STYRE SCREEN®

POLYMERIC SORBENT SPE

INNOVATION THROUGH CHEMISTRY

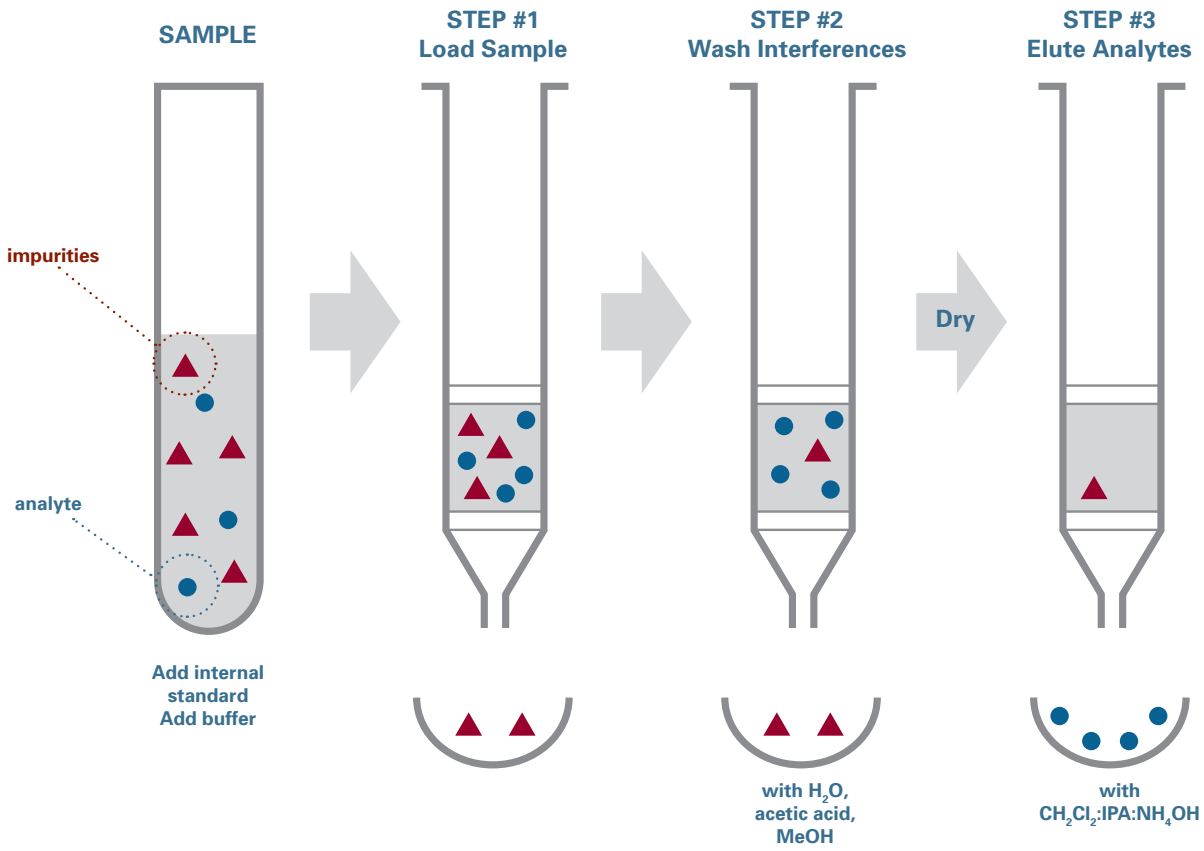
STYRE SCREEN®
Extraction Columns

Styre Screen® extraction sorbents are formulated with an ultra clean, highly cross-linked styrene and divinylbenzene copolymer sorbent. The sorbent can be functionalized with any of the same phases as our silica based sorbents. Possibilities include standard hydrophilic, hydrophobic, or ion exchange functionalities as well as copolymeric phases such as the DBX phase. Styre Screen® particles have an average particle size of 30 microns. This polymeric sorbent has a very high analyte capacity, ideal for standard solid phase extraction applications. This higher capacity translates into a lower bed mass requirement in order to retain the same analyte quantity as a traditional silica particle. Lower bed mass also means extractions can be run at faster flow rates and with less solvent usage. The Styre Screen® sorbent also eliminates the need for an initial column conditioning step. All these attributes ultimately result in excellent cost benefit.

Advantages:

- No conditioning step
- High and reproducible recoveries
- highly cross-linked sorbent minimizes bead swelling
- Reduced sorbent mass
- Improved flow rates
- pH stable from 1 – 14
- Reduced solvent use
- High sorbent capacity
- Methods for NIDA/SAMHSA 5 Drugs

STYRE SCREEN® General Application



STYRE SCREEN® DVB – Polystyrene Divinylbenzene

Application: Retention of neutral and aromatic compounds, useful for screening applications where a broad range of analytes is to be extracted

Structure:

PS/DVB

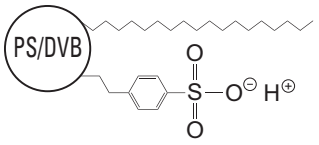
COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	10	100	SSDVB0X1
1	30	100	SSDVB031
1	100	100	SSDVB111
3	30	50	SSDVB033
6	50	50	SSDVB056
6	200	30	SSDVB206
6	500	30	SSDVB506
10	100	50	SSDVB11Z

WELL PLATE				
Number of wells	Sorbent Amount (mg)	Units per pack	Extended Drip Tip	Part Number
48	60	1	NO	WSH48DVB406
96	30	1	NO	WSHDVB403
96	50	1	NO	WSHDVB405
96	60	1	NO	WSHDVB406

STYRE SCREEN® DBX – Octadecyl (C18) and Benzenesulfonic Acid – Mixed Mode

Application: Retention of weakly basic and hydrophobic compounds

Structure:



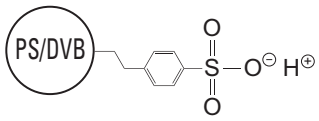
COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	30	100	SSDBX031
3	30	50	SSDBX033
3	30	500	SSDBX033-D
3	60	50	SSDBX063
6	50	50	SSDBX056
6	50	500	SSDBX056-D
6	150	50	SSDBX(150)06
6	200	50	SSDBX206
10	50	50	SSDBX05Z

WELL PLATE				
Number of wells	Sorbent Amount (mg)	Units per pack	Extended Drip Tip	Part Number
96	30	1	NO	WSHDBX403

STYRE SCREEN® BCX – Benzensulfonic Acid – Cation Exchange

Application: Retention of weakly basic compounds

Structure:

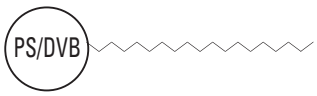


COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	30	100	SSBCX031
3	30	50	SSBCX033
3	60	50	SSBCX063
6	50	50	SSBCX056

STYRE SCREEN® C18 – Reverse Phase

Application: Retention of hydrophobic compounds

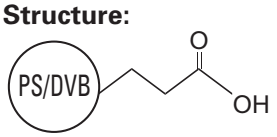
Structure:



COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	30	100	SSC18031
3	30	50	SSC18033
6	50	50	SSC18056
6	200	50	SSC18206
6	300	50	SSC18306
6	500	50	SSC18506
75	5000	10	SSC1815M75

STYRE SCREEN® CCX – Carboxylic Acid – Cation Exchange

Structure:



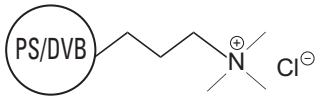
Application: Retention of basic compounds, particulary strong bases

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	30	100	SSCCX031
3	30	50	SSCCX033
3	50	50	SSCCX053
3	60	50	SSCCX063
6	50	50	SSCCX056

WELL PLATE				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
96	30	1	NO	WSHSSCCX103

STYRE SCREEN® QAX – Quaternary Amine – Anion Exchange

Structure:



Application: Retention of weakly acidic compounds

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	30	100	SSQAX031
3	30	50	SSQAX033
6	50	50	SSQAX056
6	150	50	SSQAX(150)06

STYRE SCREEN® THC

Structure: Proprietary

Application: Retention of THC and THC metabolites (THC-delta-9, THC-hydroxy metabolite and THC-carboxy metabolite)

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	30	100	SSTHC031
3	60	50	SSTHC063
6	60	50	SSTHC066
10	60	50	SSTHC06Z
6	100	50	SSTHC116
10	100	50	SSTHC11Z

COCAINE AND BENZOYLECGONINE IN URINE

Part

SSDBX033 – STYRE SCREEN® DBX 30 mg, 3 mL Tube

SLDA50ID21-5UM – SELECTRA® DA HPLC Column 50 x 2.1 mm, 5 µm

1. PREPARE SAMPLE:

To 1 mL of urine add internal standard(s) and 300 µL 100mM HCl.
Mix/Vortex.

2. APPLY SAMPLE:

Load at 1 to 2 mL/minute

3. WASH COLUMN:

1 x 1 mL D.I. H_2O
1 x 1 mL 100 mM HCl
1 x 1 mL CH_3OH
Dry column (10 minutes at full vacuum or pressure)

4. ELUTE COCAINE/METABOLITE:

2 x 0.5 mL CH_2Cl_2/ IPA /NH_4OH (78:20:2)
Collect eluate at 1 to 2 mL/minute
NOTE: Prepare elution solvent daily. Add IPA /NH_4OH, mix, then add CH_2Cl_2 (pH 11-12)

5. DRY ELUATE:

Evaporate to dryness at < 40 °C

6. RECONSTITUTE

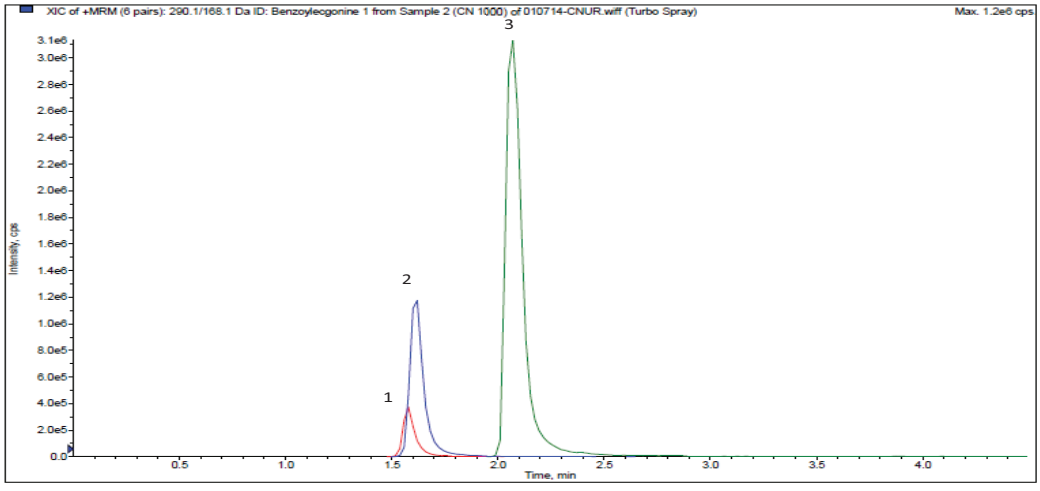
Reconstitute sample in 100 µL of mobile phase

PARAMETERS

Instrument: API 3200 Qtrap MS/MS with Shimadzu Prominence UFLC
HPLC Column: SELECTRA® DA HPLC Column 50 x 2.1mm, 5 µm
Polarity: Positive
Injection Volume: 10 µL
Flow Rate: 0.7 mL/minute
Mobile Phase A: 0.1% formic acid in water
Mobile Phase B: 0.1% formic acid in MeOH
Gradient:

Time	%A	%B
0.00	75	25
3.00	50	50
3.01	10	90
4.00	75	25
5.50	STOP	

CHROMATOGRAPHY (LC-MS/MS)



Analyte		MRM Transitions		Relative Retention Time (minutes)
		Q1	Q3	
1.	Benzolyecgonine D_8	298.1	171.1	1.58
2.	Benzolyecgonine	290.1	168.1	1.60
3.	Cocaine	304.1	182.1	2.0

THC, THC-OH, AND THC-COOH CONFIRMATIONS IN WHOLE BLOOD BY LC-MS/MS OR GC-MS USING 100 MG STYRE SCREEN® SSTHC

Part

SSTHC116 – STYRE SCREEN® THC 100 mg, 6 mL Tube

SLDA100ID21 – 5UM – SELECTRA® DA HPLC Column 100 x 2.1mm, 5 µm

1. PREPARE SAMPLE:

To 1-2 mL whole blood add appropriate internal standards prepared in alcohol
Add drop-wise 2.5 mL Ice Cold acetonitrile
Mix thoroughly and centrifuge
Decant acetonitrile into a clean tube.
Evaporate acetonitrile under a stream or air or nitrogen to ~ 200 uL
Add 2 mL D.I. H_2O (pH of H_2O must be ~ 6.0-7.0)

2. APPLY SAMPLE:

Load at 1 to 2 mL/minute.

4. WASH COLUMN:

Wash with 2 mL (84: 15: 1) D.I. H_2O: Acetonitrile: NH_4OH (made fresh daily) Dry column under full vacuum or pressure for 10-15 minutes

5. ELUTE THC & metabolites:

1 x 3 mL Hexane/ Ethyl Acetate/ Glacial Acetic Acid (49: 49:2) Collect at 1-2 mL/ minute.

6. DRY ELUATE:

Evaporate to dryness at < 40° C.

7. RECONSTITUTE / DERIVATIZE:

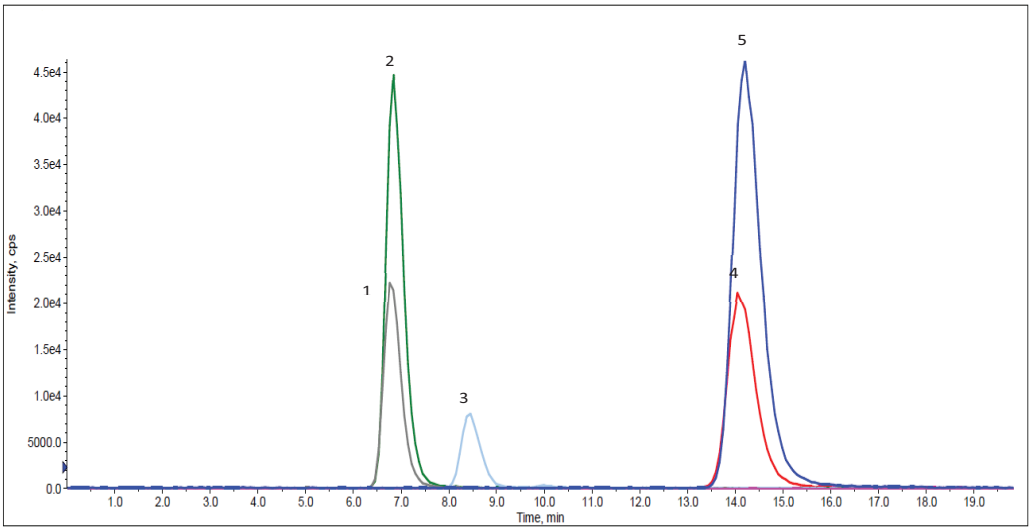
- LC-MS/MS: Reconstitute sample in 100 µL of mobile phase Inject 5 µL.

PARAMETERS

Instrument: API 4000 Qtrap MS/MS with Agilent 1200 Binary Pump SL
HPLC Column: SELECTRA® DA HPLC Column 100 x 2.1mm, 5 µm
Polarity: Negative/ Positive
Injection Volume: 5 µL
Flow Rate: 0.5 mL/minute
Reconstitute: 100 µL
Mobile Phase A: 0.1% formic acid in water
Mobile Phase B: 0.1% formic acid in MeOH
Gradient:

Time	%A	%B
0.00	25	75
20.00	STOP	

CHROMATOGRAPHY (LC-MS/MS)



	Analyte	MRM Transitions Q1	MRM Transitions Q3	Relative Retention Time (minutes)
1.	HYDROXY DELTA 9-THC D_3	334.0	316.2	6.80
2.	HYDROXY DELTA 9-THC	330.9	313.2	6.88
3.	CARBOXY DELTA 9-THC	334.0	316.2	8.47
	CARBOXY DELTA 9-THC D_3	348.3	303.0	-
4.	DELTA 9-THC D_3	318.2	196.2	14.20
5.	DELTA 9-THC	315.2	196.2	14.31

OPIATES IN BLOOD, PLASMA/SERUM, URINE, OR TISSUE

Part #

SSDBX033 – STYRE SCREEN® DBX 30 mg, 3 mL Tube
BETA-GLUC-10 – SELECTRAZYME® Beta-glucuronidase
SLDA50ID21-5UM – SELECTRA® DA HPLC Column, 50 x 2.1 mm, 5 µm
SPHACE4501-5 – Select pH Buffer Pouches 100mM Acetate pH 4.5

1. PREPARE SAMPLE:

Blood:
To 1 mL of 100 mM phosphate buffer (pH 6.0) add internal standards.
Add 1-2 mL of blood, plasma/ serum, or 1 g (1:4) tissue homogenate.
Mix/vortex and let stand for 5 minutes
Add 2 mL of 100 mM phosphate buffer (pH 6.0). Mix/vortex
Sample pH should be 6.0 ± 0.5.
Centrifuge for 10 minutes at 2000 rpm and discard pellet

Urine:
PREPARE SAMPLE FOR ENZYME HYDROLYSIS OF GLUCURONIDES:
To 1-2 mL of urine sample, add 1 mL of acetate buffer (pH 5.0) containing 5,000 units/mL of Selectrazyme® ß-glucuronidase.
Optionally, add 1 mL of acetate buffer and 25-50 µL of concentrated ß-glucuronidase.
Vortex and heat for 1-2 hours at 65 °C.
Allow sample to cool
Do not adjust pH~ sample is ready to be added to the extraction column.

2. APPLY SAMPLE:

Load at 1 to 2 mL/minute.

3. WASH COLUMN:

1 x 1 mL D.I. H_2O.
1 x 1 mL 100 mM acetate buffer (pH 4.5).
1 x 1 mL CH_3OH.
Dry column (5 minutes at full vacuum or pressure).

4. ELUTE OPIATES:

2 x 0.5 mL CH_2Cl_2/ IPA/ NH_4OH (78:20:2)
Collect eluate at 1 to 2 mL/minute.
NOTE: Prepare elution solvent daily. Add IPA/ NH_4OH, mix, then add CH_2Cl_2 (pH 11-12).

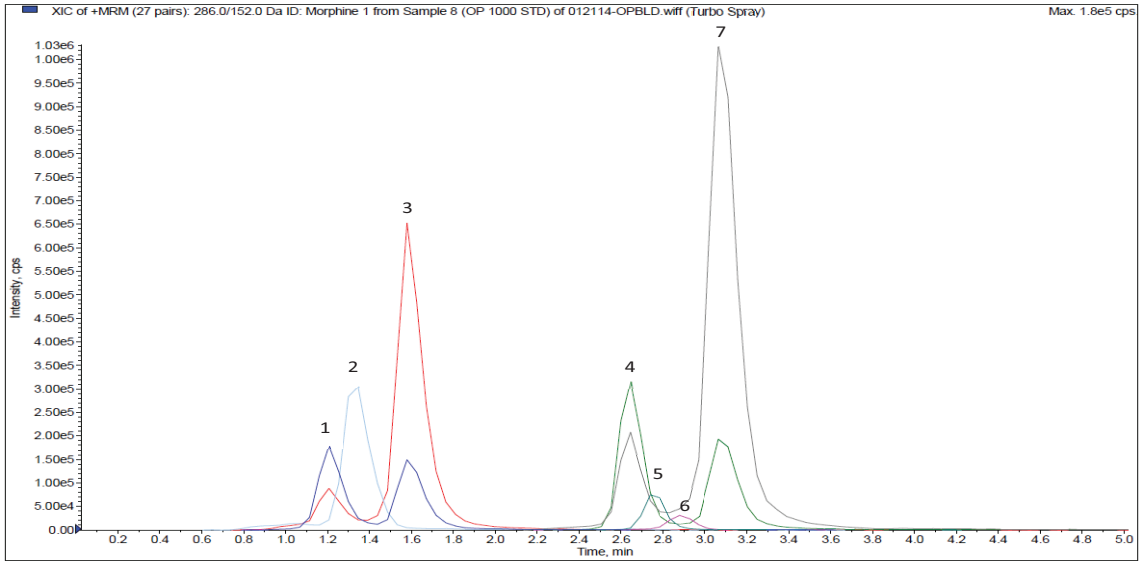
5. DRY ELUATE:

Evaporate to dryness at < 40 °C.

6. RECONSTITUTE:

Reconstitute sample in 100 µL of mobile phase

CHROMATOGRAPHY (LC-MS/MS)



Analyte		MRM Transitions		Relative Retention Time (minutes)
		Q1	Q3	
1.	Morphine	286.0	152.0	1.21
2.	Oxymorphone	302.0	227.0	1.30
3.	Hydromorphone	286.0	185.0	1.60
4.	Codeine	300.0	152.0	2.65
5.	6-MAM	328.0	165.1	2.75
6.	Oxycodone	316.0	240.0	2.85
7.	Hydrocodone	300.0	199.0	3.10

PARAMETERS

Instrument: API 3200 Qtrap MS/MS with Shimadzu Prominence UFLC
HPLC Column: SELECTRA® DA HPLC Column 50 x 2.1mm, 5 µm
Polarity: Positive
Injection Volume: 10 µL
Flow Rate: 0.6 mL/minute
Mobile Phase A: 0.1% formic acid in water
Mobile Phase B: 0.1% formic acid in MeOH
Gradient:

Time	%A	%B
0.00	85	15
7.00	40	60
7.01	20	80
8.00	85	15
9.00	STOP	

Note:
Hydroxylamine can be added to sample within method if oxime derivative is preferred.
Following hydrolysis, add 200 µL 10% Hydroxylamine solution.
Heat to 60 °C for 30 min in a heating block.
Allow sample to cool then adjust pH back to 5 with 1.0 M NaOH.
Centrifuge for 10 minutes at 2000 rpm and discard pellet
Sample is now ready to be added to the extraction column

BASIC ANALYTES IN URINE BY LC-MS/MS USING STYRE SCREEN® BCX

Part #:

SSBCX056 – STYRE SCREEN® BCX SPE Cartridge, 50 mg / 6 mL
BETA-GLUC-10 – SELECTRAZYME® Beta-glucuronidase
SLDA50ID21-3UM – SELECTRA® DA HPLC Column, 50 x 2.1mm, 3µm

1. PREPARE SAMPLE

Hydrolysis: To 1 mL of urine sample, add 1 mL of acetate buffer (pH=5) and 50 µL of concentrated β-glucuronidase. Vortex and heat for 1-2 hours at 65 °C. Do not adjust pH~ sample is ready to be added to the extraction plate.

2. APPLY SAMPLE

Load sample directly to column without any preconditioning.
Pull sample through at a rate of 1-2 mL/ minute.

3. WASH

1 x 1 mL 100mM Acetic Acid
1 x 1 mL MeOH.
Dry column (5 mins at >10 inches Hg).

4. ELUTION

2 x 0.5 mL MeOH/NH_4OH (98/2), collect eluate at 1 to 2 mL/min.
NOTE: Prepare elution solvent daily.

5. DRY ELUTE

Evaporate fraction to complete dryness under stream of dry air or Nitrogen at ~ 35 °C.

6. RECONSTITUTE

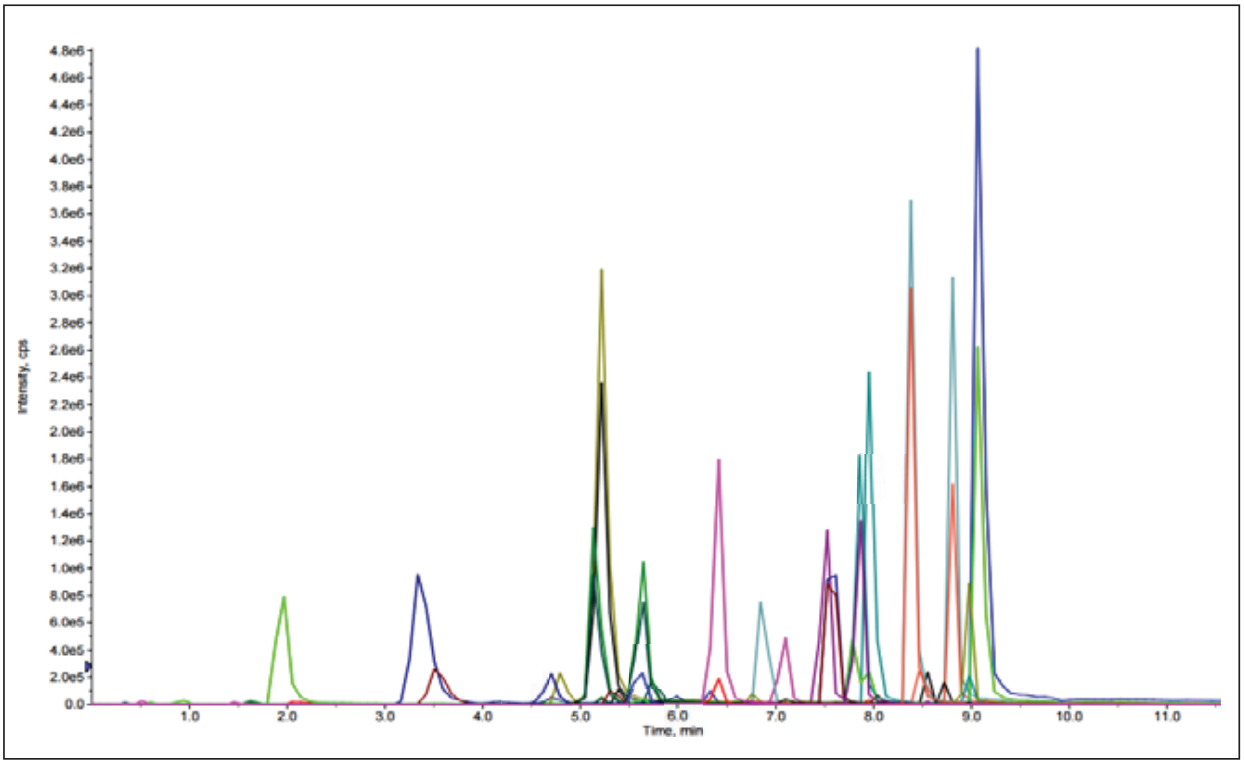
Reconstitute sample in 100 µL of mobile phase

ANALYTES TARGETED WITHIN METHOD

Analyte
Morphine
Hydromorphone
Codeine
Hydrocodone
6-MAM
Bezoylecgonine
Cocaethylene
Cocaine
Ketamine
PCP
Norketamine
Amp
Methamp
MDA
MDMA
Buprenorphine

Analyte
EDDP
Methadone
Pyrovalerone
3,4MDPV
Mephedrone
Ethylone
Butylone
Fentanyl
Naltrexone
Naloxone
Tramadol
Norfentanyl
Oxymorphone
Oxycodone
Norbuprenorphine

CHROMATOGRAPHY (LC-MS/MS)



PARAMETERS

Instrument: Agilent 1200 Binary Pump SL
Detector: API 4000 Qtrap MS/MS
HPLC Column: SELECTRA® DA HPLC Column 50 x 2.1mm, 3 µm
Polarity: Positive
Injection Volume: 10 µL
Flow Rate: 0.4 mL/minute
Mobile Phase A: 0.1% formic acid in water
Mobile Phase B: 0.1% formic acid in MeOH
Gradient:

Time	%A	%B
0.00	90	10
0.50	90	100
4.00	60	40
7.50	15	85
8.50	0	100
12.00	0	100
12.20	90	10
15.00	STOP	

PRICES AND TERMS

Our prices are subject to change without notice. The price in effect when we receive your order will apply. All prices are in US Dollars and are F.O.B. Terms of payment are net 30 days.

MINIMUM ORDERS

We welcome all orders, therefore, we do not have a minimum order requirement. When ordering, please include your purchase order number, complete "Ship To" and "Bill To" address, catalog number, quantity, and description of product(s). Also include your name and a phone number where you can be reached should we have any questions concerning your order.

SHIPMENTS

Normal processing is within 24 hours after receipt of an order. Unless special shipping requests have been made, our trained staff will send all orders by UPS Ground service. The appropriate shipping charges (freight & insurance costs) will be added to the invoice, unless otherwise instructed by the customer.

SPECIAL PRICING

We offer special pricing for volume purchases and standing orders. These discounts apply to bonded phase extraction column purchases only. Please call a sales representative for more information on special pricing qualifications.

RETURN POLICY

Our Quality Manager will handle all returns. Before returning merchandise, please call to obtain a return authorization number from the quality manager. We will need to know the reason for the return, date of purchase, purchase order number and invoice number in order to issue a return authorization number. Return merchandise must be received before a credit can be issued. Returns will not be accepted after 90 days. A restocking fee of 25% of the price paid, or a minimum of $25.00 (whichever is greater) will be charged on all returns.

WARRANTY

All products manufactured by UCT are guaranteed against defects in materials and workmanship for a period of 90 days after shipment. UCT will replace any items that prove to be defective during this time period. The exclusive remedy requires the end user to first advise UCT of the defective product by phone or in writing and must include order number, the lot number and the shipping date.

To initiate this action, photographs of the product, including packaging and labeling of the containers, must be submitted to the UCT Representative for approval. With approval a return authorization can be initiated, and must be received within 30 days. Once the materials arrive at UCT a further inspection of the materials must be completed and accepted by our Quality Manager prior to further action of credits or replacement. UCT's total liability is limited to the replacement cost of UCT products.

This warranty does not apply to damage resulting from misuse.

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