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## Recycling by ODS Column Separation of Phthalic Ester and Isomers

**Keyword:**Separation of Phthalic Ester and Isomers, ODS Column,  
Separation by Polarity

### Introduction

In preparative HPLC, the column length is one of the key factors to get better separation. However, there is a limit in length due to restriction on the pressure the column can endure.

Recycling preparative HPLC is the solution to the problem. By cycling the sample solution back to the same column repeatedly, it causes the same effect as a longer column is used. Further, no solvent is consumed during the cycles. So it is the ideal way to efficiently increase separation (resolution) ability.

This recycling system, which is free of time-consuming method development work, can be basically applied to any kinds of columns including those for adsorption and partition chromatographies.

Here is a good example of recycling preparative HPLC using a reversed phase column.

### Experiment & Results

Sample: Mixture of Di-n-pentyl phthalate and structural isomers that are not easily separable by normal chromatography. We tried recycling preparative HPLC using reversed phase column.

Instrument : LC-9110NEXT (Detector : UV (254 nm))  
Column : JAIGEL-ODS-AP,SP-120-15  
Mobile phase : Acetonitrile / Water / TFA = 40/60/0.1  
Flow rate : 9.0 mL/min

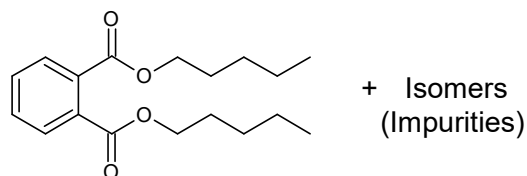
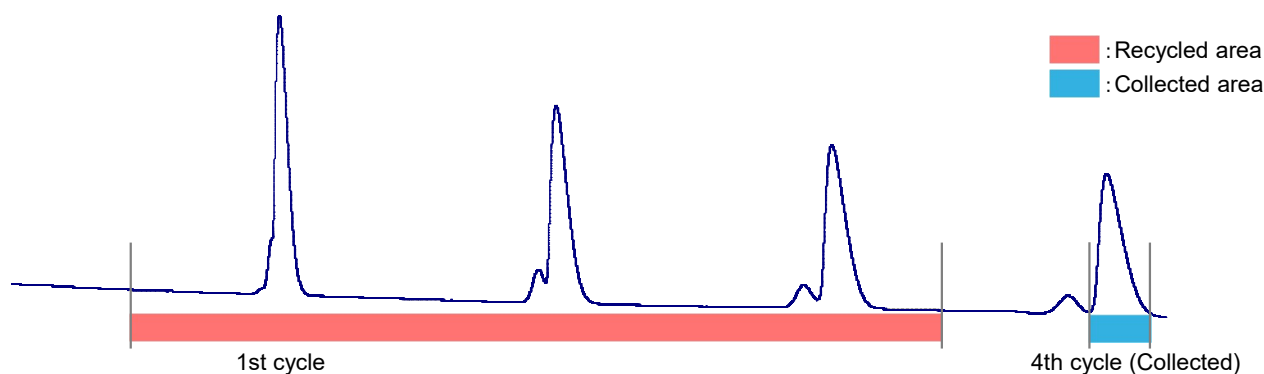


Fig. 1



### Conclusion

we were able to separate the ester and its isomers at the 4th cycle.