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High Modulus Polymer Composites

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Summary: A method of producing high molecular weight filled polymeric matrices that have desirable physical characteristics

Description: The introduction of fibers and other fillers into a polymeric matrix is an established way of enhancing the physical properties of a given polymer provided that there is good dispersion and that an intimate interfacial adhesion can be achieved. This invention provides a method to produce high molecular weight filled polymeric matrices that have desirable physical characteristics. The method includes mixing of a monomer or oligomer with a pre-formed polymer in the presence of a filler to initiate an interchange reaction between a grafted layer of monomer or oligomer on the surface of the filler and the pre-formed polymer, leading to the formation of a composite polymer. The composite materials formed using this method possess superior mechanical properties compared to similar polymer composition made by either mechanical mixing or solely polymerization of monomers in the presence of fillers.

Main Advantages of this Invention

- Produces polymeric matrices that have desirable physical characteristics
- Rapid and economical method

Potential Areas of Application

- Chemical and Polymer production companies

ID number: 5001

Intellectual Property Status: US 8,569,428

Opportunity: We are seeking an exclusive or non-exclusive licensee for marketing, manufacturing, and sale of this technology.

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