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Thermal Imaging Studies of the SHS Preparation of MgFe_2O_4

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ABSTRACT

Rapid capture thermal images have been recorded for the self-propagating high-temperature synthesis (SHS) preparation of MgFe_2O_4 . As the SHS wave moved through the bulk of a prepared pellet consisting of a mixture of Fe, Fe_2O_3 , MgO, and NaClO_4 , images were captured in real time. Reaction temperatures in excess of 1265°C were observed, and a propagation wave with Gaussian-like isothermal properties was observed to move through the bulk of the pellet. Surface heat islands were also observed, probably resulting from inhomogeneities in the green mixture.