No.A-020E

Recycling Preparative HPLC
LaboACE LC-5060

Related product : Recycling Preparative HPLC Series

Recycling by GPC Column 1
Separation of Silicon-Phthalocyanine Oligomers

Keyword:
Separation of Silicon Phthalocyanine Oligomers,
SEC Column, Size Exclusion Chromatography

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.

Moreover, combined use of SEC column, which separates compounds by their size, has gained great popularity among synthetic organic chemists since it can considerably save labor and time for method development work as far as the sample is dissolved in some solvent.

Here is an example of recycling preparative HPLC using organic GPC column.

Experiment and Results

Sample: Mixture of silicon phthalocyanine oligomers (n=2, 3, 4 and 5) (Fig. 1)
To separate these oligomers that differ only in molecular size, SEC is much more effective than adsorption and partition chromatographies.

So we tried to separate them with recycling preparative HPLC using organic GPC column.

Instrument	: LC-9101 (Detector : UV (254 nm))
Column	: JAIGEL-2.5H + JAIGEL-3H in series
Mobile phase	: 0.1 % Triethylamine in Chloroform
Flow rate	: 3.5 mL/min

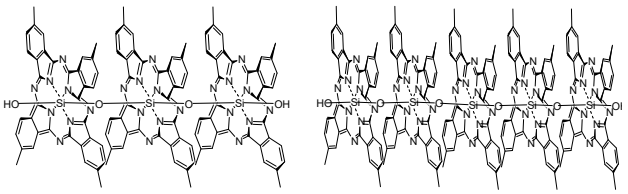

Fig. 1

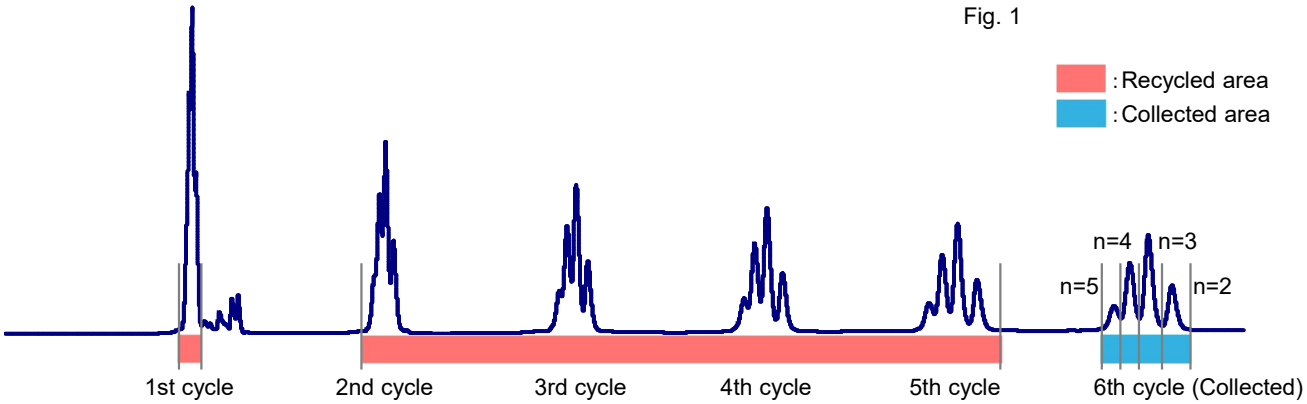

Fig. 2

Conclusion

The dimer, trimer, tetramer and pentamer were separated almost perfectly at the 6th cycle.

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April 2020