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PP/Clay Nanocomposites as Smart Packaging for Evaluating Milk Spoilage SAKKARIN TASSANAWAT, MANIT NITHITANAKUL, RATHANAWAN MAGARAPHAN, HATHAIKARN MANUSPIYA, The Petroleum and Petrochemical College — The color indicator film for fresh milk packaging has been newly developed to evaluate the degree of fresh milk deterioration during storage and distribution. The processing of pH-sensitive material used for milk packaging based on organomodified clay nanocomposites incorporated with indicator dye was focused. The nanoclay composites with indicator dye were melt compounding through a twin screw extruder by using Surlyn as a reactive compatibilizer. Milk deterioration was assessed for titratable acidity (TA), and color changes of the indicator film were measured and expressed as Hunter values as well as total color difference (TCD). TCD values of bromothymol blue (BMB) type indicator also changed continuously with the response of the indicator. The color changes of the indicator film correlated well with TA value of fresh milk. According to the changes in Hunter color values of the indicator within the packages of fresh milk during storage at 25°C, the color of the indicator film turned from initially bluish-green to finally yellow. The color changes of the developed indicator film represented properly the degree of deterioration of fresh milk. The pH indicator could be employed an effective smart packaging technology for evaluating fresh milk.

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