation, phase, or strain in the material. To obtain the crystallographic data Electron Back-Scattered Patterns (Kikuchi-Lines) are collected and computed.

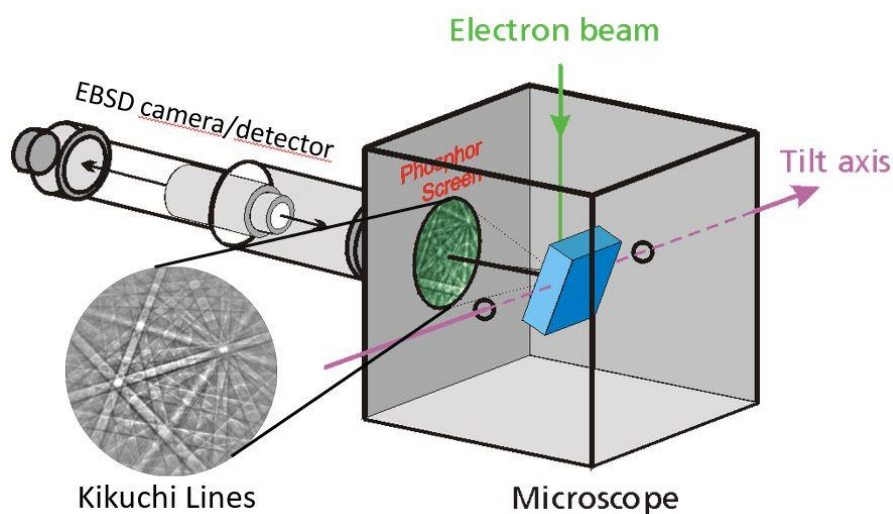


Figure 1: Principle of EBSD-operation

The following analysis can be performed by EBSD:

- Crystal orientation
- Grain boundary characterisation
- Texture (global, local)
- Grain size and grain size distribution
- Substructure analysis
- Recrystallised / deformed fractions
- Phase identification and phase distribution

Examples:

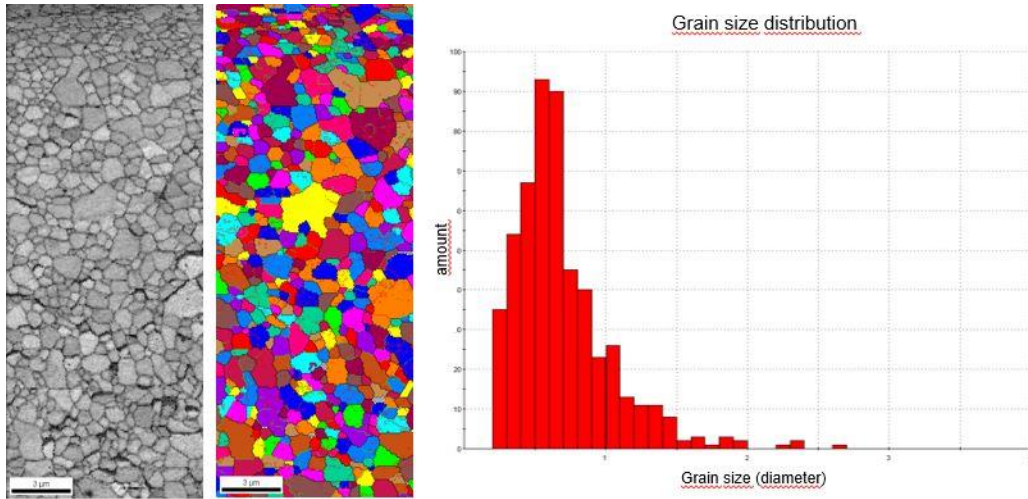


Figure 2: EBSD example grain size distribution

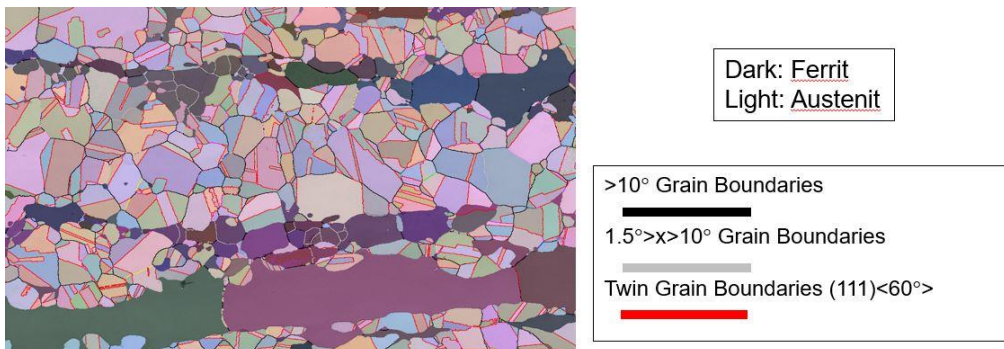


Figure 3: EBSD example grain boundaries

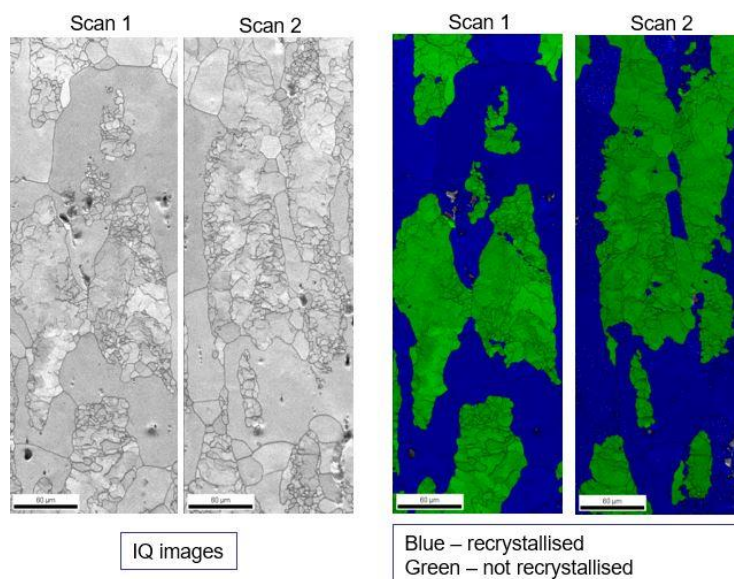


Figure 4: EBSD example recrystallisation of Al-alloy