

Recycling of XLPE Using Electron-beam

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We investigated its properties after decross-linking XLPE using supercritical Fluid. and De-crosslinking XLPE using electron-beam technique.

The thermo-plasticization reaction was accelerated with increase in temperature in the range from 365°C to 400°C, resulting in decrease in crosslinking density, molecular weight and mechanical properties. However, the thermo-plasticized polyethylene at 365°C showed comparable tensile strength and impact strength with a raw resin of crosslinked polyethylene. Chemical structure of polyethylene was not affected by reaction condition. As a result, dramatic mechanical property improvement was achieved in the waste XLPE by crosslinking reaction.