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Gupta

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(54) **FLEXIBLE FOAMED POLYETHYLENE**

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521/140

(58) **Field of Search** **521/81, 139, 140,**
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(57) **ABSTRACT**

A flexible thermoplastic article is formed from a blend comprising from about 2 to about 15 weight percent of a styrene-elastomer block copolymer; from about 60 to about 90 weight percent polyolefin; from about 4 to about 15 weight percent plasticizer oil, and optionally from about 0 to about 3 weight percent of at least one additive. The additives are typically present in a concentration of from 0.05 to about 3 weigh percent and can include those additives conventionally used in polyolefin foam compositions, including antioxidants and stabilizers, processing aids, etc. The styrene-elastomer block copolymer is preferably a tri-block copolymer structure which includes styrene end-blocks and a mid-block of a saturated olefin elastomer. A particularly suitable styrene elastomer block copolymer is a styrene-ethylene/butylene-styrene (SEBS) block copolymer. In one embodiment of the present invention, the styrene-ethylene/butylene-styrene block copolymer has a styrene/rubber ratio of from 30 to 70 with an Average Molecular Weight (M_n) in the range of 50,000 to 300,000. The polyolefin is preferably predominately a polyethylene and desirably comprises from 85 to 100 weight percent polyethylene and from 0 to 15 weight percent polypropylene, more preferably from 95 to 100 weight percent polyethylene and from 0 to 5 weight percent polypropylene. Particularly suitable for inclusion in the foam composition of the present invention are those polyolefins which are produced with a single-site catalyst and are generally referred to in the industry as metallocene polyethylene. The polyolefin component can also include a blend of linear low density polyethylene and high density polyethylene. The plasticizer oil preferably has a molecular weight of from 200 to 1,000, and most desirably around 400.

20 Claims, No Drawings