1. Record Nr. UNINA9910298590603321

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Titolo	Fire Retardancy Behavior of Polymer/Clay Nanocomposites / / by Indraneel Suhas Zope
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2018
ISBN	981-10-8327-4
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (190 pages)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	628.9223
Soggetti	Ceramics Glass Composites (Materials) Composite materials Engineering—Materials Polymers Ceramics, Glass, Composites, Natural Materials Materials Engineering Polymer Sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Literature Review -- Experimental Methodology -- Decomposition Behavior of Metal-ion Exchanged Clay -- Thermo-oxidative Decomposition Behavior of Polyamide 6 Nanocomposites with Metal-ion Exchanged Clays -- Thermo-oxidative Decomposition Behavior of Polyamide 6 Nanocomposites with Structurally Different Clays -- Controlling the Interfacial Interactions Between Clay and Host Polyamide 6 Matrix -- Clay Catalysis and Fire Retardancy of Polymer/Clay Nanocomposites: A Complete Overview.
Sommario/riassunto	This thesis investigates the early ignition behavior of polymer/clay nanocomposites, which are perceived as potential eco-friendly flame retardant systems. It examines the correlation between clay structural chemistry and high-temperature transformations with clay-assisted decomposition of organic macromolecules. In particular, it investigates the unique effects of metal ions like Mg2+, Al3+ and Fe3+ that are

inherent in clays (smectite) on the combustion and thermo-oxidative decomposition of polyamide 6. The results indicate that metal ions present on/in montmorillonite platelets have preferential reactivity towards peroxy/alkoxy groups during polyamide 6 thermal decomposition. Lastly, a simple solution in the form of a physical coating on clay surface is proposed, based on the role of polymer–clay interfacial interaction.