

# Food & Beverage Packaging

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## Migration model from plastic food contact materials into simulant for fermented food

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A mathematical model based on Fick's second law was derived in order to describe the migration behaviour under changing pH of foodstuff. For example, it is known that in lactic acid fermentation the production of acid results in a lower pH and an increase in sourness. However, the migration model does not describe reasonable for a change in pH as well as other physical properties in the food system. The major object of this study was to determine whether the fermented food influences the migration kinetics of selected migrants from polyamide using mathematical model. The migration of the different components, acetonitrile and methyl ethyl ketone, from polyamide, into the two different food simulants, 3% acetic acid and 10% ethanol, were reviewed under the condition of 20°C for 10 days. The result was that the migration of acetonitrile into the food simulant 10% ethanol were 1.59 times overestimated than a concept of fermented food system. On the contrary, the migration of methyl ethyl ketone in the food simulant 10% ethanol was 0.84 times underestimated. These results might be influenced by each chemical interaction and solubility between migrant, polymer and simulant. Since the worst case migration of the current model recommended by FCM guidance (Simoneau C. (2010) Applicability of generally recognised diffusion models for the estimation of specific migration in support of EU Directive 2002/72/EC. European Commission Joint Research Centre) has limited to cover the migration under different food conditions, the food simulants and their interactions should be the target of further studies on conservative migration modelling.

### Biography

Daeun Lee is working as a Research Assistant of KIST Europe in Environmental Safety Group. In this position, she monitors, analyzes and coordinates the response to Chemical Regulation and Legislation issues such as REACH, FCM and K-REACH.

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