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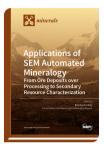
# Applications of SEM Automated Mineralogy

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During the last decade, software developments in Scanning Electron Microscopy (SEM) provoked a notable increase of applications to the study of solid matter. The mineral liberation analysis (MLA) of processed metal ores was an important drive for innovations that led to QEMSCAN, MLA and other software platforms. These combine the assessment of the backscattered electron (BSE) image to the directed steering of the electron beam for energy dispersive spectroscopy (EDS) to automated mineralogy. However, despite a wide distribution of SEM instruments in material research and industry, the potential of SEM automated mineralogy is still under-utilised. The characterisation of primary ores, and the optimisation of comminution, flotation, mineral concentration and metallurgical processes in the mining industry by generating quantified data, is still the major application field of SEM automated mineralogy. However, there is interesting potential beyond these classical fields of geometallurgy and metal ore fingerprinting. Slags, pottery and artefacts can be studied in an archeological context for the recognition of provenance and trade pathways; soil, and solid particles of all kinds, are objects in forensic science. SEM automated mineralogy allows new insight in the fields of process chemistry and recycling technology.

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