Waters
Lab Highlights
An Internal Communication of Applications and Techniques
LAH 0071 10/82

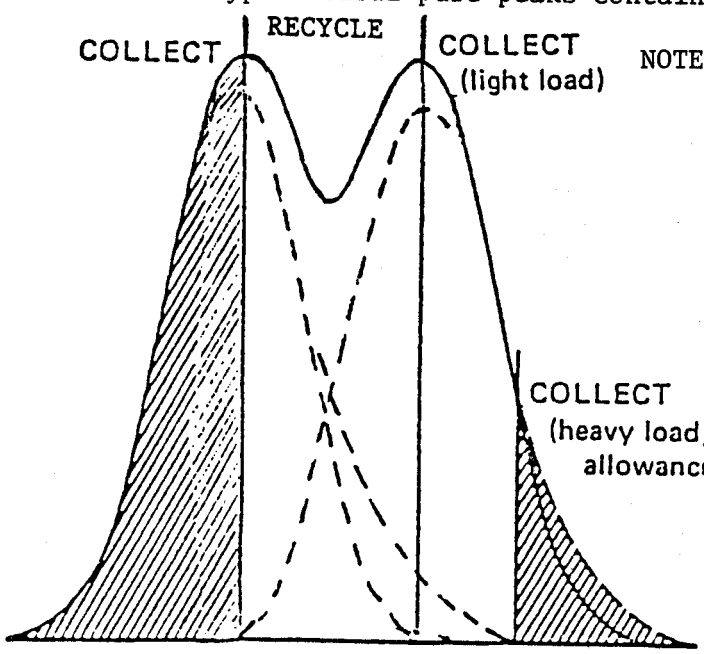
UTILIZING THE RECYCLE MODE IN PREPLC™ SYSTEM

- INCREASED THROUGHPUT (GRAMS OF SAMPLE PER UNIT TIME)
- REDUCED SEPARATION TIME
- LOWER SOLVENT CONSUMPTION
- NO EXTRA COLUMN INVESTMENT
- TOTAL RECOVERY

Baseline resolution is not necessary for recovery of sample components of high purity. In fact, resolution of more than 0.7 obtained on the first pass through the column indicates that the full loading capacity of the PrepPAK® column has not been utilized.

The peaks, illustrated below, show how to collect pure material from partially resolved peaks on the first pass of a separation in RECYCLE mode. This technique is commonly referred to as 'peak shaving.' In peak shaving, sample material is collected separately from the leading and trailing peaks during each RECYCLE pass. This results in better peak resolution on the next pass and maximizes sample recovery (even for minor components) while minimizing solvent consumption.

In the example below the two peaks have a resolution of 0.7. Optimum collection points are indicated by solid vertical lines while the dashed lines show hypothetical pure peaks contained under the observed curve.



NOTE: In the heavily loaded case, the first peak may have a much steeper front edge than illustrated.

Also remember that since more mass can be removed from the leading peak during shaving, it is always desirable to have the component of interest elute first from the column.

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