Scanning Electron Microscope Study of Bauxites of Different Ages and Origins

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Abstract: Sixty-five bauxite samples of different ages and origins were studied by scanning electron microscopy. Only broken surfaces of the specimens were investigated. Size and form of individual crystals and of grain aggregates were studied as were different types of microtextures and space-fillers.

Grain size varies from 0.05 μm to 1 mm. Smallest is the grain size of young karstic bauxite deposits that is explained by a physicochemical retardation effect of the carbonate environment. Significant differences were found by comparing the space-filling of karstic and lateritic bauxite deposits. High-level and low-level lateritic deposits show differences as well.

A combined use of macroscopic observations, petrographic microscopy, electron microprobe, SEM, and TEM furnishes the best clues for any genetic interpretation of bauxites. SEM studies are useful in solving technological problems of bauxite processing.

Key Words: Bauxite • Boehmite • Diaspore • Gibbsite • Halloysite • Karstic • Laterite

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