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 Recycling Preparative HPLC
LaboACE LC-5060

Recycling by ODS Column Separation of cis-trans Isomers of Alkenol

Keyword:

 Separation of cis-trans 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 cis-trans isomers of long chain alkenol (11-Hexadecen-1-ol)

We tried to separate the isomers by Recycling Preparative HPLC using organic eluent only, as the compounds were thought to be unstable with aqueous eluent.

Instrument : LC-9110NEXT (Detector : UV (254 nm))
Column : JAIGEL-ODS-AP, SP-120-15
Mobile phase : Acetonitrile
Flow rate : 9.9 mL/min

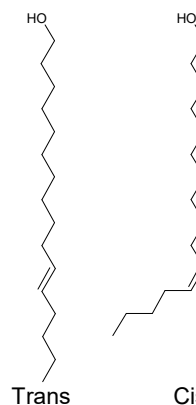


Fig. 1

Red box : Recycled area
Blue box : Collected area

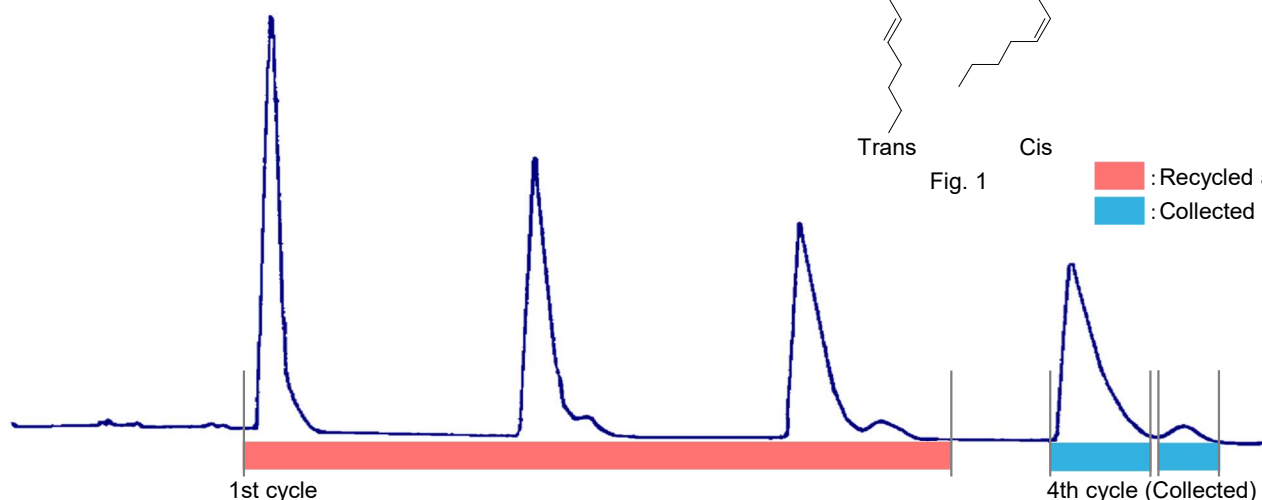


Fig. 2

Conclusion

The isomers were easily separated only at the 4th cycle without doing any troublesome method-development work.