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**Texture evolution and deformation activity of an extruded magnesium alloy: Effect of yttrium and deformation temperature**

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**Abstract**

Texture evolution and deformation activity of an extruded Mg-Zn-Mn (ZM31) alloy containing different amounts of yttrium subjected to hot compression along the extrusion direction at 200°C and 300°C were studied via electron backscatter diffraction (EBSD) and X-ray diffraction (XRD). A typical basal texture with (0001) planes and  $\langle 01\bar{1}0 \rangle$  directions of most grains oriented parallel to the extrusion direction was observed. With increasing Y content, the basal texture was weakened and grain orientations became more random. The occurrence of extension twinning was characterized by the formation of  $\{\bar{1}2\bar{1}0\}\langle 0001 \rangle$  and  $\{01\bar{1}0\}\langle 0001 \rangle$  textures, indicating that the  $c$ -axes in most grains were rotated towards the anti-compression direction. The

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