

Analysis of Parabens using UHPLC

Introduction

Parabens, esters of p-hydroxybenzoic acid, are used as preservatives in cosmetics and foods. Common parabens include methylparaben, ethylparaben, propylparaben, and butylparaben. Quality control demands have led to the use of HPLC to determine these esters content. As the number of samples to analyze increases, higher throughput is need to meet that demand. UHPLC has thus been applied to this separation using a 2 μm column for a significant increase in efficiency.



JASCO X-LC system

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Experimental

The system used for the measurement consists of a 3185PU pump, 3080DG degasser, 3067CO column oven, 3070UV UV/Vis detector, 3059AS autosampler and a chromatography data system.

Results and Discussion

Figure 1 shows the chromatogram of a standard mixture of parabens and p-hydroxybenzoic acid. This chromatogram indicates that each paraben elutes with good separation within a minute. As shown above, a UHPLC column (X-pressPak C18, 2.1 mm x 50 mm, 2 μ m) enables a reduction in separation time by a factor of approximately 10, resulting in a high throughput analysis and a decrease in solvent consumption.

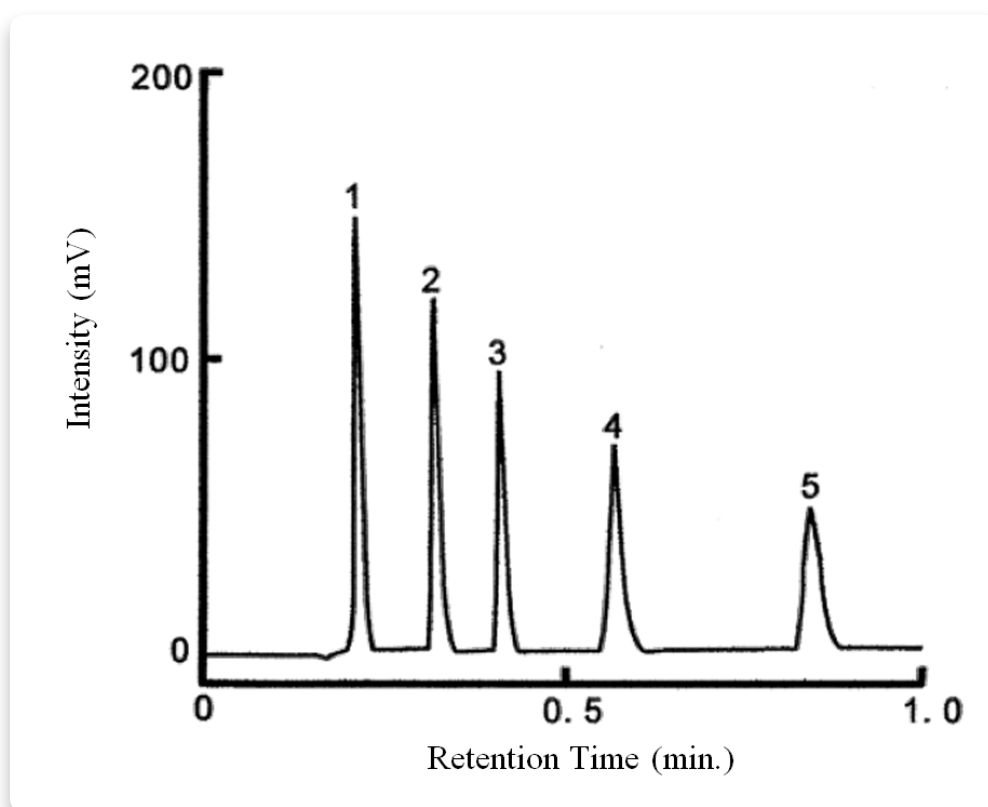


Figure 1. Chromatogram of a standard mixture of parabens and p-hydroxybenzoic acid, Peaks: 1=p-hydroxybenzoic acid, 2=methylparaben, 3=ethylparaben, 4=propylparaben, 5=butylparaben. Column: X-PressPak C18S (2.1 mm I.D. x 50 mmL, 2 μ m) Column temperature: 40°C Mobile phase: 0.1% H₃PO₄ / CH₃CN (50/50) Flow rate: 0.6 mL/min. Detection wavelength: 254 nm Measurement pressure: 40 MPa * p-Oxybenzoate Ester is p-Hydroxy benzoate.