

# Food & Beverage Packaging

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## Effect of the printing remedies and lamination techniques on barrier properties “WVTR and OTR value” for polypropylene film

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**Background & Aim:** A biaxially oriented polypropylene film (BOPP) is recognized as an appropriate barrier film for most dry foods after lamination with metalized film whether OPP or PET, moreover that film is considered as excellent for moisture and moderate for oxygen permeability. But the question is, will the number still remain the same or change up or down after printing and lamination process. So, the aim of this research is to evaluate the main factors especially like printing remedies “coating and lamination” which affect the strength of barrier properties of the plastic film against gasses and water vapor.

**Materials & Methods:** Six packaged samples were printed with transparent polypropylene films 20 microns with metalized polypropylene for one kind of Egyptian snacks food product before packing. And 3 samples with the same product, but after packing process with different concentration of oxygen. Regarding the gas and moisture permeability tests, all samples were analyzed by OTR permeation analyzer (Oxygen transmission rate) and WVTR permeation analyzer (Water Vapour transmission rate).

**Results & Conclusions:** The impact of printing materials in each of OTR and WVTR results have a positive impact where the permeability has decreased, therefore, increased the ability of plastic film to prevent the gasses and moisture exchange through the package. Oxygen concentration experiments have showed that there was an influence of oxygen with this characteristic. Fatty free acid and peroxide value present inside the product with a slight change, but totally there was a change in the chemical properties of the product.

### Biography

Yahya Ibrahim is working as an Assistant Lecturer at Printing and Packaging Department, Faculty of Applied Arts Helwan University, Egypt. In June 2013, he obtained his Master's degree, with thesis titled “Analytical study of the printing remedies in case of plastic barrier materials used for packaging the Egyptian food products”. In 2015, he registered his PhD degree at Food Packaging Materials with thesis titled “Using nanotechnology to enhance the barrier properties of plastic films for packaged Egyptian food products”. In November 2012, he contributed to the 5th International Symposium On Food Packaging: Scientific Developments Supporting Safety and Innovation which held in Germany.

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