

Simultaneous 96-well Extraction of Urine Samples for Drugs of Abuse Analysis



INTEGRA, in conjunction with DPX Labs LLC, has produced an application note that describes a novel high throughput semi-automated sample method for processing urine samples ready for drugs of abuse analysis by LC-MS/MS.

Using an INTEGRA VIAFLO 96 electronic pipette with DPX mixed mode tips, a single 96-well plate loaded with samples can be extracted and ready for LC-MS/MS analysis in less than ten minutes eliminating the need for a time-consuming evaporation step.

Sample preparation is required to remove matrix interferences from urine samples prior to LC-MS/MS analysis. This procedure is typically very time-consuming and is generally the “bottleneck” for laboratory analysis. DPX extraction is a highly reproducible and sensitive dispersive SPE method that requires much less solvent compared to other SPE techniques.

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The application note describes how an INTEGRA VIAFLO 96 electronic pipette was used to simultaneously undertake, in each well of a 96-well plate, the various steps of the DPX protocol (analyte binding, resin washing, analyte elution). Results from this semi-automated method are shown to be linear, accurate, and reproducible. All correlation coefficients for the protocol were greater than 0.99 for the range of 12.5 - 400 ng/mL.

The product is a handheld 96-channel electronic pipette that enables fast, precise and easy simultaneous transfer of 96 samples from microplates without the cost of a fully automated system. The electronic pipette requires no special skills or training to operate it. Fast replication or reformatting of 96-well plates and high precision transferring of reagents, compounds and solutions to or from microplates with the VIAFLO 96 is as easy as pipetting with a standard electronic pipette into a single tube. Four pipetting heads with pipetting volumes up to 12.5 µl, 125 µl, 300 µl or 1250 µl are available for the VIAFLO 96. These pipetting heads are interchangeable within seconds enabling optimal matching of the available volume range to the application performed.

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