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Innovations in Food Packaging, Shelf Life and Food Safety

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In recent years, the development of novel food pack methods and techniques has not only increased the foods, but also improved their safety and quality. **In Food Packaging, Shelf Life and Food Safety** will provide a platform for delegates from industry and academia to discuss and develop new concepts and technologies require the development of new packaging materials, explore technologies for food applications, and examine the packaging materials on shelf life and food safety. The conference will also focus on food package sustainable

including bio-based packaging materials such as edible films which are the focus of new research

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Migration kinetics of photoinitiators and amine synergists to food simulants at freezing temperatures

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The migration of photoinitiators from printed food packaging into the foods has been studied in the recent years. Among other substances, emphasis has been put on benzophenone, the classical and most used photoinitiator in the past years. Photoinitiators' migration kinetics have been studied at refrigerating and ambient temperatures; however, no studies have been carried out at freezing temperatures, also a very common temperature used in food storage, probably the reason being the experimental difficulties.

In the present work the migration into 5 photoinitiators including (Irgacure[®] 184, benzophenone, 4-methyl benzophenone, ITX and Speedcure[®] DETX) and one amine synergist (ethyl-4-(dimethylamino) benzoate) at -18 °C was investigated.

To study the migration kinetics, films additivated with the photoinitiators were immersed into 50 % and 95 % ethanol (v/v). A mathematical model based on Fick's Second Law was used to estimate the key parameters of the migration kinetics, the partition and diffusion coefficients.

The results obtained demonstrated the migration of the studied photoinitiators into food simulants even at -18 °C with coefficients of diffusion ranging from 2.53E-12 for Speedcure[®] DETX in 95 % ethanol (v/v) to 1.79E-13 for Irgacure[®] 184 in 50 % ethanol (v/v).

Acknowledgements: The study was financially supported by the "Ministerio de Economía y Competitividad", ref. no. AGL/2011-26531 "Migratin". The authors are grateful to the "Ministerio de Economía y Competitividad" for the Predoctoral fellowship FPI (ref. BES-2012- 051993) awarded to Miguel Ángel Lago. Raquel Sendón is grateful to the "Parga Pondal" program financed by the "Consellería de Innovación e Industria, Xunta de Galicia" for her postdoctoral contract.

Keywords: Migration kinetics, Freezing temperature, Photoinitiators, Food Packaging