

thermo scientific

# SPOT ON

The faster path to MS analysis

**VERISPRAY**  
PaperSpray Ion Source



**ThermoFisher**  
SCIENTIFIC

# The SPOT ON path to fast MS analysis



VeriSpray ion source mounted to a Thermo Scientific triple quadrupole mass spectrometer for worry-free operation, faster sample turnaround times (TAT), reduced per sample costs, and high-confidence MS-based results.

Day after day, analytical testing laboratories face considerable challenges due to backlogs of time-critical samples, rising per-sample costs, availability of skilled laboratory technicians, and chromatography maintenance and downtime.

The Thermo Scientific™ VeriSpray™ PaperSpray ion source uniquely addresses these concerns. Combine the VeriSpray ion source with next-generation Thermo Scientific™ mass spectrometers to reduce time to results and cost per test with automated, high-throughput, direct mass spectrometry (MS)-based sample analysis. The VeriSpray ion source allows use of “dilute and shoot” methods to minimize solvent consumption and time-consuming sample preparation steps like derivatization, while avoiding needs for expert operators and instrument downtime.

For laboratories currently performing LC or GC methods, or for those that want to add the robust sensitivity and selectivity of MS-based tests, the VeriSpray ion source provides an ideal alternative to the complexity of chromatography-based solutions.

## Achieve remarkable simplicity

For many tests, the VeriSpray ion source solution eliminates time-consuming, complicated off-line sample preparation and chromatographic separation, simplifying MS analyses for any user. The sensitivity and selectivity of MS-based analysis and quantification of compounds in complex matrices are now more accessible than ever before.

## Reduce sample turnaround time

The VeriSpray ion source solution permits high-throughput analysis of unprocessed samples in just one step. By minimizing sample preparation and eliminating chromatography separation time, MS results can be obtained in less than two minutes. With the VeriSpray ion source, there is no chromatographic downtime or maintenance.

## Lower costs per test

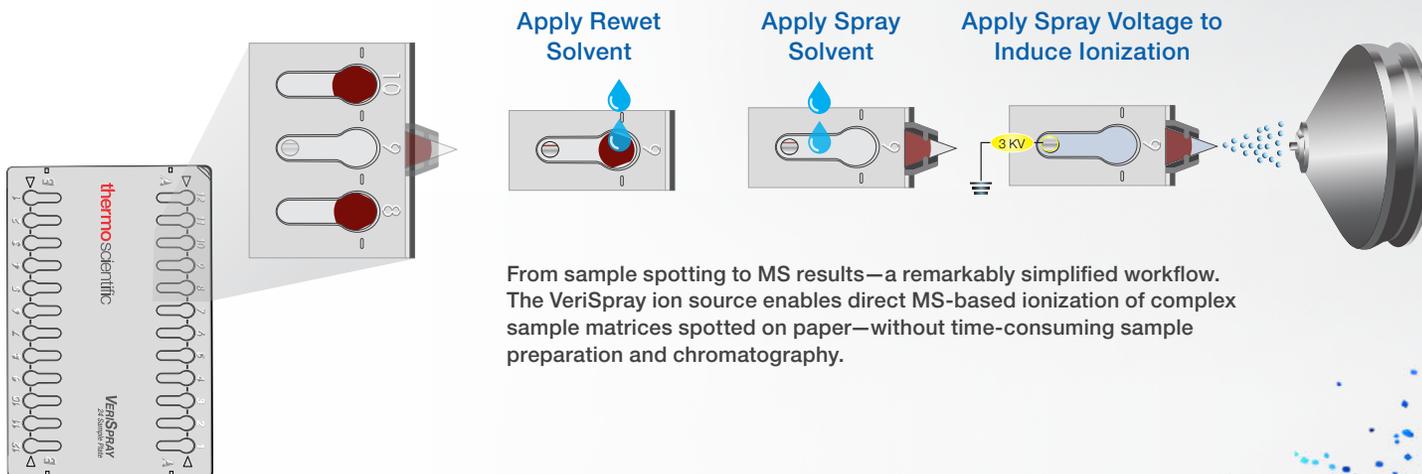
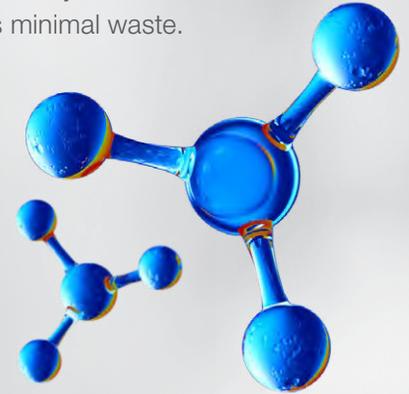
Compared to LC, the VeriSpray ion source substantially reduces solvent consumption and disposal, and eliminates LC or GC instrument maintenance costs and extra derivatization steps. By making the specificity and sensitivity of MS results available to non-experts, you can run more tests in house, saving money spent on send outs.

## Automate analyses

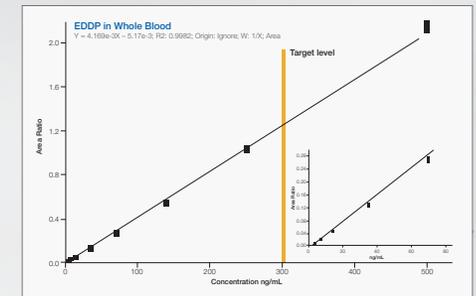
A VeriSpray ion source solution can run up to 240 samples unattended. For automated sample spotting, the VeriSpray sample plates are compatible with robotic spotters. Barcode reading capabilities enable integration into Laboratory Information Systems (LIS).

## Go green

Environmentally friendly, the VeriSpray ion source reduces solvent consumption. The VeriSpray ion source itself consumes very little solvent and produces minimal waste.



From sample spotting to MS results—a remarkably simplified workflow. The VeriSpray ion source enables direct MS-based ionization of complex sample matrices spotted on paper—without time-consuming sample preparation and chromatography.

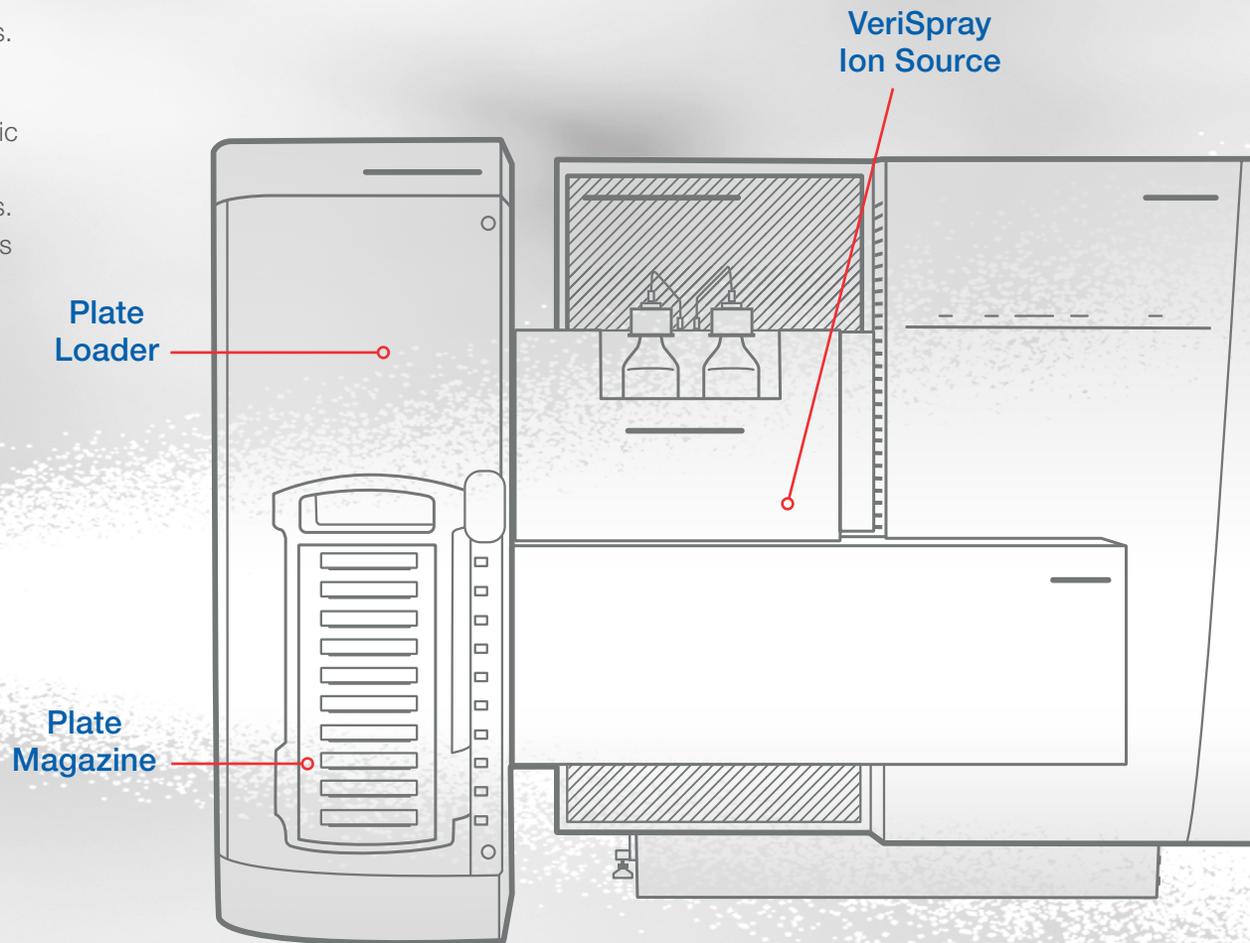


# STATE-OF-THE-ART DESIGN

automates analyses for high throughput and lower costs

With an advanced design, the VeriSpray ion source automates direct MS analyses, helping to improve turnaround time and reduce sample analysis costs.

For high-throughput automation, the VeriSpray sample plates can be spotted using popular robotic spotters. The plate loader holds up to ten plates, allowing unattended analysis of up to 240 samples. Plate loader barcode reading capability streamlines laboratory workflows by allowing integration into LIS. Automation is enhanced with data acquisition by Thermo Scientific™ Xcalibur™ software (version ≥4.3 SP1) and Thermo Scientific™ TraceFinder™ software (version ≥4.1 SP5).



VeriSpray system showing the plate loader with ten-plate magazine, and VeriSpray ion source, installed on a Thermo Scientific triple quadrupole mass spectrometer.

## VeriSpray 24-sample plate for productivity and tracking

The microplate format of the VeriSpray 24-sample plate fits commercial robotic spotters. The barcode and paper strip provide a unique location identifier for each sample.

VeriSpray 24-sample plate with view of barcode in plate magazine.



## Single use sample cartridge

The sample plate allows spotting of any fluid directly to the paper cartridge. The sample is applied and allowed to dry, after which it can be analyzed directly with the VeriSpray ion source. Once the sample has been analyzed the cartridge is locked, preventing subsequent re-analysis.

## Optional plate loader for walkaway analyses

The plate loader with plate magazine holds up to ten plates of 24-samples each, making it possible to run up to 240 samples unattended.

## VeriSpray ion source for simplicity

The VeriSpray ion source transports the sample plate from the plate loader to the inlet of the mass spectrometer for analysis. Spray voltage is applied to the paper to initiate electrospray, and samples may be analyzed in less than two minutes. The VeriSpray ion source can also accommodate manual loading of a single sample plate without use of the plate loader.



VeriSpray ion source operation is fully integrated into the mass spectrometer instrument control software (version  $\geq 3.2$ ).



# WORRY-FREE PRODUCTIVITY

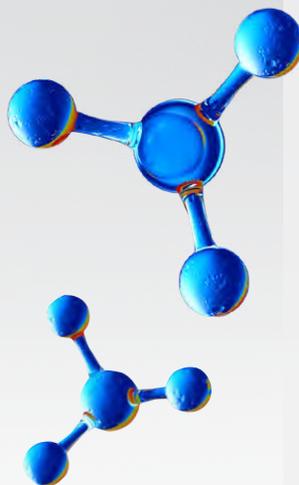
for a breadth of applications

Sample preparation and the complexity of chromatographic separations have posed significant barriers to broad adoption of LC-MS and GC-MS for routine use. The VeriSpray ion source reduces these barriers with direct sample analysis capability that eliminates the need for sample preparation and traditional chromatographic separation for a wide range of applications.

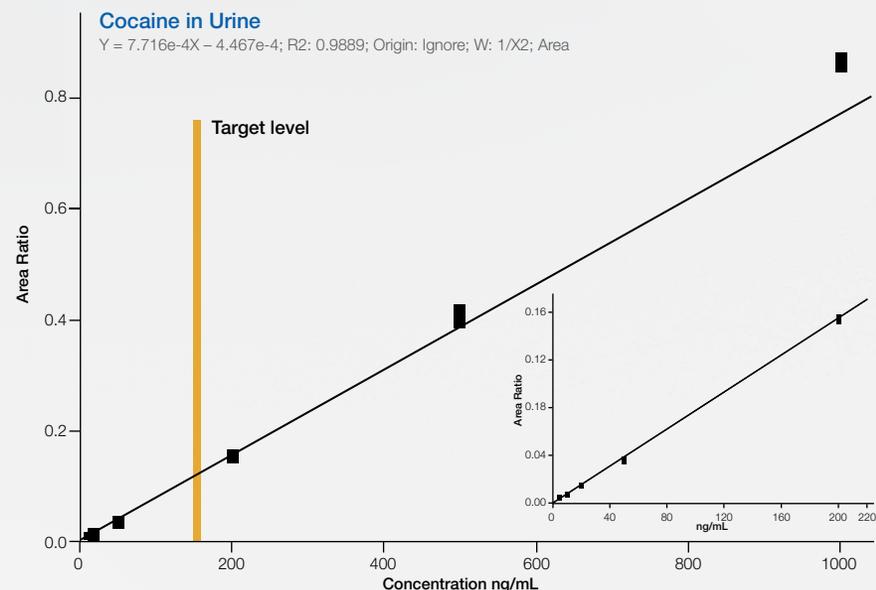
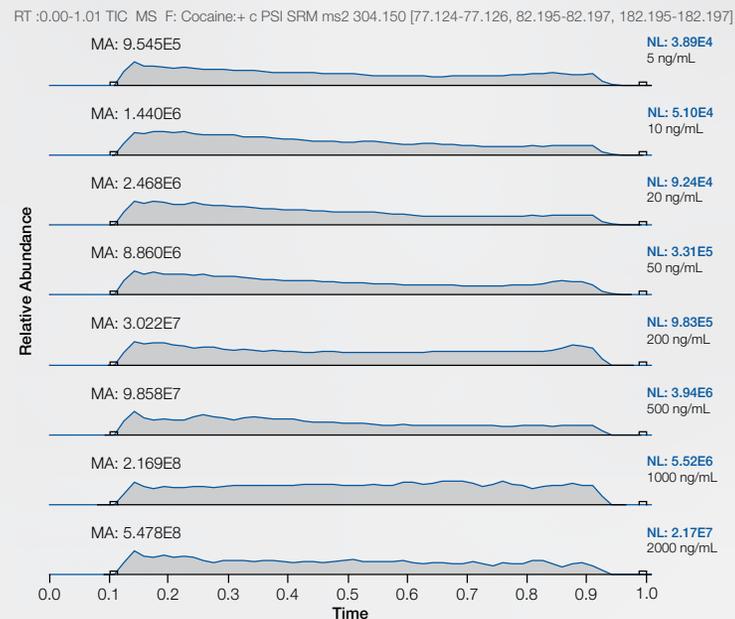
The accuracy, sensitivity, and selectivity of MS are now matched with worry-free operation that reduces sample turnaround time and costs.

## Application benefits

- Avoids rate-limiting, complex sample preparation and long chromatographic runs
- Improves sample-to-sample analysis time
- Reduces solvent consumption and waste

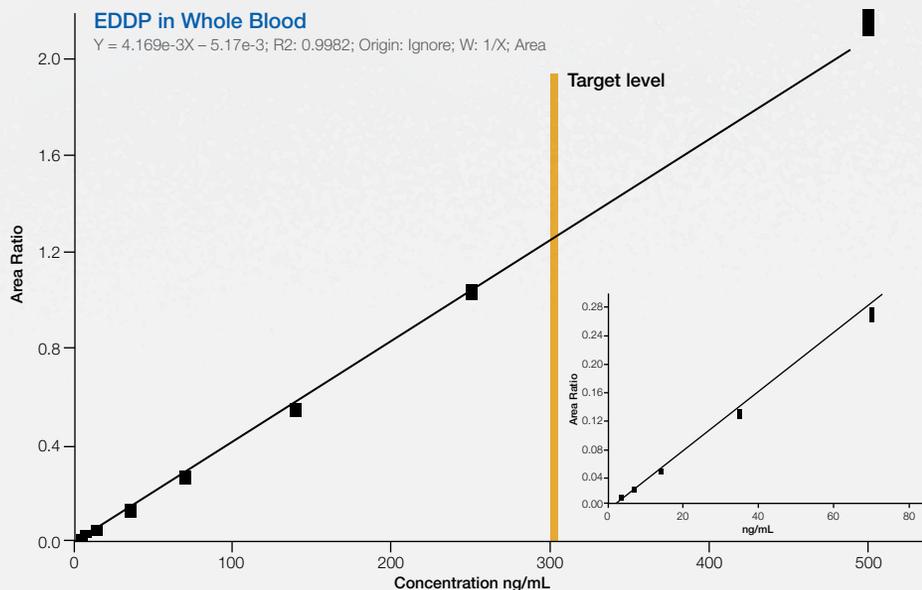
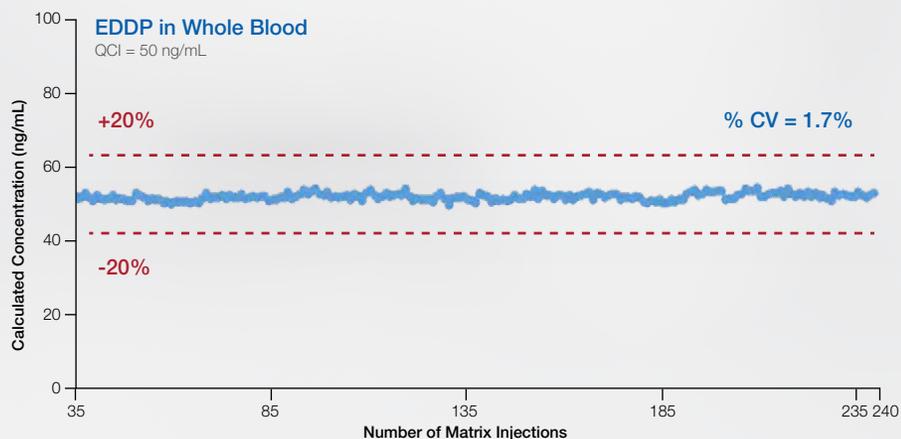


## High-confidence quantification of cocaine in urine



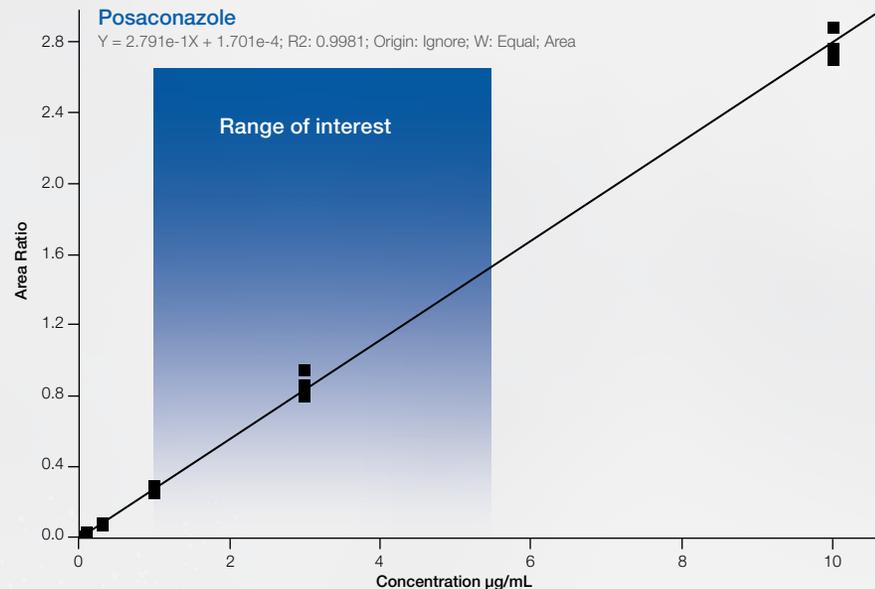
Quantitation of cocaine in urine. The chromatograms show the presence of cocaine confirmed at 5 ng/mL using the VeriSpray ion source coupled to the TSQ Quantis mass spectrometer. The detection levels shown are more than adequate for most drugs-of-abuse screening applications.

## Robust and reproducible



Overlays of three calibration curves of EDDP in blood, calculated at the beginning, middle, and end of the study, show robust and consistent performance under challenging conditions without sample cleanup. The study involved running 240 samples of EDDP spiked in whole blood with a run time of approximately two minutes that covered an eight-hour shift.

## Brings more methods in-house, avoiding costly send-outs



Analyte	LOD (µg/mL)	LOQ (µg/mL)
Voriconazole	0.02	0.06
Itraconazole	0.03	0.09
Posaconazole	0.04	0.15

Quantification of antifungal drugs with the VeriSpray ion source coupled to the TSQ Altis mass spectrometer. The VeriSpray ion source makes it possible to obtain these quantification results, quickly without sample send outs. Except for the addition of internal standard solution, no sample preparation was performed prior to analysis. Plasma-based calibration curves for the three antifungal agents showed excellent linearity in the desired quantitative range of 0.1 to 10 µg/mL.



## COMPATIBLE mass spectrometers

The VeriSpray ion source is compatible with the following Thermo Scientific mass spectrometers.

- Thermo Scientific™ TSQ Altis™ mass spectrometer
- Thermo Scientific™ TSQ Quantis™ mass spectrometer
- Thermo Scientific™ TSQ Fortis™ mass spectrometer
- Thermo Scientific™ TSQ Quantiva™ mass spectrometer
- Thermo Scientific™ TSQ Endura™ mass spectrometer



Spot more at [thermofisher.com/VeriSpray](https://thermofisher.com/VeriSpray)



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