

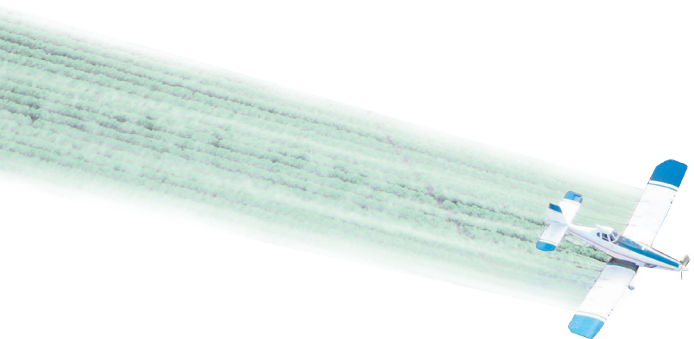
APPLICATION SOLUTION

PESTICIDE SCREENING



Waters

THE SCIENCE OF WHAT'S POSSIBLE.®



The most innovative pesticide screening solution ever built for food, beverage, and water testing.

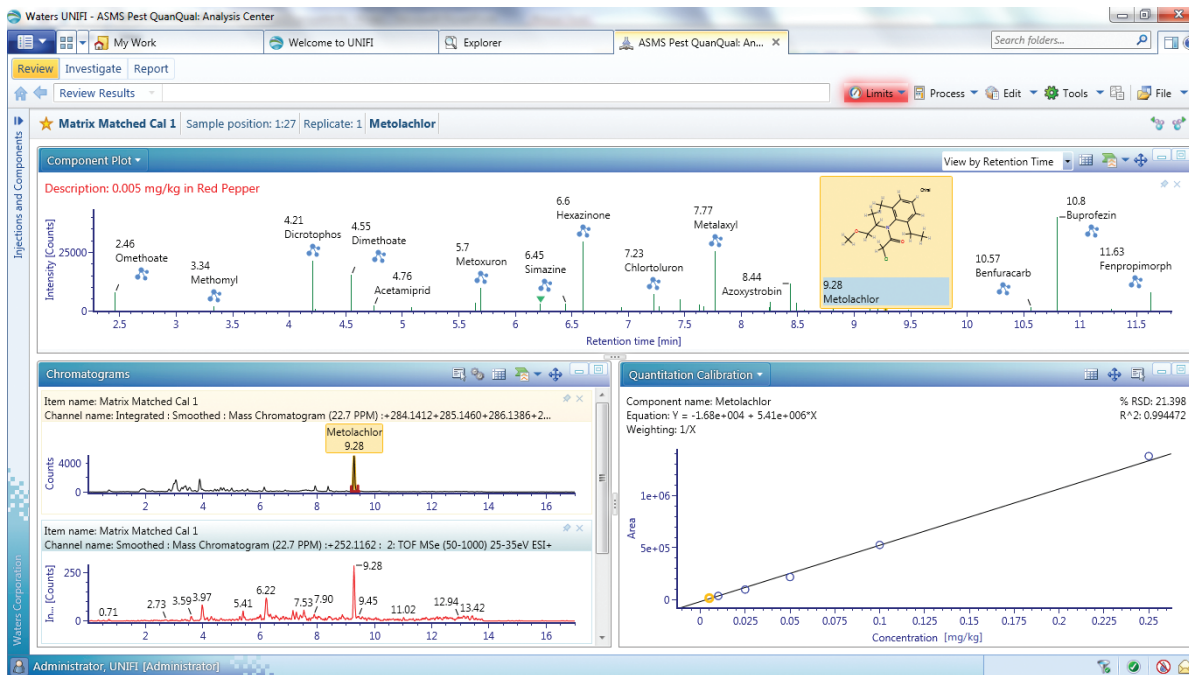
As the global food trade continues to expand, so does the challenge of meeting the requirements of ever-changing food safety regulatory systems. Evolving Codex and EU guidelines reflect these ongoing developments, and also serve to promote the use of new technology to solve the challenges we are facing.

Further complicating the situation is the fact that pesticides approved for use in one country may not be approved in another. As a consequence, laboratories limit testing to the specific residues they know to be critical largely based on prior intelligence. However, they “don’t know what they don’t know” – and with the continuing trend of globalization within the food trade, laboratories are expected to ensure the safety of the food supply – no matter where that food was produced.

As a simple, yet widely relevant illustration, merely ensuring access to safe drinking water has become a more complex task than ever before. Needless to say, while working to conserve the environment and protect human and animal health, governmental and commercial laboratories are seeking out the most effective analytical innovations.

Ideally suited for the current analytical challenges, Waters® Pesticide Screening Application Solution with UNIFI® gives your scientists what they need to test more food products and environmental samples for increasing numbers of residues and contaminants – not just at, but below the regulatory limits.

EXCEED EXPECTATIONS.
TODAY AND TOMORROW.



The Component Plot shows all components identified in the sample relative to the retention time. In the example shown here, pesticides spiked into red pepper at 0.005 mg/kg have been easily identified and confirmed.

In the face of increasing regulatory pressures, an effective pesticide application solution arrives.

The increasing global regulatory restrictions, combined with expanding consumer demand, have necessitated the requirement for laboratories to screen for larger numbers of pesticides at lower concentrations than ever before. Meanwhile, legislation pertaining to the testing of residues and contaminants in food and beverages for exported, imported, and domestic consumption also continues to become more rigorous. Across the board, environmental testing requirements are broadening to include a steadily more comprehensive range of pesticides and other chemical contaminants, at extremely low concentrations.

As a consequence of all these developments, the need to meet mandated detection limits, develop simple sample preparation techniques for diverse and complex matrices, and the desire to increase sample throughput have increased exponentially for scientists working in the chemical residue screening arena.

Effectively meeting all of today's regulatory challenges head on, Waters Pesticide Screening Application Solution with UNIFI delivers the ease-of-use, sensitivity, stability, reproducibility, and throughput scientists need to successfully and profitably perform pesticide residue screening in compliance with regulatory requirements – today and in the future.

Waters Pesticide Screening Application Solution with UNIFI is custom built to minimize both false positive (non-compliant) and false negative (compliant) findings.

Now, for the first time, you will be able to reliably report the presence and absence of pesticide residues, easily streamline workflows, and increase the speed of analysis of complex matrices using the scientific library functionality and flexible reporting templates.



SURPASS FOOD SAFETY REQUIREMENTS.

A purpose-built collection of the best-in-class components ever built for food, beverage, and water testing.

UNIFI is the first and only Scientific Information System that allows your laboratory to operate at the forefront of science. For the first time, you can employ consolidated state-of-the-art data acquisition, data processing, and data management requirements with access to an extensive scientific library – allowing you to combine all the components necessary for effective residue screening.

Unparalleled collaboration

UNIFI unleashes the power of true dynamic collaboration – changing and accelerating scientific developments and innovations. Store, make use of, and share all your data, all methods, and reports.

Make use of your prior work, as well as your colleagues' data and findings, to drive your science forward.

Science driven by collective intelligence

With UNIFI, you can always answer questions like, “What is this compound? Have I seen this before? Has anyone seen this before?”

UNIFI ensures that your lab is always starting ahead – armed with, and benefitting from, the collective intelligence of all your scientists.

And because you can immediately see what's been done in the past, you can make decisions more quickly, easily, and confidently.

The result

It's quickly and impressively summed up: continuous improvement, delivering constantly evolving state-of-the-art analytical methods, and permitting scientists to make the correct decision the first time, every time.

ACQUITY UPLC® I-Class >
Xevo® G2-XS QToF
UNIFI
Methods
Waters Analytical Standards
and Reagents
Chemistries
Pesticide Scientific Library





A comprehensive solution for high-throughput, multi-residue pesticide screening.



**DisQuE™ Dispersive
Sample Preparation Kit**
Fast, simple
pesticide extractions

PREPARATION



**ACQUITY UPLC
I-Class System**
High resolution
separations of
trace analytes

SEPARATION



Xevo G2-XS QToF
Accurate mass
measurements
for precursor
and product ions

DETECTION



UNIFI Scientific Library
The ultimate
reference resource

INTERPRETATION

UNIFI, FIRST OF ITS KIND, SCIENTIFIC INFORMATION SYSTEM – IT COULD ONLY COME FROM WATERS

- Exceed regulatory guidelines for exact mass screening for residues
- Reliably detect, quantify, and report the presence of residues, minimizing both false positive and false negative findings
- Identify expected and unexpected residues with the UNIFI Scientific Library
- Build a historical record of compliance for retrospective review as new challenges emerge
- A next-generation solution built upon proven, category-leading Waters technology

The UNIFI advantage.

Laboratories today are being asked to work smarter, work faster, and make the most of existing resources.

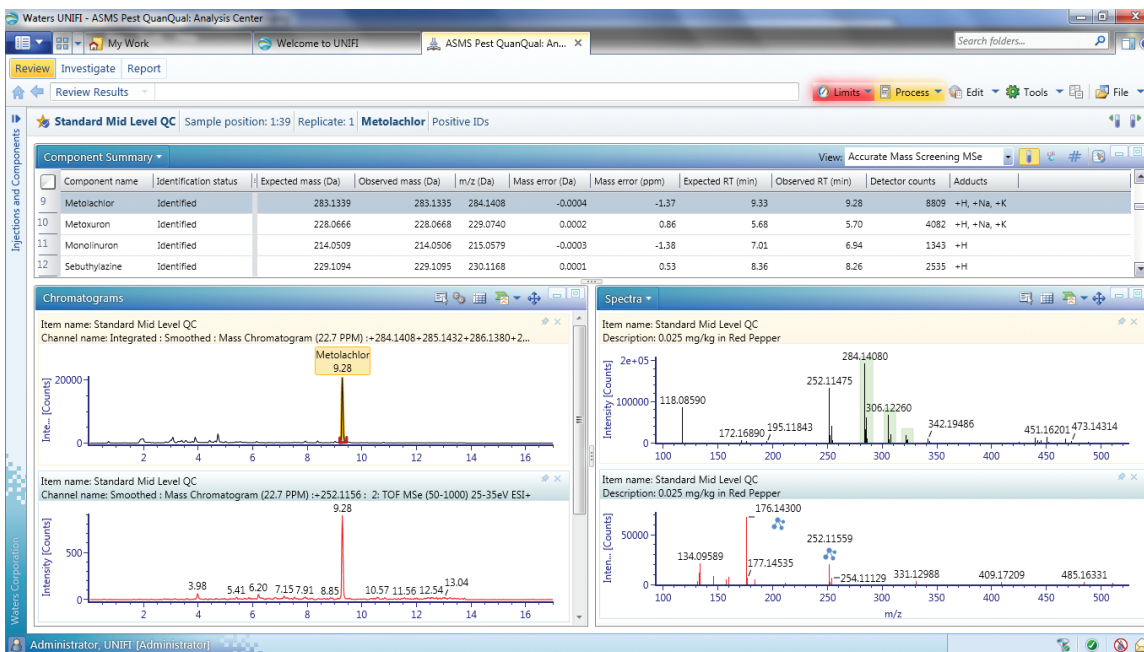
That is why the answer is UNIFI: Capture complex high-end mass spectrometry and chromatography data on one platform. Get more information from a single injection. Gain the ability to test, quantify, and confirm the presence of pesticides in a single measurement.

And the result?

Save time and effort, eliminate reworking of processes, and reduce the list of compounds you have to check in during follow-up testing.

The obvious way for laboratories to meet all these demands is to be able to identify expected, as well as unexpected, toxic residues and contaminants in a sample – allowing scientists to see those that are of immediate concern and interest, and beyond.

This is where the UNIFI Scientific Library becomes an invaluable asset – effectively functioning as an expanding repository for scientific knowledge, constantly improving the efficacy of future analyses, and building a historical record of analyses. This allows for retrospective interrogation of data, enhancing the value of the surveillance system and reducing the fear of the unknown.



The Component Summary shows all the components identified in the sample. Information rich MS² data allows confirmation of an identified pesticide to be made using isotopic pattern and accurate mass fragment ion presence. This enables criteria to be set which help minimize false positives and eliminate false negatives. Columns and plots are customizable, enabling all the pertinent data used to make a pesticide identification and confirmation available on one screen.

OUTPERFORM ENVIRONMENTAL REGULATIONS.

Not just an application solution –
a total solution.

The sensitivity, specificity, mass accuracy, and resolution that can be achieved with the Waters ACQUITY UPLC® I-Class System coupled to Xevo® G2-XS QToF make this LC-MS/MS application solution ideal for environmental monitoring.

Exploiting the capabilities of the QToF instrument and the sophisticated chemical elucidation software tools in UNIFI, it is possible to identify both expected and unexpected chemical contaminants that may be present in a sample.

All of the assigned chemicals can be entered and stored in the UNIFI scientific database, enabling subsequent identifications through retrospective analysis based on ToF screening.

ACQUITY UPLC I-CLASS SYSTEM

Superior chromatographic resolving power affords the separation necessary for multi-residue methods for a very large numbers of analytes.



XEVO G2-XS QToF

Provides the ability to obtain both accurate mass precursor ions and fragment ions from a single injection. This allows more information to be generated on sample components, improving confidence and helping reduce false positive results.



WATERS ANALYTICAL STANDARDS AND REAGENTS

Precisely formulated and ready-to-use. Helps you derive optimal performance from your LC/MS instruments and ensure every analysis gets off to an accurate start.



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