

Extraction of Basic Drugs and Metabolites From Urine Using SPE Cartridges



UCT Part Numbers

CSXCE106

Clean Screen® Xcel I Column
130 mg, 6 mL

CSXCE103

Clean Screen® Xcel I Column
130 mg, 3 mL

Procedure:

1. Sample Preparation

- To 1-5 mL urine add 1-2 mL of 0.1M Phosphate buffer (pH=6.0 ± 0.5).
- Add appropriate volume and concentration internal standards.

Note: See alternate hydrolysis step for opiate samples.
Alternate Hydrolysis Step

- To 1-5 mL urine sample 1-2 mL of acetate buffer (pH= 5.0) containing 5,000 units/mL β -glucuronidase.
- Or**, add 500 μ L of acetate buffer and 25 μ L of concentrated β -glucuronidase.
- Vortex and heat for 1-2 hours at 65°C. (Hydroxylamine can be added to sample if oxime derivative is preferred.)
- Allow sample to cool.
- Do not adjust pH sample is ready to be added to extraction column.

2. Apply Sample to Column

- Load sample directly to column without any preconditioning.
- Pull sample through at a rate of 1-2 mL/ minute.
- Dry column thoroughly under vacuum (10 mm Hg) or positive pressure (~ 80-100 psi) for 1 minute.

3. Wash Column

- Wash sample with 1-2 mL of 2% acetic acid/ 98% methanol.
- Dry column thoroughly under vacuum (10 mm Hg) or positive pressure (~ 80-100 psi) for a minimum of 5 minutes.

Note 2: It is important to dry the column thoroughly to achieve the highest recovery of all compounds. Any residual moisture will slow down the drying of the elution solvents prior to derivatization for GC/MS analysis. Also, any residual moisture could reduce the reactivity of the derivatization agent resulting in low GC/MS sensitivity.

4. Elution

- Elute samples with 1-2 mL methylene chloride/ iso-propanol/ammonium hydroxide (78/20/2).
- Evaporate fraction to complete dryness under stream of dry air or nitrogen at ~ 30-40°C.

GC/MS Analysis

It is recommended to add 50 μ L of ethyl acetate to 50 μ L of derivatization agent and react at ~70°C for 30 minutes. Inject 1-2 μ L of cooled (50:50) solution in the GC/MS system for analysis.

LC/MS Analysis

Reconstitute in methanol or appropriate mobile phase.

Representative Analytes Extracted

Amphetamine Methamphetamine	MDMA/MDA/ MDEA	Opiates (7)	Methadone/ EDDP
Sympathomimetics	Meperidine/ Normeperidine	Phencyclidine	Cocaine/ Benzoyllecgonine
Tricyclic Antide- pressants (7)	Cyclobenzaprine	Fentanyl/Norfentanyl	Sertraline
Tramadol/ Nortramadol	Diphenhydramine	Citalopram	Clonidine



DCN-105001-166

UCT, LLC • 2731 Bartram Road • Bristol, PA 19007 800.385.3153 • 215.781.9255

www.unitedchem.com Email: methods@unitedchem.com

©UCT, LLC 2010 • All rights reserved

