

**TE 131204**

##4270359121 : MAJOR CHEMICAL ENGINEERING

KEYWORD : MODIFIED ATMOSPHERE/ PERMEABILITY/ MULTILAYER PACKAGING/ POLYMER FILM/ SIMPLEX METHOD

THIDA TATIYAPAIBOON : DETERMINATION OF THICKNESSES AND TYPES OF COMPONENTS OF THE MULTILAYER POLYMERIC FILM FOR MODIFIED ATMOSPHERE PACKAGING. THESIS ADVISOR : VARUN TAEPASITPHONGSE, Ph.D. 175 pp. ISBN 974-03-1419-8.

In this work, the computer program for determining the thicknesses and types of components of the multilayer polymeric film for modified atmosphere packaging using the simplex method and two phase method algorithms had been developed.

It was found that the multilayer polymeric film with required permeability could not be obtained from using only components that had higher or lower gas permeability than required. The multilayer film needed to contain films with higher and lower permeability than required at different thicknesses. The permeability of the multilayer film increased proportionally with increasing total film thickness, but the thickness of each individual layer did not increase proportionally. Change in storage or distribution temperature from the designed temperature of the package should be avoided since it affected the respiration rate of produces more than the permeability of the film. This led to higher carbondioxide and lower oxygen concentrations than designed value inside the package and could reduce the storage life of produces.