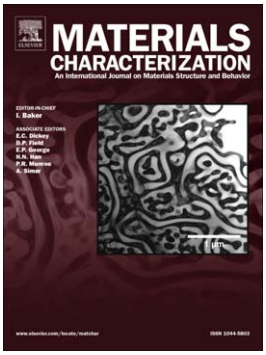

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Thermal stability of bimodal microstructure in magnesium alloy AZ91 processed by ECAP

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Abstract:

The changes in microstructure of equal channel angular pressing (ECAP) processed magnesium alloy AZ91 during thermal exposure were studied in this paper. The microstructure stability was investigated by means of electron backscatter diffraction (EBSD), which allowed measuring the changes in grain size, mutual ratio of low-angle boundaries (LABs) to high-angle ones (HABs) and local lattice distortion evaluated by the kernel average misorientation (KAM) parameter. It was found experimentally that the threshold temperature at which significant grain coarsening takes place is 350 °C. No modification to mean grain diameter occur below this temperature, nonetheless, some changes in LAB and HAB fraction, as well as in local lattice distortion, can be observed.