Manufacture of a cable using waste silane crosslinked polyethylene

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Recycling process including decrosslinking, blending, and compounding process of silane crosslinked polyethylene for manufacture of cable jacket was investigated. Crosslinked silane polyethylene was successfully decrosslinked by supercritical reaction extruder equipped with the multi stage single screw and methanol injection pump. Blending with the decrosslinked XLPE and virgin LLDPE was carried out by a twin screw extruder. Injection-molded blending extrudates were used to analyze physical, thermal, structural, and rheological properties. The results of measurments were corresponding to those of virgin LLDPE, indicating the same chemical structure as virgin LLDPE without any other side reaction in decrosslinking and blending process. To testify industrialization of cable jacket using recycled PE, compounding was accomplished to produce a prototype cable.