

CHROMABOND® HR-X

the innovative spherical SPE-phase
with the little EXTRA
for pharmaceutical applications



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free samples
now!**

MACHEREY-NAGEL

www.mn-net.com

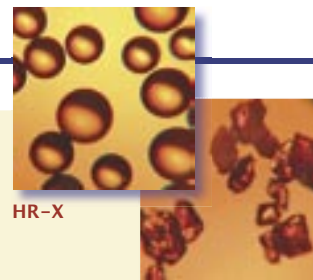




CHROMABOND® HR-X

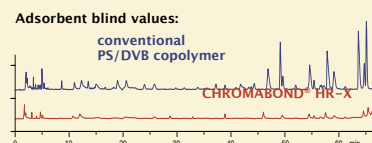
This innovative SPE phase offers

- ◆ **state-of-the-art spherical polymer**
 - ⇒ broad spectrum of application with special suitability for enrichment of pharmaceuticals from biological matrices
 - ⇒ ideal flow properties due to low content of particulate matter
- ◆ **optimised pore structure and high specific surface**
 - ⇒ high loadability and outstanding elution properties
 - ⇒ low solvent consumption
 - ⇒ rapid, economical analyses
- ◆ **high-purity adsorbent material**
 - ⇒ allows highest reproducibility with extremely low blind values
 - ⇒ reliable analyses at ultra trace level
 - ⇒ no method adaptation for new batches necessary



HR-X

conventional PS/DVB copolymer



Solid Phase Extraction

HR-X

spherical, hydrophobic polystyrene-divinylbenzene adsorbent resin

- ◆ hydrophobic polystyrene-divinylbenzene copolymer
pH stability 1-14
- ◆ high-purity material with highest reproducibility and lowest blind values due to a novel manufacturing process
- ◆ spherical particles 85 µm; pore size 55 - 60 Å
very high surface 1000 m²/g
capacity 390 mg/g (caffeine in water)
- ◆ excellent recovery rates especially for the enrichment of pharmaceuticals/active ingredients due to the spherical structure of the particles, very homogeneous surface, and optimised pore structure

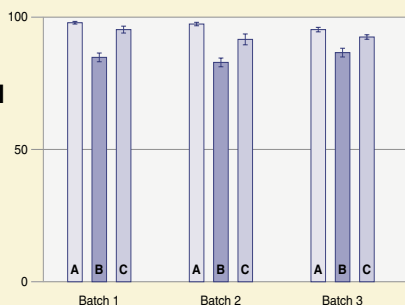
- ◆ recommended applications:
 - pharmaceuticals/active ingredients from tablets, creams and water/waste water
 - drugs and pharmaceuticals from urine, blood, serum and plasma
 - trace analysis of pesticides, herbicides, phenols, PAH and PCB from water

Highest reproducibility

- ✓ within each batch
- ✓ from batch to batch

Compounds:

- A** phenobarbital
- B** pentobarbital
- C** hexobarbital



Barbiturates from serum

MN Appl. No. 304290

↓ **Column type:** CHROMABOND® HR-X/3 ml/200 mg
Cat. No. 730931

Sample: 100 ng/ml each in serum

Column conditioning: 5 ml MeOH, 5 ml dist. water

Sample application: 1 ml spiked Serum

Column washing: 5 ml water

Elution: after drying 3 x 2 ml MeOH

Further analysis: HPLC on NUCLEODUR® 100-5 C₁₈ec, see MN Appl. No.117820

Standard protocol for method development with

CHROMABOND® HR-X

MN Appl. No. 304310

↓ **Column type:** CHROMABOND® HR-X/3 ml/200 mg
Cat. No. 730931

1. **Sample pretreatment:** if necessary adjust pH value
2. **Column conditioning:** 5 ml MeOH
3. **Equilibration:** 5 ml water
4. **Sample application:** slowly aspirate the sample through the column
5. **Column washing:** 5 ml water – MeOH (95:5, v/v)
6. **Elution:** after drying 3 x 2 ml MeOH
7. **Further analysis:** if necessary, evaporate and re-dissolve in a suitable solvent; HPLC or GC





Sulfonamides from serum

MN Appl. No. 304220

Column type: CHROMABOND® HR-X/3 ml/200 mg
Cat. No. 730931

Sample: 2 µg/ml each in serum

Column conditioning: 5 ml MeOH, 5 ml dest. water

Sample application: 1 ml spiked serum

Column washing: 5 ml water – MeOH (95:5, v/v)

Elution: after drying 3 x 2 ml MeOH

Recovery rate [%]:

Compound	HR-X	Oasis® HLB	Strata™ X
Sulfanilamide	66	62	63
Sulfadiazine	107	101	108
Sulfamerazine	114	111	111
Sulfadimidine	94	86	89
Succinylsulfathiazol	70	43	48

Further analysis: HPLC see MN Appl. No. 117880

Column: 125 x 4 mm
NUCLEODUR® C₁₈ Gravity, 5 µm

Eluent: MeOH – 0,1 % TFA (20:80, v/v)

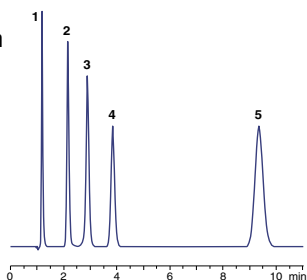
Flow rate: 1,0 ml/min

Temperature: 22°C

Detection: UV, 230 nm

Peaks:

1. Sulfanilamide
2. Sulfadiazine
3. Sulfamerazine
4. Sulfadimidine
5. Succinylsulfathiazole



Pesticides from water

MN Appl. No. 304250 and 304260

GIU GmbH, Teningen

Column type: CHROMABOND® HR-X/3 ml/200 mg
Cat. No. 730931

Sample: 500 ng/l each in water; pH value adjusted

Column conditioning: 10 ml MeOH, 10 ml water

Sample application: slowly aspirate 1 l sample through the column

Drying: stream of nitrogen

Elution: 5 ml MeOH – THF (1:1, v/v)

Recovery rate [%]:

Compound	pH 7	Compound	pH 2
Desisopropylatrazine	90	Metamitron	86
2,4-Dichlorbenzamide	95	Quinmerac	90
Desethylatrazine	89	Chloridazone	93
Hexazinon	95	Picloram	83
Bromacil	103	Metribuzine	84
Simazine	91	Cyanazine	83
Desethylterbutylazine	89	Metabenzthiazuron	94
Atrazine	88	Chlortoluron	91
Metalaxyl	97	Isoproturon	89
Metazachlor	93	Diuron	91
Propazine	88	Dimethenamid-P	89
Terbutylazine	86	Linuron	94
Metolachlor	97	Epoxiconazo	86
		Penconazole	90
		Alachlor	93
		Propiconazole-1	89
		Flufenacet	91

Further analysis:

HPLC e.g. on NUCLEODUR® 100-3 C₈ ec
see MN Appl. No. 118610 or 120485

Drugs from water

MN Appl. No. 304240

Column type: CHROMABOND® HR-X/3 ml/200 mg
Cat. No. 730931

Sample: each 1 µg/l in water

Column conditioning: 5 ml MeOH, 5 ml water

Sample application: slowly aspirate 500 ml water (pH 3) through the column

Column washing: 5 ml water

Elution: after drying 3 x 2 ml acetonitrile

Recovery rate [%]:

Compound	HR-X	Strata™ X
Ketoprofen	98	92
Ibuprofen	91	93
Pentobarbital	99	95
Meclofenamic acid	92	93
Protriptyline	63	45
Nortriptyline	53	39

Further analysis: HPLC see MN Appl. No. 121690

Column: 125 x 4 mm
NUCLEODUR® C₁₈ Gravity, 5 µm

Eluent: A) 20 mmol KH₂PO₄, pH 7
B) acetonitrile

Gradient: 20 % B → 50 % B in 25 min

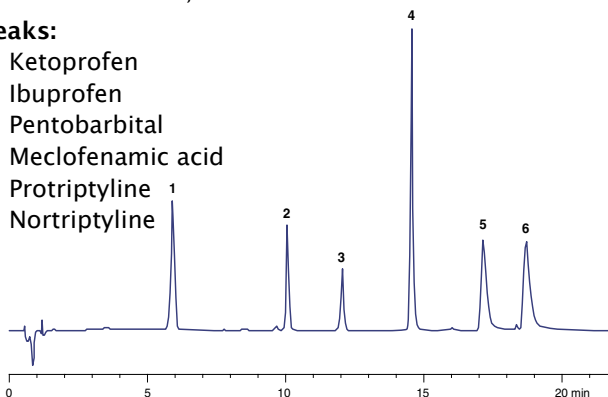
Flow rate: 0,5 ml/min

Temperature: 22°C

Detection: UV, 215 nm

Peaks:

1. Ketoprofen
2. Ibuprofen
3. Pentobarbital
4. Meclofenamic acid
5. Protriptyline
6. Nortriptyline





CHROMABOND® HR-X

Ordering information

Volume	Adsorbent weight						Pack of
CHROMABOND® HR-X polypropylene columns							
	30 mg	60 mg	100 mg	200 mg	500 mg	1 g	
1 ml	730934		730935				30
3 ml		730936		730931	730937		30
6 ml				730938	730939		30
15 ml					730940	730941	20
CHROMABOND® HR-X polypropylene columns · BIGpacks							
	200 mg						
3 ml	730931.250						250
6 ml	730938.250						250
CHROMABOND® HR-X glass columns							
	60 mg			200 mg			
3 ml	730936 G						30
6 ml				730938 G			30
CHROMABOND® LV-HR-X							
	30 mg	60 mg	200 mg				
15 ml	732130	732131	732132				30
CHROMABOND® MULTI 96 HR-X							
	96 x 25 mg		96 x 50 mg		96 x 100 mg		
	738530.025M		738530.050M		738530.100M		1
CHROMABOND® HR-X adsorbent						730663	20 g

Further dimensions on request!

More literature needed? Please contact us for:

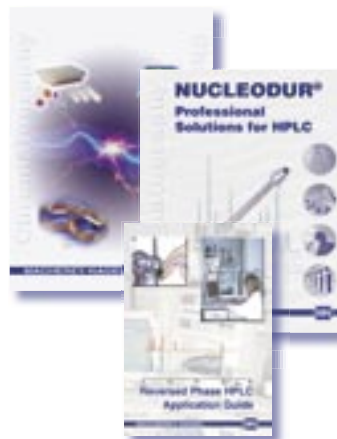


SPE Info-brochure (English)



SPE Catalogue (English)

SPE Application-Guide (English)



MN Chromatography-Catalogue (German/English/French)

Nucleodur® HPLC-Catalogue (English)

HPLC Application-Guide (English)

... please visit our application-database on the internet!



local distributor

www.mn-net.com

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