

Medium Range Structure of Hydrogenated Amorphous $\text{Ti}_{84}\text{Si}_{16}$

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Amorphous melt-spun $\text{Ti}_{84}\text{Si}_{16}$ was investigated by small angle neutron scattering (SANS) in the blank state as well as after loading with hydrogen or deuterium. The integrated intensity and the fractal dimension of the SANS signal change strongly with increasing H, D content. A model is proposed which explains the changes of the scattering signal. By means of this model it is concluded that melt-spun amorphous $\text{Ti}_{84}\text{Si}_{16}$ consists of two types of regions. The first type contains pure Ti and the composition of the second type is $\text{Ti}_{80}\text{Si}_{20}$. The inner surfaces between these types of regions have fractal features.

Key words: Amorphous $\text{Ti}_{84}\text{Si}_{16}$; Small Angle Neutron Scattering; Hydrogen Loading.