



### Analysis of Food Wrap Films Using Double-Shot Pyrolyzer®

#### Part 4: Analysis of Evolved Gases Components at 100°C

Analysis of food wrap films for the evolved gases at high use temperature is important for safety reasons. Using Double-Shot Pyrolyzer®, evolved gases from various food wrap films that were exposed to 100°C for 10min were analyzed. Table 1 shows basic polymers of the food wrap films analyzed and organic additives labeled on the package. Fig. 1 shows chromatograms obtained by GC/MS analysis of evolved gases collected with MicroJet Cryo Trap. Upon quantitative analysis, it was found that levels of each component was 100ppm or less.

Table 1 Additives of Food Wrap Films

Basic polymer	Organic additives labeled on the package
PVDC	Fatty acid derivatives, epoxidized vegetable oil
PVC	Chlorinated fatty acid esters, epoxidized vegetable oil
PE	None
PP+Nylon	Olefinic hydrocarbons, fatty acid derivatives

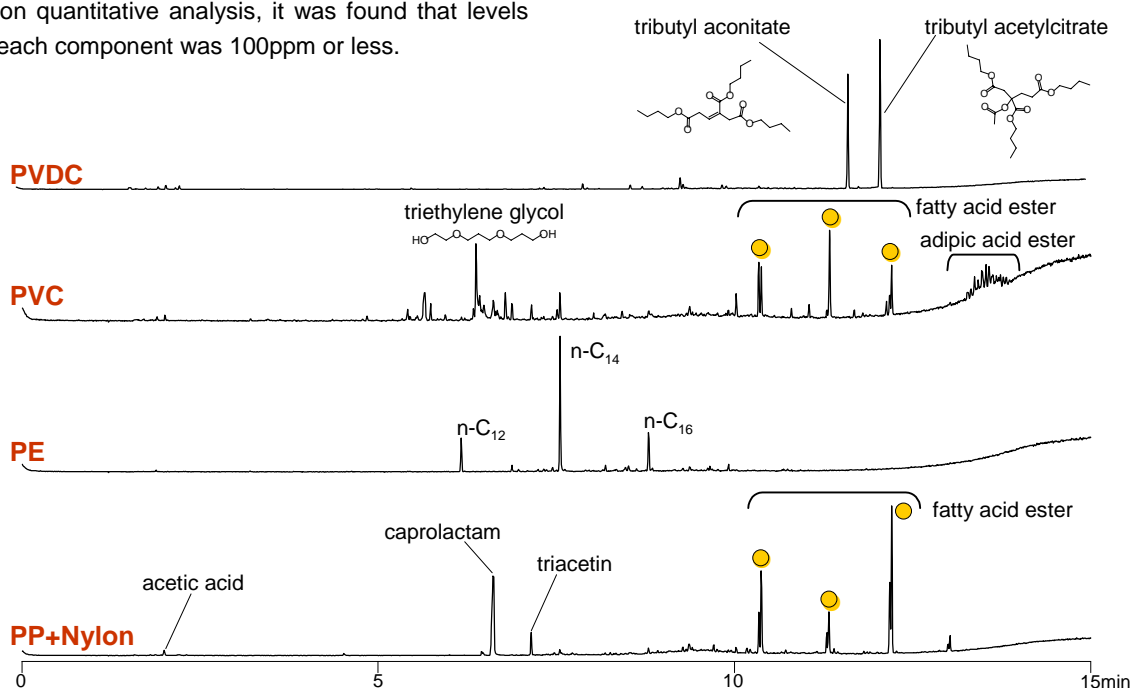


Fig. 1 Chromatograms of Evolved Gases from Food Wrap Films Exposed to 100°C for 10min

PY: double-Shot Pyrolyzer (PT-2020D), Furnace temp: 100°C, Carrier gas: He, column flow rate: 1.0ml/min, carrier gas total flow rate: 60ml/min, Cryo trap: 10min, separation column: Ultra ALLOY®-5 (5% diphenyl dimethyl polysiloxane), length: 30m, id: 0.25mm, film thickness: 0.25µm, GC oven temp: 40-320°C (20°C/min), GC injection port temp: 320°C, sample: 9cm<sup>2</sup>, MS scan rage: m/z=29-400, scan rate: 2 scans/sec

Keyword : Food Wrap Film, Evolved Gas, Plasticizer

Applications : Film manufacturer, Food producer, General polymer analysis

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