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**PA6/ CLAY NANO COMPOSITE PREPARATION CONTAINING NANO FIBRIL MORPHOLOGY VIA
INSITU POLYMERIZATION OF ϵ -CAPROLACTAM IN PRESENCE OF NANO CLAY**

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In this study, polyamide 6 - clay nano-composite produced via anion polymerization of ϵ -caprolactam in the presence of clay during the melt mixing process. XRD and TEM results show exfoliation of clay during reactive melt blending. Review electron microscope images (SEM) shows nanofibrills formations during polymerization. Including nano clay in formulations, results in formation of nanofibrills bunches. FTIR test results show reaction between surface modifier of clay and CN group of activator. Mechanical tests showed that clay in polyamide-6 increased tensile modulus and the increase crystallinity. Demonstrate the study tried to show starting polymerization from the surface of the nano-particle spectrum results of IR, electron microscope images also. The XRD and TEM results show exfoliation of clay during polymerization. Improve the mechanical properties of tension and impact tests results were observed.