

DEVELOPMENT OF TEXTURE DURING DEFORMATION OF HEXAGONAL CLOSE PACKED METALS

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Deformation textures of hexagonal close packed metals, Be, Mg, and Zr in particular, have been investigated with neutron diffraction. The relative activity of deformation mechanisms was interrogated through comparison of the observed textures with those calculated within a visco-plastic self-consistent model. The conditions of deformation, i.e. sample temperature, strain rate, and initial texture, were varied to study the complicated interplay between slip and twin deformation mechanisms in these low symmetry metals. In beryllium, for example, it was possible to force the activity of deformation twinning through manipulation of the initial texture of the sample.