

Recycling Preparative HPLC of Polystyrene Oligomer

Introduction

Recycling Preparative HPLC is a separation technique that can achieve complete separation of a number of components by repeatedly cycling the eluent to the same column. This has the same effect as using longer or multiple columns. When applied to preparative HPLC each purified component can be fractionated very effectively.

This technique has the following features:

- (1) Reduced column costs, as it is not necessary to use longer or multiple columns.
- (2) Reduces environmental loads and costs, because in recycle mode, the same mobile phase solvent is used repeatedly while improving separation.
- (3) Effective preparative purification because each component is fractionated only after improving the separation.



Jasco PU-2086

Keyword: 1. Recycling preparative HPLC, 2. Polystyrene Oligomer, 3. Solvent savings

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Experimental

Instrument

| | |
|----------------------|-----------------------------------|
| Eluent Pump: | PU-2086 |
| Autosampler: | AS-2058 |
| Detector: | UV-2070 (with semi-prep. cell) |
| Fraction Collector: | ADVANTEC CHF122SC |
| Fraction Controller: | FC-2088-30 |
| Fraction Valve Unit: | HV-2088-06 |
| Recycle Kit | |

Conditions

| | |
|---------------------|---|
| Column: | Megapak GEL 201C (20 mmID x 500 mmL) |
| Eluent: | Chloroform |
| Flow Rate: | 3.0 mL/min |
| Column Temperature: | 40 °C |
| Wavelength: | 254 nm |
| Injection Volume: | 200 µL |
| Gradient Condition: | Polystyrene Oligomer (1.0 % (w/v) in Chloroform) |

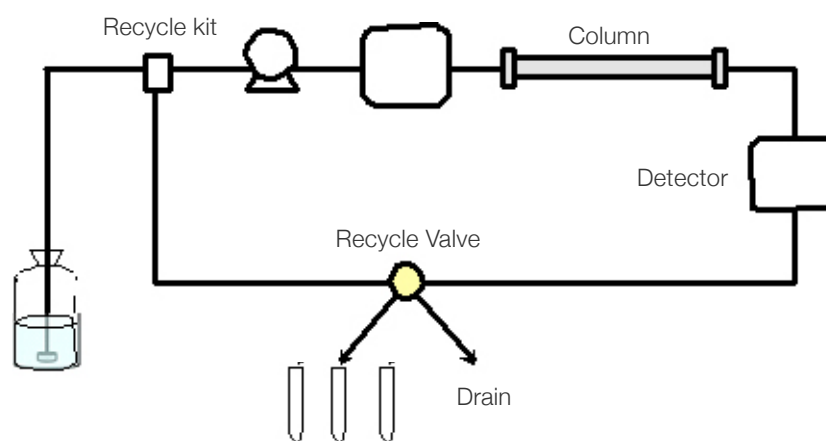


Figure 1. Flow diagram of the Recycling Preparative HPLC system

Experimental

Fig. 2 Recycle chromatogram of a Polystyrene Oligomer, showing the improvement of separation by recycling six times in approximately 180 minutes. Three components tetramer, pentamer and hexamer of Polystyrene Oligomer were clearly separated and fractionated.

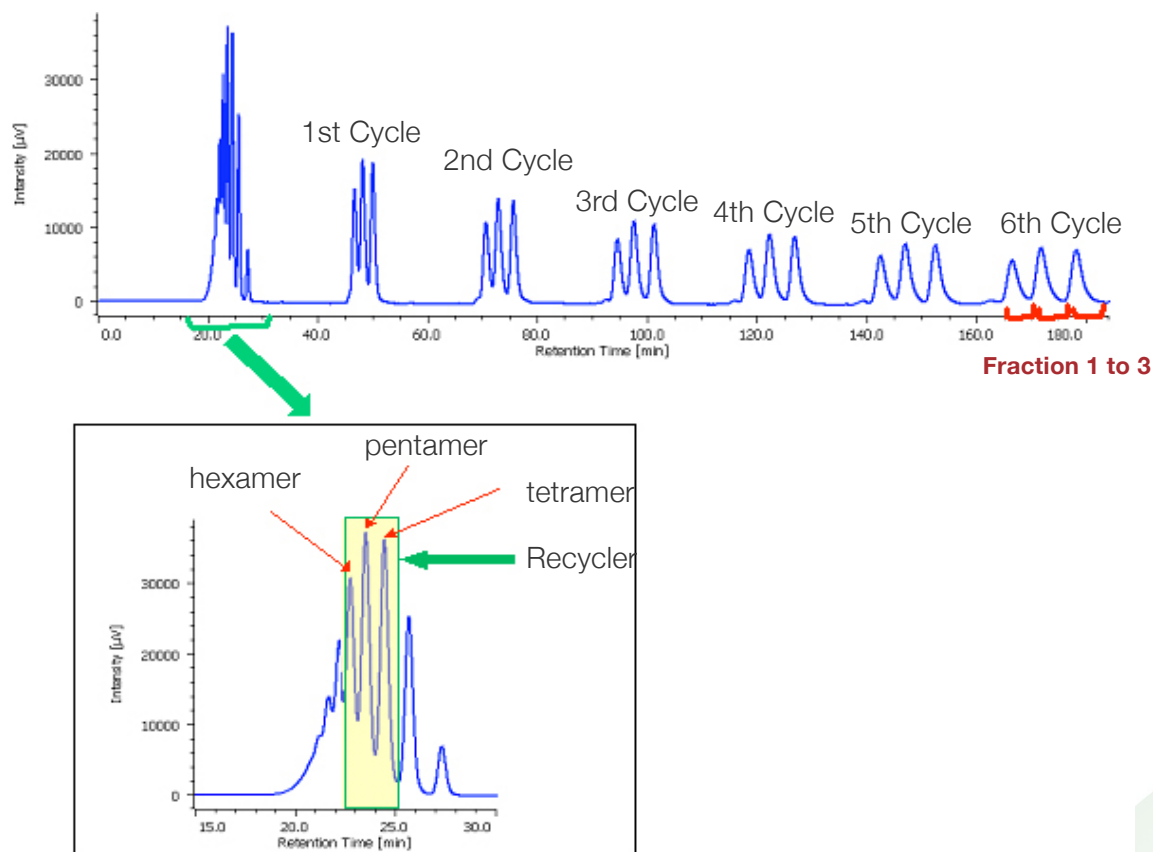


Figure 2. Recycle Chromatogram of Polystyrene Oligomer

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