

TEXTURE EVOLUTION IN ETHYLENE-OCTANE COPOLYMER DURING UNIAXIAL TENSION

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The development of texture in ethylene-octane copolymer subjected to uniaxial extension is studied using wide angle X-ray scattering. Rigorous methods using spherical harmonics have been applied to produce complete recalculated pole figures from diffraction data of five incomplete pole figures. After melt compression, the initial texture is not strong. There is a weak component with (001) along the extension axis. At true strain=0.7, the (001) component became very strong, due to (100)[001] chain slip. Another weak (010)[001] component may be due to (010)[001] chain slip. There is also another new component, whose c axis is between extension direction and normal direction. The texture will not change much with the increase in strain. The results are similar to in low density polyethylene results obtained previously, but different from linear high density polyethylene. The texture evolution is almost the same as that of the relaxed linear polyethylene. The research on influence of branching in texture evolution will be continued combined with the study in morphology and crystallization.