

Shape Memory Alloys: from microstructure to application

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Abstract

Shape memory alloys are distinguished by virtue of their ability for regaining original shape and dimensions upon the stimulation of the reverse martensite to austenite transformation. The martensitic microstructure of shape memory alloys, which is exemplified by a self-accommodating arrangement of habit plane variants, is inherently involved with, and responsible is for, the microstructural reversibility and pseudoplasticity: the two primary features defining this class of materials. In this talk a brief introduction into the role of microstructure in shape memory effect will be presented. The emphasis, however, will be on the variety of shape memory materials, design of their engineering applications and a few successes that have emerged from the efforts at Materials Group, BARC.