

Chapter 2. Objectives and Hypothesis

Hypothesis

It was the hypothesis of this research project that, “A polymeric active packaging system, which incorporates additives that react with aldehydes, can successfully remove low molecular weight aldehydes from Newtonian food systems by their sorption into the polymer matrix.”

Objectives

This project investigated the ability of poly(ethylene terephthalate) (PET) blends, incorporated with aldehyde scavenging agents, to remove low molecular weight compounds in an aqueous model solution. Partition coefficients for molecular probes dissolved in an aqueous model solution and exposed to neat PET and PET blends were calculated in order to determine sorption rates and trends. Overall sorption of molecular probes for each polymeric treatment was calculated and expressed in terms of amount of absorbed species per unit volume of polymeric material. This data then was used to allow the researcher to evaluate the effectiveness and feasibility of using a similar active packaging system to remove flavor compounds in beverages. The specific objectives were:

1. Identify suitable active agents that can complex with aldehydes and are immiscible in a test polymer.
2. Fabricate polymeric material included with active component.
3. Evaluate the ability of active polymeric material to remove aldehyde compounds from an aqueous solution.