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HIGH PERFORMANCE POLYPROPYLENE/POLY (LACTIC ACID) POLYMER ALLOY VIA REACTIVE PROCESSING

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In order to contribute to the reduction of environmental load (i.e. lowering the consumption of petroleum resources and the emission of carbon dioxides), poly (lactic acid) (PLA), one of the most promising bio-based polymers, is to be positively utilized in automotive and consumer-electric industries. However, PLA has several critical drawbacks, such as low impact strength, low thermal resistance, low moisture durability and low processability due to low rate of crystallization. In order to overcome the disadvantage of PLA, a novel PP/PLA alloy, where PLA is encapsulated in a PP matrix, has been proposed and conceived. By the optimization of reactive compatibilizer and elastomer components, PLA is exquisitely dispersed in sub-micron order in PP matrix. At last, the bio-based automotive interior parts, which fulfill the required performance, appearance and mass-productivity, have been successfully developed.