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CHARACTERIZATION OF POLYESTER COATINGS BY FTIR-ATR, CONFOCAL RAMAN MICROSCOPY AND MALDI-TOF MS

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Abstract
Polymeric coatings are complex formulations that can contain different components such as cross-linking agents, resins, lubricants, solvents, etc. To evaluate the safety of the coatings it is necessary to identify the potential migrants. In the last years, polyester-based coatings are being used as an alternative to epoxy res-ins due to the uncertainties about its potential adverse effects. In this work, several analytical techniques were used in order to characterize the type of coating on the in-side of the cans. Firstly, infrared spectra were acquired using an ATR-FTIR spectrometer. The identification was performed by comparation with polymer spectrum libraries. The coatings analysed were identified as polyesters. Confocal Raman microscopy provided a three-dimensional characterization of the samples. In order to investigate the potential migrants, the samples were extracted with an organic solvent and ana-lysed by MALDI-TOF MS in positive mode. Data published in the scientific literature were used to create a homemade database of possible monomer combinations and tentatively identify some of them used in manufacturing. This research was funded by the Ministerio de Ciencia, Innovación y Universidades, Fondo Europeo de Desarrollo Regional (FEDER), and Agencia Estatal de Investigación Ref. No.PGC2018-094518-B-I00 “MIGRACOATING” (MINECO/FEDER, UE).

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