

Formation of Microstructure of Products of Heterogeneous Chemical Reaction during Self-propagating High-temperature Synthesis

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New experimental results concerning the mechanism of the primary structure formation in cermet-type SHS materials were obtained. Quenching of the combustion wave followed by quantitative metallographic analysis was applied to describe the dynamics of grain nucleation and growth during SHS. Based on these results, a novel theoretical model for primary structure formation was proposed and analyzed.