

Chromatography Data System Solutions for the Agrochemical Industry

Convert scientific data into useful information throughout the product development process

AGROCHEMICAL PRODUCERS FACE A MOUNTING ARRAY OF CHALLENGES:

- Increasing regulatory testing and documentation requirements as governments exercise greater oversight of chemical use.
- Stronger demands for more environmentally friendly chemicals.
- A growing generics market is putting downward pressure on pricing.
- Competitive pressure to innovate and differentiate products to better meet evolving market needs.

New product development, discovery, and development can be long, costly, and resource-intensive. The data generation process necessary for product registration has created long backlogs for many laboratories.

Waters' innovative data management software can make a direct positive impact on your business by providing valuable information throughout the agrochemical process.

IMPROVE ANALYTICAL DATA MANAGEMENT

Many of the biggest challenges facing agrochemical laboratories revolve around data – capturing it, analyzing it, managing it, and reporting it accurately in registration documentation. Analytical data gathered from the discovery and development process can also provide insights to guide future product development. Waters fulfills these needs with an array of software solutions that allow organizations to:

- Manage increasingly large volumes of data from a comprehensive range of LC, GC, CE, IC, MS, and SFC analytical techniques.
- Make sample management and the regulatory submission process as efficient and error-free as possible.
- Share data openly and seamlessly across the enterprise.
- Employ a chromatography data system (CDS) to improve productivity of scientists during:
 - Running and analyzing samples
 - Controlling analytical instruments
 - Finding data
 - Reporting results

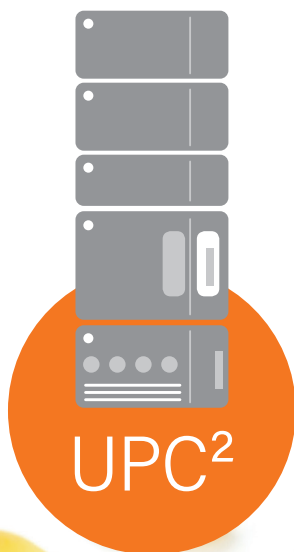
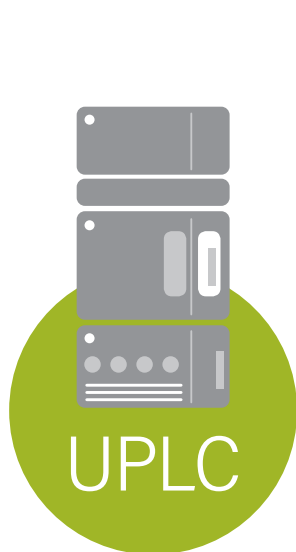


SINGLE SOLUTION CONTROL FOR ANALYTICAL INSTRUMENTS

COMPREHENSIVE INSTRUMENT CONTROL

Agrochemical companies employ a broad array of analytical techniques depending on the particular problem they are trying to solve. For example, new product pesticide testing will often require analysis of mixtures thereby requiring separation techniques such as liquid chromatography (LC), gas chromatography (GC), supercritical fluid technology (SFC), or capillary electrophoresis (CE).

Empower® provides comprehensive control of LC, GC, CE, IC, MS, and SFC systems from a wide variety of vendors, including all major HPLC and UHPLC brands, allowing Agrochemical scientists to standardize data management, data processing, regulatory submission records, and reporting under a single, easy-to-use solution.



EMPOWER CHROMATOGRAPHY SOFTWARE

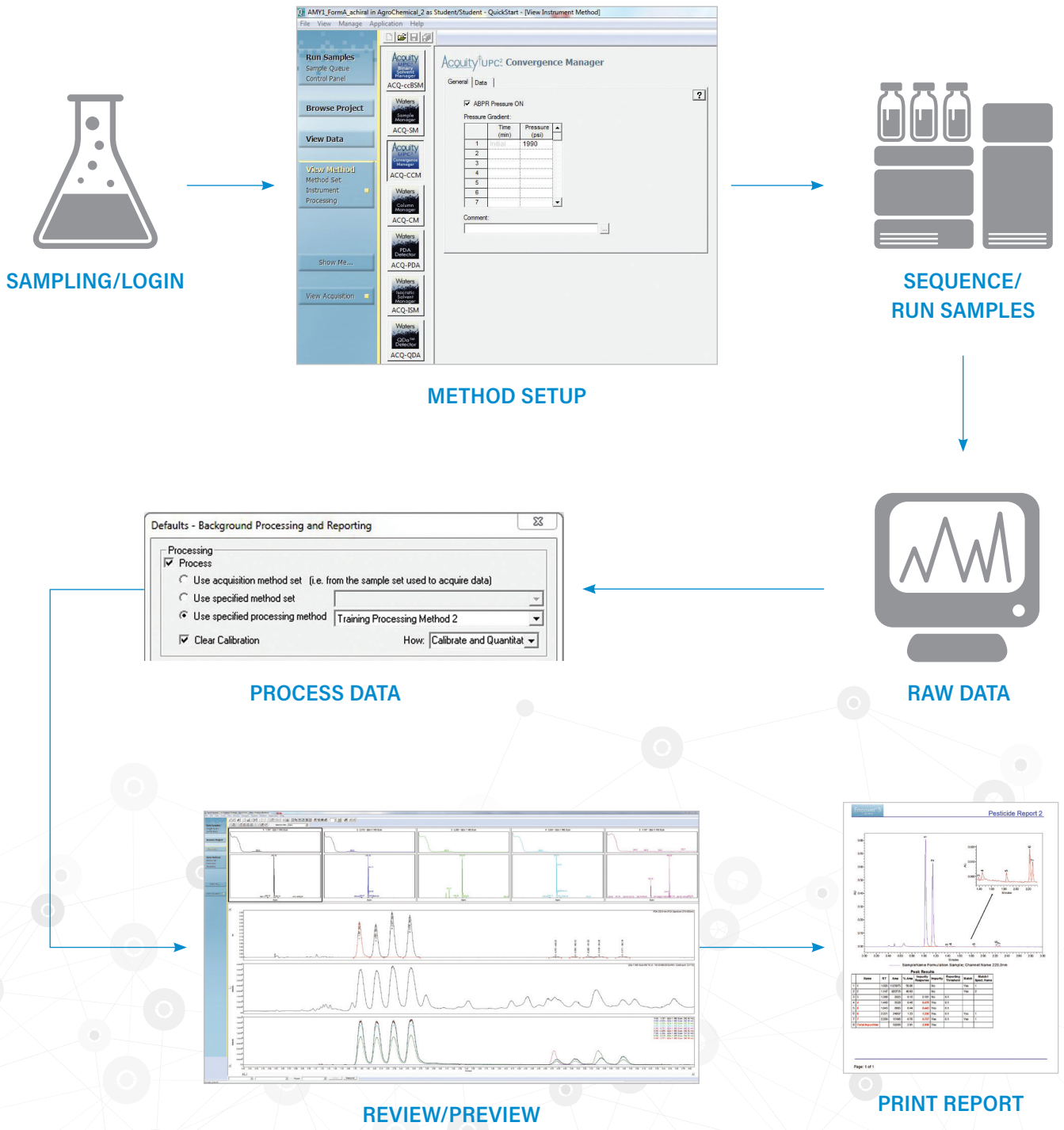
AGROCHEMICAL ANALYSIS WITH EMPOWER



How do I run my samples?

The QuickStart user interface provides the user a single window to easily collect, process, and manage chromatographic data, develop new methods, including PDA and MS data extraction, and customize reports.

A streamlined CDS user interface helps boost the productivity of Agrochemical scientists throughout the entire chromatographic analysis from the initial sample login to the final printed report.



How do I find my data?

Agrochemical scientists work with a wide variety of information within their chromatography data system, e.g., calibration records, sample results, reports, etc. The challenge facing Agrochemical scientists in the Agrochemical industry is finding information when they need it – not only for projects they directly work on but also sharing information for collaboration across geographies. With Empower, all aspects of the chromatographic analysis are automatically captured within an embedded relational database so that Agrochemical scientists can not only easily find information, but also share report templates and calculations with their colleagues.



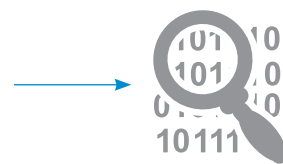
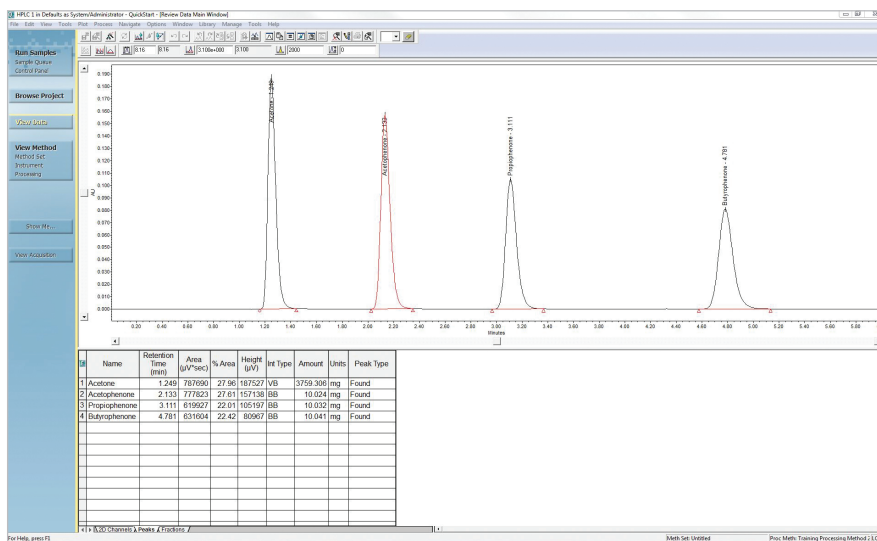
ORIGINAL METHODS AND CALIBRATION CURVE



SAMPLE SETS



STANDARDS USED FOR CALIBRATION



UNCHANGED RAW DATA FILE

UNIQUE RESULT

LC OR GC SYSTEM USED



who collected
who processed
who reviewed
who approved

**WHEN
WHAT
WHY**

How do I report my data?

Although Agrochemical scientists use a wide variety of chromatographic techniques with their CDS, consistently formatted reports helps display information in a familiar manner to facilitate collaboration, information sharing, and regulatory submissions.

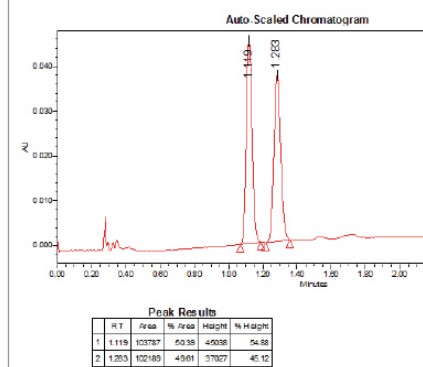
To better promote productivity during report creation, Empower provides a wide selection of standard report templates to assist scientists with reporting their results in an easy and reproducible format. These standard report templates can be used as is or they can be modified to create customized report templates that can be shared across the organization for reporting consistency.

Empower 3 Fungicide Report

SAMPLE INFORMATION

Sample Name:	Flutriafol	Acquired By:	System
Sample Type:	Unknown	System Used:	Production: QDA 15M
Vial:	2.A.5	Acq. Method Sat:	Acq. Method: Flutriafol MeOH
Injection #:	2	Processing Method:	Fundicide PM 1
Injection Volume:	0.50 ul	Channel Name:	PDA Ch1 220nm@4.8nm
Run Time:	10.0 Minutes	Proc. Chnl. Descr.:	PDA Ch1 220nm@4.8nm

Date Acquired: 7/10/2014 9:53:00 PM EDT
 Date Processed: 10/27/2016 11:25:58 AM EDT



Reported by User: System
 Report Method: Fungicide Report
 Report Method ID: 1300
 Page: 1 of 1

Empower 3 Suitability Report

Stacked Chromatograms

System Suitability Results

Sample Name	Resolution	Efficiency
1 Flutriafol	2.47	5365
2 Flutriafol	2.47	4883
3 Triadimenfon	3.99	3959
4 Triadimenfon	4.79	2774
5 Fenbuconazole	4.86	4386
6 Fenbuconazole	4.30	3000
7 Dimiconazole	2014	2214
8 Dimiconazole	6.23	2245
9 Tetraconazole	5.86	5080
10 Tetraconazole	2.34	5430
11 Tebuconazole	6736	
12 Tebuconazole	1.97	6728

Page: 1 of 1

Empower 3's default report templates can be used as is or modified to easily and efficiently report results.

Empower 3 Trending Report

Summary Plot for Channel Name:PDA Ch1 220nm@4.8nm Compens., Peak: Peak1 PDA Ch1 220nm@4.8nm .Com

Summary Plot for Channel Name:PDA Ch1 220nm@4.8nm Compens., Peak: Peak2 PDA Ch1 220nm@4.8nm .Com

Reported by User: System
 Report Method: Trending Report
 Report Method ID: 1303
 Page: 1 of 2

Project Name: AgroChemical 1
 Date Plotted: 5/23/2016
 12:10:19 PM US/Eastern

WATERS LABORATORY INFORMATICS SOFTWARE

Empower Chromatography Software

Empower is one of many products in a suite of Informatics Solutions that convert scientific data into useful information to drive your business success.

NuGenesis Lab Management System and Empower – The Power of Two

Connect Empower with NuGenesis® Lab Management System (LMS), to drive enhanced capabilities for sharing, storing, archiving and retrieving chromatographic reports and results across your organization. The Power of Two is a comprehensive solution created to address the specific data management challenges for the Empower user and consists of software, installation, qualification, and training.

UNIFI Scientific Information System

The first product to combine LC, MS, and data management into a single software platform, UNIFI® encompasses data acquisition, processing, virtualization, reporting, and configurable compliance tools within a workstation or networked laboratory environment.

Progenesis QI Software

Progenesis® QI Software visualizes and analyzes your complex LC-MS data by quantifying your analytes. Identify the differences between samples rapidly, objectively, and reliably using multivariate statistics.

www.waters.com/informatics

WATERS PROFESSIONAL SERVICES AND TRAINING

Reduce the time and cost of your software deployment

Waters® offers a comprehensive suite of professional services to reduce the time and cost of your Waters' software deployment. Whether you are upgrading to Empower 3 or installing Waters' Informatics Software for the first time, Waters' highly trained consultants have the skills and expertise to make your software implementation a success.

Increase laboratory skills, integrate new technologies, and maximize your system investment

Technologies and requirements can change quickly and training keeps your knowledge current. Waters Educational Services is the leading training organization empowering scientists to maximize their skills in UPLC, HPLC, LC-MS, and data management, offering classroom, virtual web-based, and on-demand elearning courses to keep you up-to-date on the latest technologies and products. Waters provides an extensive course catalog designed to help you build your laboratory skills and further your knowledge in chromatography, Informatics, and mass spectrometry.

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WATERS GLOBAL SERVICES

Delivering world renowned services and support

Waters Service and Support offerings are tailored to optimize your laboratory productivity while addressing your budget realities. Our offerings help maintain system peak performance, minimize down time, address scientific application challenges, and support stringent compliance requirements. As your services and support provider, we are committed to the success of your laboratory and business.

Waters quality support and consultative services ensure your success wherever your laboratory is located in the world.



Waters has consecutively earned the ACE Award since 2001 for providing best-in-class technical knowledge, issue resolution, and process support.

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