Introduction to preparative chromatography

When the objective of your separation requires the isolation and purification of a valuable product, such as the case of most preparative chromatography separations, achieving the best results the first go around are not only timely but also makes financial sense.

One of the formidable aspects of preparative chromatography is the ability to separate very crude mixtures that contain very small amounts of target compound(s) that you want to isolate. With the goal in mind of high purity, preparative chromatography is the better separation choice for this type of purification need.

Preparative HPLC and SFC chromatography can purify a wide range of compounds:

- Natural Products
- Peptides
- Proteins
- Small Molecules
- Metabolites
- Oligonucleotides
- Biomolecules
- And many more...

Want to learn more about Preparative Chromatography?

Dr. Jacob, Phenomenex Global Product Manager for Preparative and Chiral products gives a webinar on the principals of preparative HPLC/SFC along with the theory and scale up of real world applications. View the webinar to learn how to produce more cost effective
Resolution and Selectivity

Just as in any preparative chromatography process, getting accurate scalable results are paramount to the outcome of your separation, especially when your goal is obtaining high purity compounds. Understanding how to achieve reliable and accurate analytical results before you start your preparative separation will help in cutting down time spent in the lab having to optimize your method at a large scale. This process can also save money by developing methods at analytical solvent volumes and flow rates instead of the higher volumes and faster flow rates of prep scale chromatography.

What are some of the questions you should be asking yourself before you begin preparative chromatography?

- Is my separation optimized at the analytical scale
- What are the purity and yield goals
- Are there any special mobile phase and stationary phase needs
- Is the media in the analytical format available in a preparative format

Scaling Up for Overload

In this webinar you will discover how to properly scale up the analytical method to the preparative scale.

When scaling up your sample there are a few things to know for method optimization:
• Scaling parameters and flow rate equations
• The stationary phase particle size
• The solvents used in the mobile phase

Application for Higher pH

In most cases, the mobile phase pH can have a dramatic effect on your separation. Depending on the compound being analyzed the pH can have an impact on selectivity, peak shape, and retention. Understanding the effects of pH on your sample will result in better column performance with increased yield and purity.

How to Use pH to improve the separation.

• Improve Selectivity by changing the pH for higher loading
• Case study – Prep Technote TN-1050 using a Gemini 5 µm NX-C18
Applications: Preparative Chromatography in Cannabis

With the legalization of marijuana in many areas of the world, there is a growing need for separating the individual plant compounds and cannabis research is quickly becoming an industry all in its own. Many analysts are finding HPLC and SFC chromatography very useful in the separation of cannabis and cannabis derivatives. In this webinar we cover a few separation applications for cannabis as well as other derivatives of marijuana.

- Natural Cannabinoid Analysis and purification
  - Cannabinoid standards app note using Lux Cellulose-2
  - CBD Separation on Lux Cellulose-2
  - THC from cannabis extract

Pre-Packed Preparative HPLC/SFC Columns for Superior Performance

The way in which your column is packed has a major impact on your samples. Axia packing technology uses a different more efficient packing process than traditional packing methods.

- Axia Technical Overview
  - What is Axia Packing Technology
  - Packing Process Comparison: Conventional Slurry Packing vs Axia Packing Technology
  - Column Performance Comparison: Column Efficiency, Peak Asymmetry, Packing Density

During the webinar, Dr. Jacob discusses the balancing act between purity vs throughput vs
yield and how to choose what’s most important. As Dr. Jacob discusses “If your goal is high purity, then you can achieve it with preparative chromatography”. He also discusses practical tips for method development and scale-up from analytical to preparative HPLC utilizing Axia preparative column packing technology.

>>>Click here to watch entire webinar<<<

Dr. Marc Jacob is Product Manager for Chiral and Preparative Chromatography

Dr. Marc Jacob joined Phenomenex as Global Product Manager for Chiral and Preparative Chromatography in 2011. Previously, he was Director of Process Development at Bachem (Torrance, USA) where he led efforts to develop and produce peptide Active Pharmaceutical Ingredient. Prior to Bachem, he worked for contract manufacturing organizations in the research, development and manufacturing of small molecules such as chiral amino acids and peptide building blocks.

Dr. Jacob earned his Doctorate in Synthetic Organic Chemistry at the University of Montpellier II (France) in 1996 with an emphasis in Asymmetric Synthesis of Amino Acids and subsequently completed Postdoctoral Research at Texas A&M University.
in 1998 under the supervision of Sir Derek Barton (Nobel Laureate 1969).

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