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FOOD CONTACT COATINGS: IDENTIFICATION BY FTIR AND ANALYSIS BY GC-MS

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Abstract
Metal cans are internally coated with a polymeric coating to protect both, the food from the potential release from the material and the metal substrate from corrosion. The coating may contain different components including resins, cross-linking agents, additives and solvents. Fourier Transform Infrared (FTIR) analysis has shown to be a simple, fast and useful analytical tool for the identification of polymers. In this work, a FTIR spectrometer equipped with an ATR (attenuated total reflectance) accessory was used to identify two polymeric can coatings material samples. The identification was achieved based on the spectral comparison with KnowItAll® 17.4.135.B IR Spectral Libraries of Polymers & Related Compounds (Bio-Rad Laboratories, Inc.). The food contact surfaces of the samples analysed were identified as organosols and epoxy resins. In the second part of the work, the semi-volatile compounds present in the samples, were investigated. For that purpose, methanolic extracts were obtained and analysed by GC-MS (EI) in scan mode (35- 500 m/Z) using a Rxi-5SilMS (30 m x 0.25 mm, 0.25 µm) column as stationary phase and He as carrier gas. Several compounds were detected although no good library matches were observed in some cases.

Keywords: *epoxy resin, semivolatile compounds, FTIR*

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