

**Title** The construction of a diffusion cell and the determination of oxygen and carbon dioxide permeability of films for flexible food packages

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### **Abstract**

Flexible food packages should be characterized by an adequate permeability for water vapor and gases. In this work we have constructed a diffusion cell for the measurement of gas permeability and have determined  $O_2$  ( $P_{O_2}$ ),  $CO_2$  ( $P_{CO_2}$ ) and water vapor ( $P_{H_2O}$ ) permeability of 92 flexible packages used commercially in México in a variety of foods, but only those on fruits and vegetables are reported here. The diffusion cell was constructed from acrylic plates and was conditioned with 4 valves and a manometer for pressure control. It is composed of 2 compartments separated by the film to be evaluated. The values of  $P_{CO_2}$  and  $P_{O_2}$  were found to be in the range of those reported for similar packages, indicating that the constructed diffusion cell is reliable. The cost of the construction of this cell was very low, and the time required for analysis is shorter compared to standard methods.