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(54) Title: HIGH MELT STRENGTH POLYETHYLENE WITH AN ULTRA-HIGH MOLECULAR WEIGHT POLYETHYLENE COMPONENT

(57) Abstract: Films include a polyethylene multimodal resin. The polyethylene multimodal resin includes the polymerized reaction product of ethylene and at least one alpha-olefin copolymer. The polyethylene multimodal resin includes a melt strength (MS) $\geq X_1/I_2 + y$, wherein X_1 is equal to 3.9, y is equal to 1.4, and I_2 is a melt index of the copolymer; MS is the melt strength in cN. The film includes a normalized dart strength (DS) greater than or equal to 9,876 minus 10,512 times the density of the polyethylene multimodal resin ($DS \geq 9,876 - 10,512 (\rho)$), wherein the normalized DS is measured in gram (g) according to ASTM 1709 Method A divided by the film thickness in mils.



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