

CHROMABOND® HR-XCW

Technical data

Weak cation exchanger based on polystyrene-divinylbenzene copolymer (PS/DVB)

SPE mode: Ion exchange and reversed phase (mixed-mode)

Interactions: Ionic, hydrophobic and π - π

Particle shape: Spherical

pH stability: 1–14

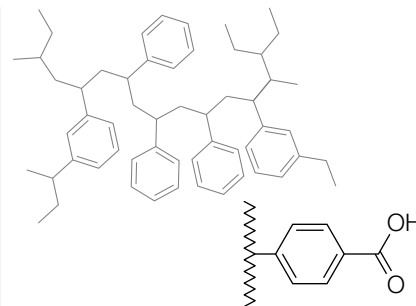
Particle size: 85 μm and 45 μm

Pore size: 50–60 Å

Specific surface: 850 m^2/g

RP capacity: 350 mg/g (caffeine in water)

Exchange capacity: > 0.7 meq/g , $\text{pK}_a \sim 5$



Recommended application

- Basic compounds like quaternary amines
- Active ingredients from heavily matrix-contaminated samples, e.g., urine, plasma, serum
- Strong bases with $\text{pK}_a > 10$

Good to know

A possible replacement for:

- Oasis® WCX
- Strata™-X-CW



Standard protocol for CHROMABOND® HR-XCW

MN Appl. No. 305300



Column type:
CHROMABOND® HR-XCW / 3 mL / 200 mg, REF 730739

Sample pretreatment:

Individual sample preparation in reference to the compounds and matrix.

Conditioning: 5 mL methanol, then 5 mL water
(do not let run the column dry!)

Sample aspiration: The sample is passed through the column by vacuum or pressure (max. 1000 mL sample volume)

Washing 1: 2 mL 5 % aq. NH_4OH solution

Washing 2: / Elution 1: 2 mL methanol
(elution of neutral and acidic compounds)

Drying: With nitrogen or air

Elution 2: 2 x 2 mL 1-5 % formic acid in methanol
(elution of strongly basic compounds)

Basic methanol (NH_3) can be used alternatively for elution 2 (e.g., for primary to tertiary amines). Here an interruption of the interactions with the cation exchanger results by a deprotonation of the analyte.

Further analysis:

Evaporation and reconstitution (if necessary); HPLC or GC

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



HPLC columns



Are you looking for HPLC columns for subsequent analysis? Find an overview of our HPLC columns under the following link www.mn-net.com/hplc.

Modern polymeric CHROMABOND® SPE phases

Applications

Tricyclic Antidepressants

MN Appl. No. 305340



Column type:
CHROMABOND® HR-XCW / 85 µm / 3 mL / 60 mg

MN REF: 730735

Pretreatment: 250 µL spiked serum, diluted with 1 mL 10 % formic acid in water

Conditioning: 3 mL MeOH

Equilibration: 3 mL water

Application: Slowly aspirate sample through the column

Washing: 1 mL 5 % formic acid in water, then 1 mL MeOH

Elution: After drying by vacuum (15 min) 3 mL 5 % formic acid in MeOH

Further analysis:

Evaporate and redissolve in a suitable solvent for HPLC on NUCLEODUR® C8 Gravity, see MN Appl. No. 118520

Recovery rates:

| Compound | HR-XCW | HR-XC* | PCA** | Oasis® WCX |
|---------------|--------|--------|-------|------------|
| Doxepine | 79 | 5 | 11 | 41 |
| Imipramine | 79 | 9 | 20 | 67 |
| Amitriptyline | 91 | 9 | 14 | 46 |
| Trimipramine | 98 | 7 | 14 | 27 |

* HR-XC: Basic analytes can not be eluted with slightly acidic organic conditions from the strong cation exchanger CHROMABOND® HR-XC, because the eluting power is not sufficient to dissociate the interaction with the ion exchanger. However, with the usage of basic methanol a complete elution can be achieved (please see also MN Appl. No. 304780).

** PCA: Due to the missing RP interactions of silica based weak cation exchanger, CHROMABOND® PCA gives only a small enrichment elution of the analytes.

