

ARMEN INSTRUMENT

Specialist in preparative & industrial chromatography (Flash, HPLC & CPC)

introduction

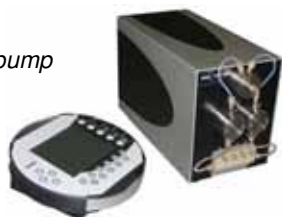
ARMEN INSTRUMENT was founded in March 1994 in the purpose of develop, produce and sell innovative instruments in the field of separations and purifications of natural and synthetic compounds.

The first line of development concerned the field of the preparative and industrial HPLC. Since June 2003, ARMEN INSTRUMENT focused its researches to Centrifugal Partition Chromatography (CPC), a new innovative technology in liquid-liquid chromatography. The last patented invention in this field, called "True Moving Bed" (TMB), allows **continuous injections**, and can easily be compared to "Simulated Moving Bed" (SMB) which works with traditional HPLC columns.

products

- Complete range of Flash and HPLC modules : pumps, injectors, fraction collectors, software...

Flash pump



HPLC pump



- Fully integrated instruments in Flash chromatography and High Performance Liquid Chromatography (HPLC) completely automated.

SPOT™ Prep



SPOT™ Flash



- Complete range of Centrifugal Partition Chromatograph (CPC) modular systems or fully integrated and automated systems from laboratory scale to industrial scale.

services

In collaboration with the company ARCHIMEX, ARMEN INSTRUMENT proposes a lot of services in the separation and purification field :

- Demonstrations on Flash, HPLC and CPC instruments,
- Training in CPC,
- Services for purification from lab. to industrial scale.

Centrifugal Partition Chromatography (CPC) by ARMEN INSTRUMENT

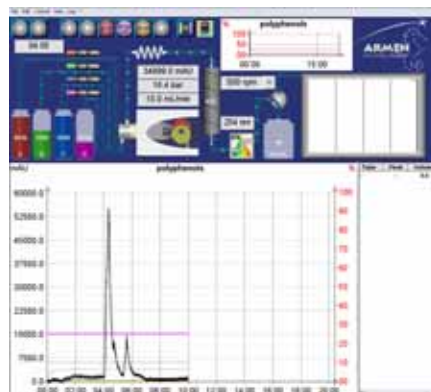
generalities

CPC and **Preparative** HPLC have some similarities:

- Same objectives : high purification of all kinds of molecule at prep and industrial scales,
- Same fundamental chromatographic processes,
- Identical peripherals : pumps, injectors, inline detectors and fraction collector.



Software « Armen Glider CPC » :
Fully dedicated software for CPC system control, method edition, collection and detection management



Nevertheless there is a fundamental difference between both techniques : the nature of the stationary phase.

The stationary phase in HPLC is most of the time made of alkyl chains that need to be solvated by an hydro-organic solvent and coated onto a silica support.

Centrifugal Partition Chromatography (CPC) **does not require a solid support like silica** : two non miscible phases are used, one as the mobile phase or the eluent and the other as the stationary phase maintained by the centrifugal field. The affinity of the solute for each phase, measured by their partition coefficient, gives their order of elution.

Highlights

The volume of stationary phase available (more than 60 %) and the absence of a silica solid mean that there are a number of advantages for this technique beside traditional separation methods :

- No column to replace, no silica to recycle, low solvent consumption
- High flow rate, high performances. Purity > 99%, recovery > 90%
- No sample loss : No denaturation, no irreversible adsorption of the sample
- The solvent system can be changed very easily to suit a wide and diverse range of sample types, for example from the purification of petroleum products to proteins.
- TMB (True Moving Bed) : Continuous injection as SMB

This is a powerful alternative technique for milligram to multi kilogram purification

applications fields

Wide & Diverse Fields of Applications!!

- Natural substances :
 - ✓ Essential oil, Chlorophylls, Lipids
 - ✓ Antibiotics from fermentation broths
 - ✓ Alkaloids
 - ✓ Polyphenols
 - ✓ Natural products Screening...

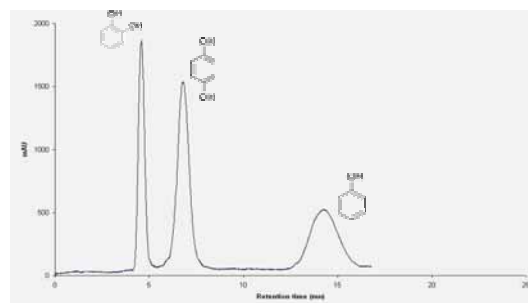


Fig. 1 :
Multigram purification of polyphenols
on SCPC-250

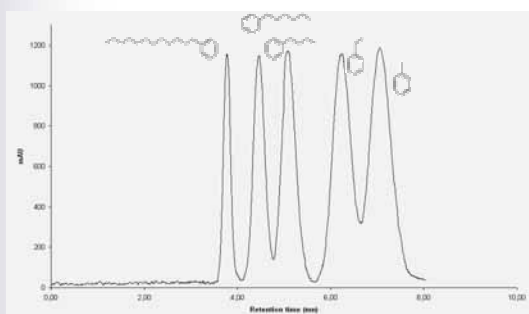


Fig. 2 :
Multigram purification of alkyl benzene
on SCPC-1000

- Synthetic compounds :
 - ✓ From fullerenes to dyes
 - ✓ Enantiomers
- Petroleum extract

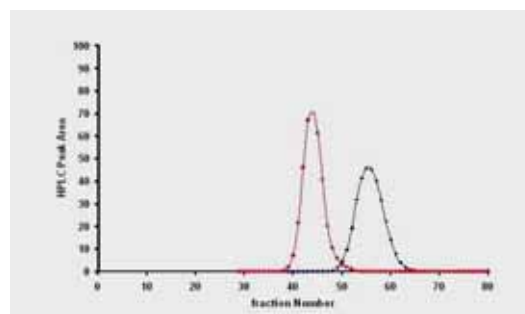


Fig. 3 :
Gram purification of proteins on SCPC-12.5L

- Biotechnologies :
 - ✓ Proteins
 - ✓ Monoclonal Antibodies (mAb)
 - ✓ (Poly)Nucleotides
 - ✓ Peptides...

This technology has already been accepted and adopted by the pharmaceutical, nutraceuticals, cosmetics and petroleum industries.



SCPC-250-B



SCPC-250-L



SCPC-250-F

Reference	Column volume	Max. rotation speed	Flow rate	Injection level
SCPC-250-B,L&F	250 mL	3000 rpm	10-20 mL/min	3-6 g
SCPC-1000-B,L&F	1 L	3000 rpm	20-50 mL/min	15-30 g
SCPC-2x500-B,L&F	2 x 500 mL	3000 rpm	20-50 mL/min	15-30 g
SCPC-5000-B,L&F	5 L	2000 rpm	150-200 mL/min	100-150 g
SCPC-12.5-F	12,5 L	1500 rpm	1.5 L/min	# 1 kg
TCPC-250 TMB*	2 x 125 mL	3000 rpm	10-20 mL/min	Continuous
TCPC-1000 TMB*	2 x 500 mL	3000 rpm	20-50 mL/min	
TCPC-12.5 TMB*	2 x 6.25L	1500 rpm	1.5 L/min	

*TMB : True Moving Bed



TCPC-12.5

'B' Version : CPC column only (with panel control)

'L' Version : CPC column with integrated high pressure gradient pump and manual injection system

'F' Version : Fully automated system with pump, automated injection system, UV visible detector, fraction collector and software "Armen Glider CPC", **allows also working with prep HPLC column**

Our application laboratory proposes demonstration and purification services on request.