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(54) Title: THERMOPLASTIC ELASTOMERS VIA ATOM TRANSFER RADICAL POLYMERIZATION OF PLANT OIL

(57) Abstract: The present invention relates to a block copolymer comprising at least one PA block and at least one PB block. The PA block represents a polymer block comprising one or more units of monomer A, and the PB block represents a polymer block comprising one or more units of monomer B. Monomer A is a vinyl, acrylic, diolefin, nitrile, dinitrile, or acrylonitrile monomer. Monomer B is a radically polymerizable plant oil monomer containing one or more triglycerides. The present invention also relates to a method of preparing a thermoplastic block copolymer by radical polymerizing a radically polymerizable monomer with a radically polymerizable plant oil monomer containing one or more triglycerides, in the presence of an initiator and a transition-metal catalyst system to form the thermoplastic block copolymer. The polymerized plant oil-based block copolymers are useful in a variety of applications, such as asphalt modifiers, rubber compositions, adhesives, tires, in the automobile industry, footwear, packaging, etc.

