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(54) Title: FLUORINATED POSS AS ALLOYING AGENTS IN NONFLUORINATED POLYMERS

(57) Abstract: A method of using fluorinated-nanostructured POSS chemicals as alloying agents for the reinforcement of polymer microstructures, including polymer coils, domains, chains, and segments, at the molecular level. Because of their tailorable compatibility with nonfluorinated polymers, nanostructured chemicals can be readily and selectively incorporated into polymers by direct blending processes. The incorporation of a nanostructured chemical into a polymer favorably impacts a multitude of polymer physical properties. Properties most favorably improved are surface properties, such as lubricity, contact angle, water repellency, deicing, surface tension, and abrasion resistance. Improved surface properties may be useful for applications such as anti-icing surfaces, non-wetting surfaces, low friction surfaces, self cleaning. Other properties improved include time dependent mechanical and thermal properties such as heat distortion, creep, compression set, shrinkage, modulus, hardness and biological compatibility.



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