Worst case prediction of additives migration from polystyrene for food safety purposes: a model update.

A reliable prediction of migration levels of plastic additives into food requires a robust estimation of diffusivity. Predictive modelling of diffusivity as recommended by the EU commission is carried out using a semi-empirical equation that relies on two polymer-dependent parameters. These parameters were determined for the polymers most used by packaging industry (LLDPE, HDPE, PP, PET, PS, HIPS) from the diffusivity data available at that time. In the specific case of general purpose polystyrene, the diffusivity data published since then shows that the use of the equation with the original parameters results in systematic underestimation of diffusivity. The goal of this study was therefore, to propose an update of the aforementioned parameters for PS on the basis of up to date diffusivity data, so the equation can be used for a reasoned overestimation of diffusivity.

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