

**Structure Transformation upon Hot Deformation  
of SHS-Produced Off-Stoichiometric Titanium Carbide**

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We investigated the evolution in the microstructure of off-stoichiometric titanium carbide ( $\text{TiC}_{0.47}$ ) in the case of: (1) rapid hot deformation at a low strain  $\varepsilon$  (shock compression) and (2) slow deformation to high  $\varepsilon$  (superplastic deformation). Hot deformation of  $\text{TiC}_{0.47}$  was found to give rise to two parallel processes: dynamic recrystallization and phase transformation. These processes led to refining the material structure and to a change in the chemical composition of carbide grains. The process of dynamic recrystallization can be utilized to prepare graded and fine-grained ceramic composites.