Modern polymeric CHROMABOND® SPE phases

CHROMABOND® HR-X

Technical data

Hydrophobic polystyrene-divinylbenzene copolymer (PS / DVB)

SPE mode:	Reversed phase
Interactions:	Hydrophobic and π–π
Particle shape:	Spherical
pH stability:	1–14
Particle size:	85 μm and 45 μm
Pore size:	55–60 Å
Specific surface:	1000 m²/g
RP capacity:	390 mg/g (caffeine in water)
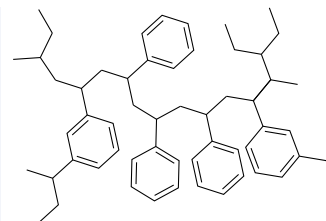
Recommended application

- Pharmaceuticals / active ingredients from tablets, creams and water
- Drugs and pharmaceuticals from urine, blood, serum and plasma
- Trace analysis of pesticides, herbicides, phenols, PAH and PCBs from water

Good to know

A possible replacement for:

- Nexus
- ENVI-Chrom P
- Bakerbond H$_2$O-phobic DVB
- Strata™-X

Standard protocol for CHROMABOND® HR-X

MN Appl. No. 304310

Column type:
CHROMABOND® HR-X / 3 mL / 200 mg, REF 730931

Sample pretreatment:

Individual sample preparation in reference to the compounds and matrix (adjust pH value if necessary).

Conditioning:	5 mL methanol, then 5 mL water (do not let run the column dry!)
Sample aspiration:	The prepared sample is passed through the column by vacuum or pressure (max. 1000 mL sample volume)
Washing:	5 mL water / methanol (95:5, v/v)
Drying:	With nitrogen or air
Elution:	3 x 2 mL methanol

Further analysis:

Evaporation and reconstitution (if necessary); HPLC or GC

These conditions are a starting point for SPE method development. Further optimization may be required to improve results.

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Applications

Determination of pyrrolizidine alkaloids

MN Appl. No. 306620

Chromatographic conditions

Columns:	CHROMABOND® HR-X / 85 µm / 3 mL / 200 mg
MN REF:	730921
Pretreatment:	The following analysis were performed with standard solutions
Conditioning:	5 mL methanol, 5 mL water
Application:	10 mL neutralized standard solution with a flow rate of 3 mL/min
Washing:	2 x 5 mL of water with a flow rate of 3 mL/min
Drying:	5–10 min with vacuum
Elution:	5 mL methanol

Eluent exchange: Add 1.0 mL water as keeper. Evaporate eluate to a volume of 0.5 mL at 40 °C under a stream of nitrogen and fill up to 1.0 mL with water / methanol (95:5, v/v).

Further analysis:

HPLC determination of recovery rates with EC 150/2 NUCLEOSHELL® RP 18plus, 2.7 µm (REF 763236.20) in reference to MN Appl. No. 127480

CHROMABOND® C₁₈ ec, 500 mg, 6 mL   CHROMABOND® HR-X, 85 µm, 200 mg, 3 mL
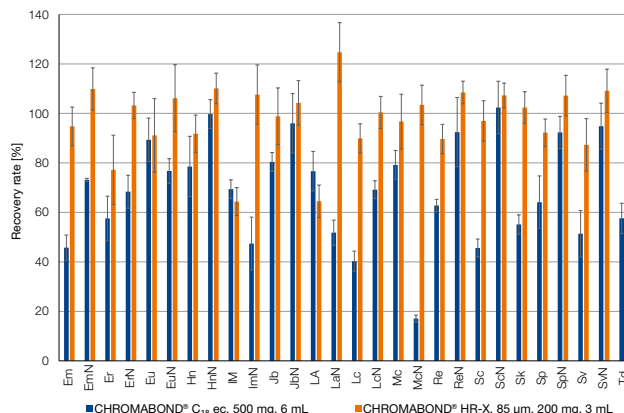
Superior to silica based RP phase

CHROMABOND® HR-X shows higher recovery rates for most tested pyrrolizidine alkaloids than CHROMABOND® C18 ec under the given conditions.

Enrichment of opiates

MN Appl. No. 306710

Chromatographic conditions

Columns:	CHROMABOND® HR-X / 45 µm / 3 mL / 60 mg
MN REF:	730936P45
Pretreatment:	400 µL methanolic standard solution were diluted with 50 mmol/L phosphate buffer pH 7.0 to 20 mL 2.5 mL of this solution are equal to 5 ng of each analyte
Conditioning:	3 x 1 mL methanol, 3 x 1 mL water, then 3 x 1 mL 50 mmol/L phosphate buffer pH 7.0
Aspiration:	2.5 mL of pretreated sample solution is passed through the column at a flow of 1–2 mL/min
Washing:	3 x 1 mL 50 mmol/L phosphate buffer pH 7.0, 3 x 1 mL water
Drying:	5 mL air by pushing with a syringe
Elution:	3 x 1 mL 0.1 % formic acid in methanol

Solvent change: Eluate is evaporated to dryness at 30 °C under a stream of nitrogen and then redissolved in organic solvent suited for the subsequent analysis.

Further analysis:

HPLC determination of recovery rates with EC 100/2 NUCLEOSHELL® Biphenyl, 2.7 µm (REF 763634.20) in reference to MN Appl. No. 128880

Compound	Recovery rate [%]	Standard deviation [%]
Ecgonine methyl ester	94	0
Morphine	77	3
Dihydrocodeine	101	1
Codeine	97	1
6-Acetylmorphine	89	1
Benzoylecgonine	102	0
6-Acetylcodeine	100	0
Cocaine	109	1
Noscapine	95	1
Papaverine	98	2