

- Abstract -

Determination of arylmethyl halides and related compounds by GC and RP-HPLC

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Arylmethyl halides(benzyl chloride,BZYC; benzal chloride,BZAC; benzotrichloride,BZTC) and related compounds(benzyl alcohol,BZYA; benzoyl chloride,BZOC) were determined by GC using capillary column and reversed phase-high performance liquid chromatograph, RP-HPLC. Detailed results are as follows.

1. In methanol solvent containing the trace quantity H_2O ,benzotrichloride was slowly transferred to benzoyl chloride by hydrolysis.
And so benzotrichloride solution should be prepared just before analysis.

2. GC analysis

Tenax-GC was used to absorbent and desorption solvent was CCl_4 .
Arylmethyl halides were analyzed within 7.5min without interference with related compounds.

The calibration curve(ca.15-80ppm in soln.), the repeatability($n=10$) and the desorption efficiency were good.
Limit of detection by NIOSH method was about 0.003ppm for each arylmethyl halides.

3. RP-HPLC analysis

Tenax-GC was used to absorbent and desorption solvent was methanol.
Arylmethyl halides was analyzed within about 8min. without interference with related compounds.
The calibration curve(ca. 10-60ppm in soln.), the repeatability($n=10$) and the desorption efficiency were good.
Limit of detection by NIOSH method was 0.002ppm for each arylmethyl halides, and LOD of benzotrichloride by RP-HPLC analysis was better than GC.

As the result, to analysis arylmethyl halides and related compounds in working place GC and RP-HPLC analyzing methods are anticipated to be used effectively.