

APPLICATION OF AN IMAGE ANALYSER TO AUTOMATED PHASE ANALYSIS OF IRON ORE
SINTER

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The performance of iron ore sinter, in particular its reduction and degradation in the blast furnace, can be related to the mineral phases present in the sinter. The relative amounts of the phases is important and the presence of certain 'textures' or associations of phases has been claimed to be indicative of high quality sinter. Phase analysis is currently performed by manual point count which provides only volume fractions for 5 or 6 major phases. This measurement is tedious and its replacement by an automated technique is desirable. The use of image analysers for sinter phase analysis has been pioneered at IRSID and is in use at a number of Japanese steelworks.

There are difficulties in the use of an image analyser for sinter phase analysis which arise from its inability to make completely reliable phase assignments on the basis of reflectance alone, and from a sampling rate which is not sufficiently rapid. The differentiation of phases is complicated by variations in reflectivity caused by chemical composition changes. In particular addition of serpentine to the sinter mix leads to Mg substituted magnetite and reduces the magnetite reflectance so that it is indistinguishable from SFCA.