

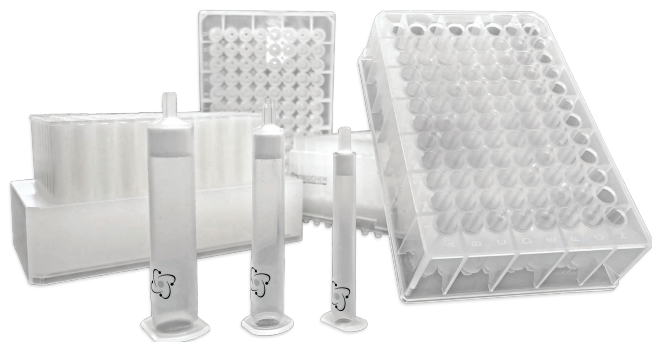


Panthera Deluxe

Polymeric SPE Products



Panthera Deluxe polymeric SPE products are the new offering from Orochem's wide range of SPE products. Panthera Deluxe sorbent is based on a poly-DVB polymer, which provides both hydrophobic and hydrophilic retention. It has high capacity and retention of a full range of neutral, basic, and acidic chemicals.



Features

- ▶ Stable over pH range of 1-14
- ▶ Available in various cartridge and 96-well plate formats, including microelution plates

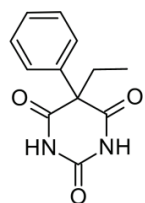
Advantages

- ▶ High recoveries for small molecules, such as THCA which gave relatively low recovery using filter plate.
- ▶ High selectivity and reduced matrix effect
- ▶ Cost effective

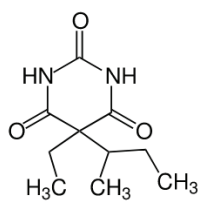


Barbiturates and THCA in urine

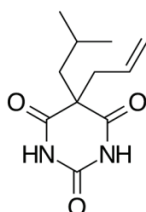
Compounds :



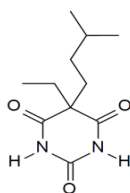
Phenobarbital



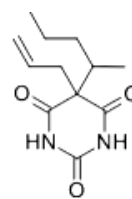
Butobarbital



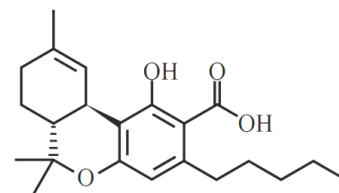
Butalbital



Amobarbital



Secobarbital



THCA

SPE EXTRACTION METHOD:

Panthera Deluxe 30 mg/cc SPE cartridge
(catalog # SYPA6030-01)

HPLC METHOD:

Column: Orochem Gazelle C18 UHPLC column 2.1 x 50 mm, 1.5 µm

Catalog Number: G17BQ-931

Mobile Phase: A: 0.1 % formic acid
B: 0.1 % formic acid in methanol

Gradient: Initial 30% B then gradient to 40% B at 0.5 min, to 60% B at 2.5 min, to 85% B at 4.0 min, hold until 4.7 min, then switch to 95% B at 4.71 min, hold until 5.6 min, then switch to 30% B at 5.61 min and hold until 7.0 min

Flow rate: 0.3 mL/min

Injection volume: 20 µL

SMRM Detection: API 4500

Enzyme Hydrolysis:

Pipette 100 µL urine into each collection plate well. Add 50 µL of Internal Standard spiking solution, 20 µL of glucuronidase solution and 50 µL of 200 mM pH 6.8 ammonium acetate buffer. Mix. Incubate at 55 °C for 30 minutes.

SPE Condition:

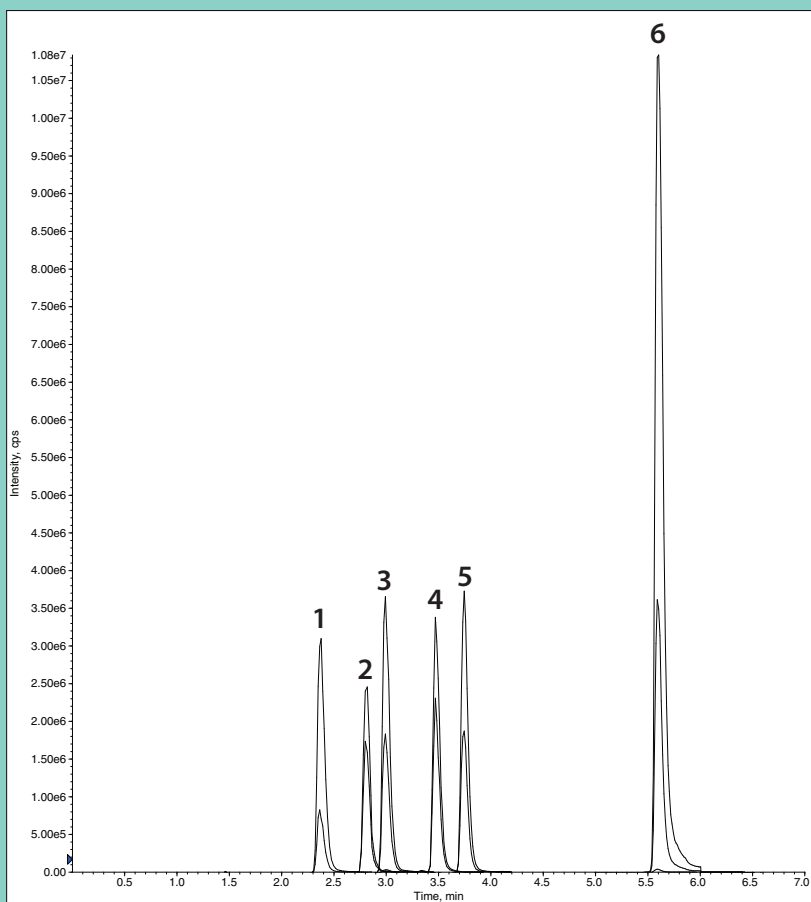
1 ml of methanol, followed by 1 ml of water

Load:

Load hydrolyzed sample solution on SPE cartridge

Wash, Elute, Evaporate and Reconstitute:

Wash SPE with 1 mL of water followed by 1 mL of mixture of methanol and water, and thoroughly flush with air. Elute with organic solvent. Evaporate to dryness and reconstitute in mobile phase.



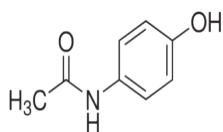
1	Phenobarbital
2	Butobarbital
3	Butalbital
4	Amobarbital
5	Secobarbital
6	THCA

Results:

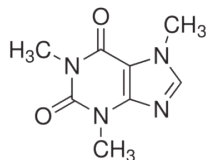
	Recovery%	CV%
<i>Phenobarbital</i>	101.3	5.2
<i>Butobarbital</i>	95.9	6.4
<i>Butalbital</i>	97.9	6.2
<i>Amobarbital</i>	104.1	5.6
<i>Secobarbital</i>	100.5	6.9
<i>THCA</i>	88.5	7.5

Pharmaceutical Analysis

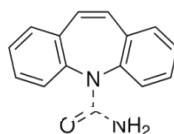
Compounds :



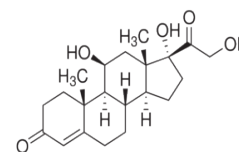
Acetaminophen



Caffeine



Carbamazepine



Hydrocortisone

SPE EXTRACTION METHOD:

Panthera Deluxe cartridge, 30 mg/ 1 cc
 (Catalog # SYPA6030-01)

HPLC-UV METHOD:

Column:	Orochem Reliasil C8 HPLC column 4.6x 150 mm, 3 μm
Catalog Number:	R3FI-102
Mobile Phase:	Acetonitrile in water, gradient from 10% at 2 min to 70% at 8 min; run time, 10 min
Flow rate:	1 mL/min
Injection volume:	10 μL
UV Wavelength:	254 nm

Results:

	Recovery%	CV%
<i>Acetaminophen</i>	95.1	2.9
<i>Caffeine</i>	85.6	2.7
<i>Carbamazepine</i>	97.3	3.2
<i>Hydrocortisone</i>	95.4	3.0

Condition:

1 mL of methanol, followed by 1 mL of water



Load:

100 μL of standard mix in 5% methanol



Wash:

1 mL water, followed by 1 mL of 5% methanol



Elute:

1 mL of methanol



Evaporate and Reconstitute:

100 μL of 10% acetonitrile



Main Pain Management Drugs in Urine

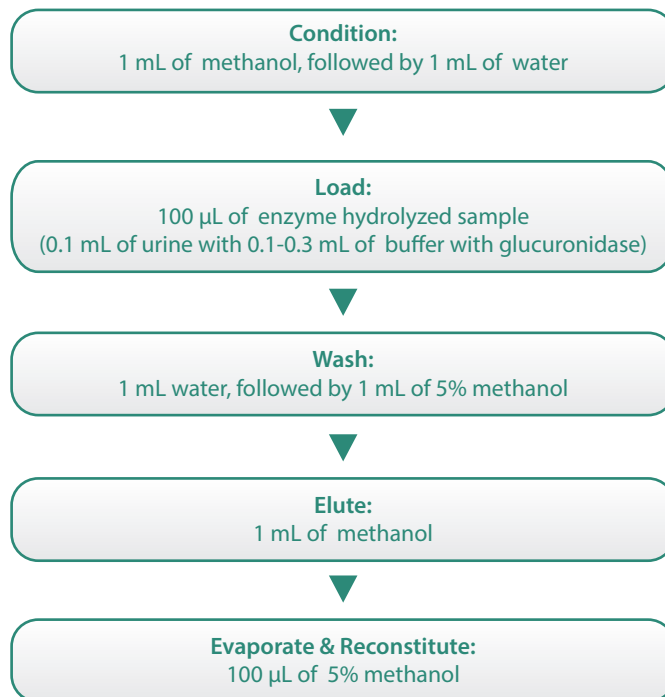
Compounds: Over 50 Pain Management Drugs

SPE EXTRACTION METHOD:

Panthera Deluxe 30 mg/1 cc SPE cartridge
(catalog # SYPA6030-01)

HPLC METHOD:

Column: Orochem Gazelle C18 UHPLC column 2.1 x 50 mm, 1.7 µm
 Catalog Number: G17BQ-931
 Mobile Phase: A: 20 mM NH₄OH, 0.1% formic acid in water
 B: 0.1 % formic acid in methanol
 Gradient: Initial 30% B then gradient to 40% B at 0.5 min, to 60% B at 2.5 min, to 85% B at 4.0 min, hold until 4.7 min, then switch to 95% B at 4.71 min, hold until 5.6 min, then switch to 30% B at 5.61 min and hold until 7.0 min
 Flow rate: 0.3 mL/min
 Injection volume: 10 µL
 Column Temperature: 40°C
 SMRM Detection: API 4500



Name	Mass Spec Condition					Results
	Q1	Q3	DP	CE	CXP	Recovery%
Amphetamine	136.0 136.0	91 119.1	48 48	14 11	7 7	81.1
Norketamine	224.0 224.0	179.0 125.0	90 90	21 45	13 7	74.2
MDMA	194.1 194.1	105.1 163.1	88 88	32 16	8 12	100.5
Methamphetamine	150.1 150.1	91.1 119.1	78 78	25 15	9 10	92.5
Ketamine	238.1 238.1	125.1 207.1	107 107	38 19	10 8	89.3

Mass Spec Condition						Results
Name	Q1	Q3	DP	CE	CXP	Recovery%
Nordiazepam	271.0 271.0	165.1 140.0	125 125	38 38	15 10	102.4
Oxazepam	286.7 286.7	241.1 269.1	108 108	29 20	8 10	104.2
Temazepine	301.0 301.0	255.1 177.0	115 115	30 50	8 15	100.2
Lorazepam	321.1 321.1	257.0 229.1	111 111	29 40	10 9	102.2
α -Hydroxyalprazolam	325.0 325.0	297.1 216.1	100 200	36 51	10 8	102.4
α -Hydroxymidazolam	342.1 342.1	203.0 168.1	110 110	38 50	15 5	101.1

Mass Spec Condition						Results
Name	Q1	Q3	DP	CE	CXP	Recovery%
Hydromorphone	286.1 286.1	185.0 157.1	150 150	39 54	14 15	94.1
Morphine	286.1 286.1	152.1 165.1	140 140	80 53	10 10	95.8
Norhydrocodone	286.2 286.2	199.1 171.0	169 169	50 61	10 10	95.4
Codeine	300.0 300.0	165.1 153.1	140 140	55 57	15 12	91.5
Hydrocodone	300.1 300.1	199.1 128.1	153 153	38 73	15 12	98.8
oxymorphone	302.1 302.1	227.1 198.2	125 125	39 60	8 7	93.2
noroxycodone	302.1 302.1	187.2 227.1	142 142	33 38	10 10	90.9
oxycodone	316.1 316.1	241.1 256.1	130 130	38 34	10 10	97.6
6-MAM	328.1 328.1	165.1 211.1	150 150	50 33	10 10	94.7

Mass Spec Condition						Results
Name	Q1	Q3	DP	CE	CXP	Recovery%
Norfentanyl	233.0 233.0	84.1 150.2	105 105	24 23	7 15	116.9
Norbuprenorphine	414.2 414.2	165.2 115.1	189 189	100 124	10 10	100.8
Meperidine	248.0 248.0	220.1 174.2	130 130	30 30	7 12	104.3
O-Desmethyltramadol	250.1 250.1	58.1 77	90 90	38 80	5 7	115.6
Normeperidine	234.0 234.0	160.1 56.1	105 105	23 30	10 5	108.9
Methadone	310.1 310.1	265.1 105.1	100 100	19 30	10 10	95.1
Methadone	302.1 302.1	187.2 227.1	142 142	33 38	10 10	90.9
EDDP	278.1 278.1	186.2 234.1	100 100	47 40	14 10	111.8
Tapentadol	222.1 222.1	107.1 121.1	80 80	32 29	10 10	108.8
Fentanyl	337.1 337.1	188.2 132.1	133 133	30 38	14 12	113.5
N-Desmethyltapentadol	208.1 208.1	107 121.1	102 102	31 25	10 12	91.8
Buprenorphine	468.1 468.1	414.3 396.3	175 175	49 54	9 9	113.2

Mass Spec Condition						Results
Name	Q1	Q3	DP	CE	CXP	Recovery%
Zolpidem	308.1 308.1	235.1 263.1	170 170	45 35	8 9	100.1
PCP	244.1 244.1	159.2 86.1	62 62	19 15	10 8	115
Meprobamate	219.1 160.1	158.1 83.1	22 40	11 20	11 7	91.2
Benzoylcegonine	290.1 290.1	168.1 105	50 50	25 41	10 10	96.1
Carisoprodol	261.0 261.0	97.1 176.2	52 52	22 12	9 9	91
Cotinine	177.1 177.1	80 98.1	99 99	35 29	7 7	91.3

Panthera Deluxe vs Competing Products

SPE Plate	Recovery% (CV%)	Recovery% (CV%)	Recovery% (CV%)	Recovery% (CV%)
	Acetaminophen	Caffeine	Hydrocortisone	Carbamazepine
A	88(11)	88(12)	76(12)	91(6)
B	51(21)	106(27)	88(26)	108(24)
Celerity Deluxe	99(6)	102(4)	72(15)	101(4)
Panthera Deluxe	95(3)	86(3)	97(3)	95(3)

- A and B are competitors' polymeric SPE plates
- All plates are 25 -30 mg/well.
- Four Chemicals are spiked to human plasma at 250 ng/mL
- Recovery is based on peak area

Applications for Panthera Deluxe

Molecule application list

Amphotericine	Chlorozoxazone	Hydrochloroquine	Memantine	Reloxifene
Albendazole	Dapagliflozine	Ibuprofen	Nitrofurantoin	Saxagliptin
Amphotericine B Liposomal	Dolutegravir	Isosorbide mononitrate	Paliperidon	Sofosbeuvir
Bile Acids	Doxorubicin	Lamivudine	Pramipexole	Tenofovir
BUPIVACAINE Liposomal	Gefitinib	Loratidine	Pregabalin	Topiramate

For Free Consultation, please Enquire
Dr. Anil Oroskar, PhD
Dr. Asha Oroskar, PhD

