

PA13/31 HPLC'99 Granada, 31 May 1999

Creating an HPLC/SPE

Database Resource to Serve
Applications Documents
as Well as Reference Citations
via the Internet

Patrick D. McDonald, Ph.D.*, Carla J. Clayton, Maureen Allegrezza,
Kevin G. Landry, Jeffrey M. O'Halloran, Kenneth McGovern
Waters Corporation, 34 Maple Street, Milford, MA 01757 USA
mcdonald_pat@waters.com

When faced with developing a new separation or devising a sample preparation protocol, chemists and chromatographers are trained to turn first to the literature to see what might have been done in the past. Even an older reference to a similar separation problem might establish the feasibility of the desired separation goal and/or a starting point for method development. Or, one might discover that the problem has already been solved and that the necessary elements of the separation system are near at hand. In any case, valuable time and resources are saved by the knowledge gained.

For twenty years, we have been collecting references to the applications of HPLC columns, chemistries, instruments and SPE devices. About 15 years ago we began to enter these references into an internal database for electronic searching and retrieval. Recently, we migrated the data to an architecture based on Lotus Notes/Domino servers. Now our database, containing more than 14,000 citations, can be accessed and searched via a web-browser on the Internet.

Because we first painstakingly review the literature ourselves, we select references for inclusion in our database based on experimental details which may not be in abstracts or keyword lists. Such references would

therefore not turn up in searches of various on-line databases (e.g., Chemical or Analytical Abstracts). Also, we may include references to documents from sources not available to most libraries or commercial databases.

Recently, we have begun to use the portable document format (PDF) to create actual electronic versions of printed documents and developed an innovative way to access them anytime, day or night, from anywhere in the world. Rather than simply creating an HTML archive of links to these PDF files on a web page, we have linked them directly to records in our database. Thus, when an appropriate record turns up in a list of search results, by clicking on an icon, the actual document cited in that record may be viewed immediately, as may one or more related documents. This saves even more valuable time and effort -- no trips to the library or reprint requests are needed! If copyright permission has been secured, but a PDF file is not available, we have created an e-mail form, immediately available on-line, to request a paper copy of a document.

Examples of the content and utility of this innovative database will be reviewed.

Importance of Our Database

3

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, μ Bondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

- Accelerate Method Development
 - Generate Ideas
 - Establish Feasibility
 - Locate Adaptable/Adoptable Procedure
- Get Product/Applications Information
- Conserve Resources, Save Time
- Access References Not Available Elsewhere
- Download/Order Documents [copyright permitting]
- 24/7 Worldwide No-Fee Access

Database Milestones

4

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, μ Bondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

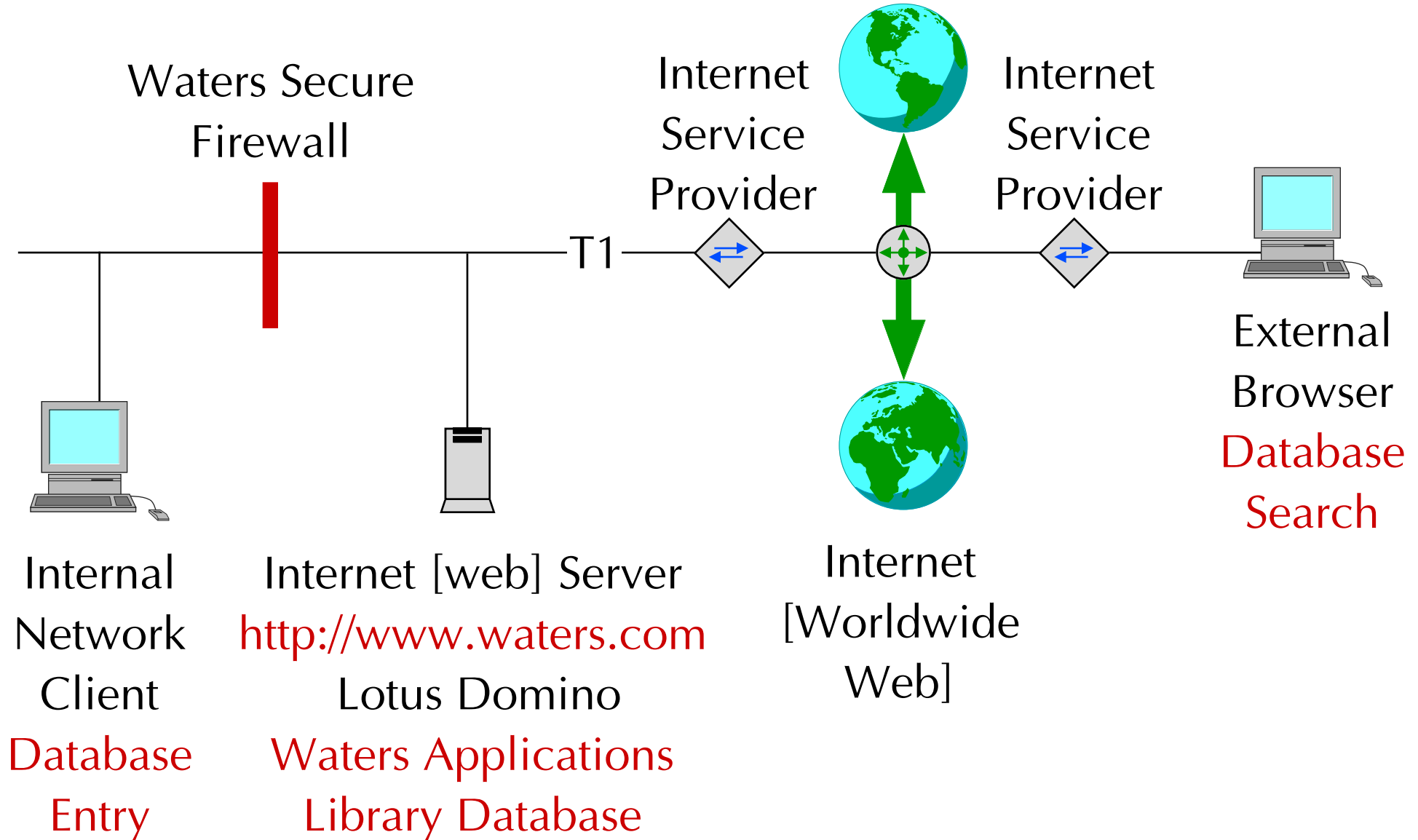
- 1978 ● Compile & Type HPLC Bibliography
- 1980 ● Electronic Bibliography [Apple II]
- 1982 ● Establish Technical Information Management System DB [VAX]
- 1984 ● Create SPE Database [Mac]
- 1986 ● Publish SPE Bibliography *directly* from Database [Microsoft FILE]
- 1987 ● Move to FileMaker; Network DBs
- 1997 ● FMPro DBs on Intranet [via Tango]
- 1998 ● Migrate to Lotus Notes; Internet

Network Architecture

5

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, µBondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

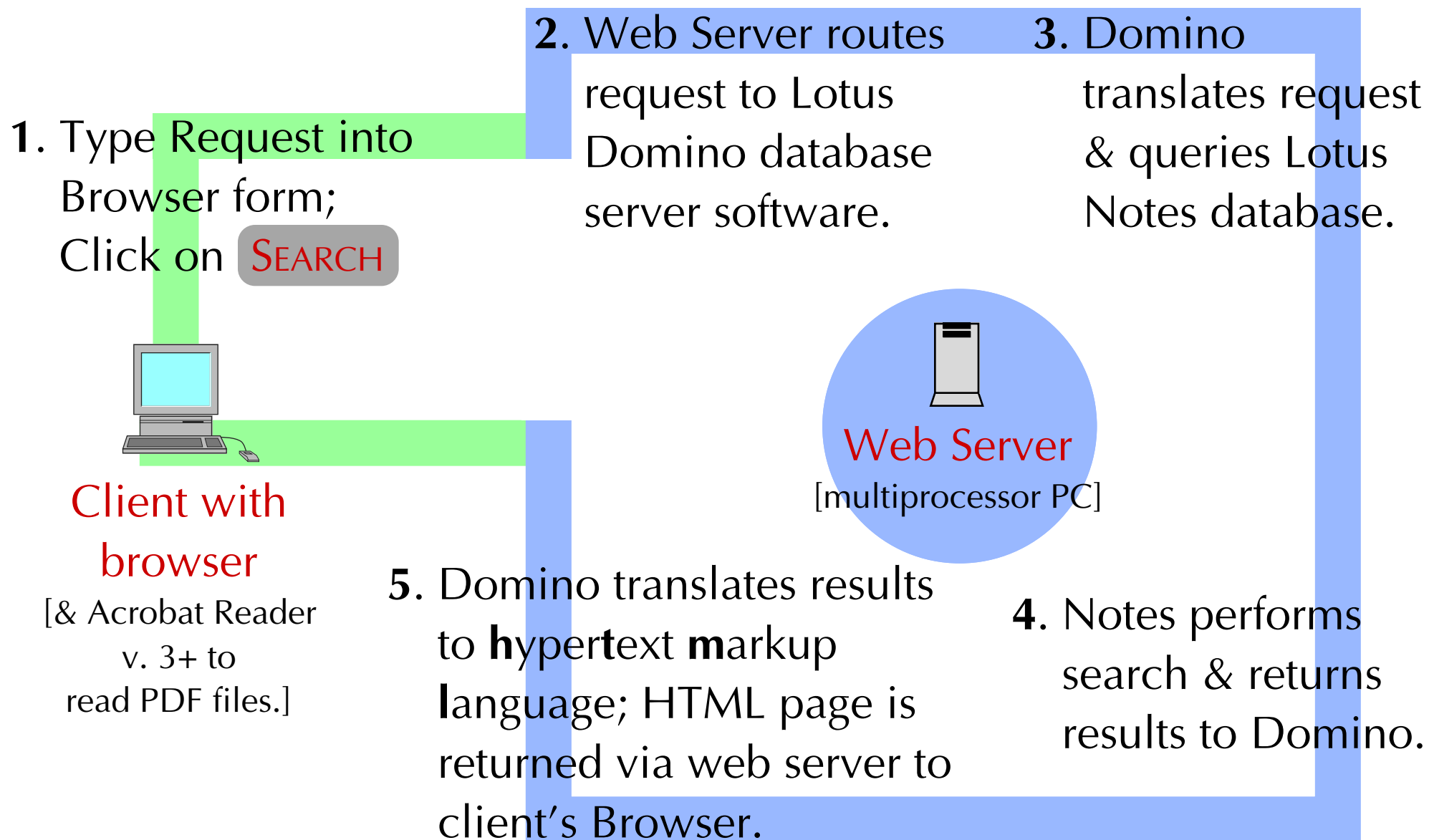


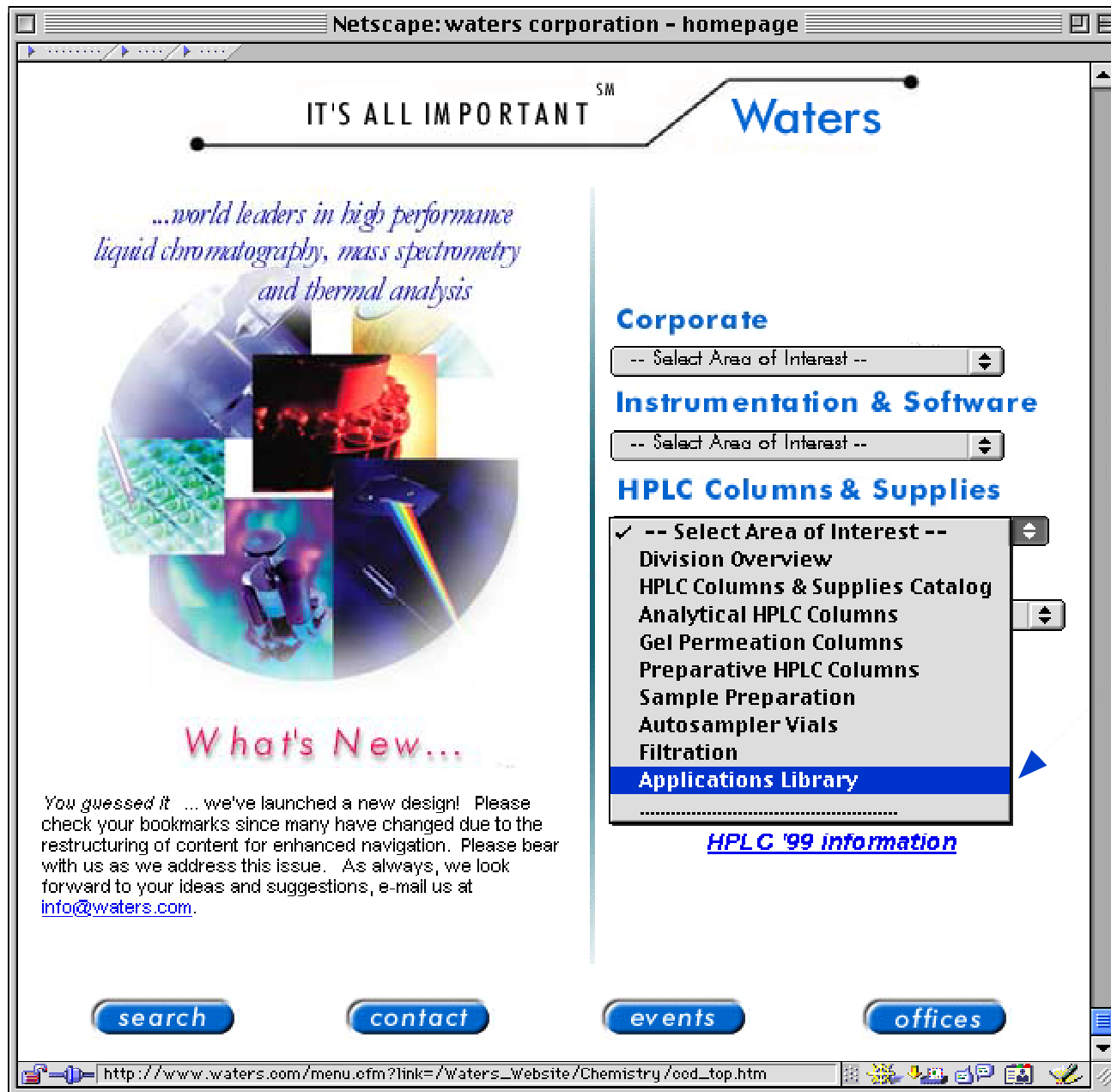
Tools & Search Mechanism

6

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, μ Bondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation





To access *Waters Applications Library* database, Select Applications Library from **HPLC Columns & Supplies** picklist.

[*Alternate route:* select first item from **Applications** picklist (hidden here, just below HPLC Columns ... list)]

Search Form

8

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, µBondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

Netscape:

Waters Applications Bibliography Search Form

>14,500!

"Bookmark the Web's most comprehensive resource for HPLC & SPE now!"

Updated daily, this database contains more than ~~13,000~~ references to Waters products & their applications. Sources include articles published in refereed journals as well as technical documents & presentations by Waters scientists. [Learn more about exciting new features, including instant PDF document access, and search hints below.](#)

Type keyword(s) for your search query here:

Search Ideas: More effective searching may be done with some simple, standard Boolean operators [\[Search Tips & Hints\]](#). Words in a typical entry might include, but are not limited to:

- Name of a chemical compound: e.g., acetaminophen
- Waters product brand name or model number: e.g., Symmetry or 2690.
- Last name of author
- File number of reference: e.g., 981040 or SP95002

Instant Access: Click on this icon  to view & print the actual PDF document. File size indicates relative download time.

NOTE: You will need v3.x of Acrobat Reader to access these files. 

SPE References: More than 3,300 SPE references, including all those from the "Solid Phase Extraction Applications Guide and Bibliography: A Resource for Sample Preparation Methods Development, Sixth Edition", PD McDonald & ESP Bouvier, Eds, Waters, Milford, 1995 [Waters P/N 52853], are now in this database. These references have file numbers with the prefix: [SP](#)

Hot Links: On the Search Results page or on each individual Record Detail page, there may be one or more "Hot Links". For example, if they are present, move your cursor over the red star icon, the SPE device icon, the SPE Sorbent name, or the name of the Analytical Technique, and then click to obtain detailed background or reference information.

We always welcome your comments and/or suggestions - InfoCenter@waters.com.

Waters and Symmetry are registered trademarks of Waters Corporation. Adobe and Acrobat are trademarks of Adobe Corporation. Copyright 1999 Waters Corporation

1. Type query in box

2. Click button

Link to Search Tips Page

Database Features
Description

Search Results

9

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, μ Bondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

Search Results lists Title, Author, and Bibliographic citation for all records that match search criteria

The screenshot shows a Netscape browser window with the title 'Search Results'. The address bar is empty. The page content includes a navigation bar with 'Waters' and 'Applications Bibliography'. Below this, there is a link to 'Access chemical product information in 1998 - 1999 Waters Chromatography Columns & Supplies Catalog: PDF Edition'. A list of search results is displayed, with the first entry being '981040' (a PDF icon) and '768K SPE: Citius, Altius, Fortius'. The author is 'Patrick D McDonald' and the source is '22nd International Symposium on Chromatography [ISC '98], Roma, September 15th, 1998 / Year: 1998 / Volume: Poster #P112 / Page: 20 pp'. At the bottom, it says '1 Document(s) found.' and 'Back to Search Page..'. The copyright notice 'Copyright 1999 Waters Corporation' is at the very bottom.

Click on Reference # to see citation details

Click on File Number link in left column for full citation & details on how to get a copy.

Access chemical product information in [1998 - 1999 Waters Chromatography Columns & Supplies Catalog: PDF Edition](#)

click PDF icon or file size to see actual document

981040 768K SPE: Citius, Altius, Fortius
Author: Patrick D McDonald
Source: 22nd International Symposium on Chromatography [ISC '98], Roma, September 15th, 1998 / Year: 1998 / Volume: Poster #P112 / Page: 20 pp

1 Document(s) found. # of hits [always at bottom of list]
[Back to Search Page..](#)

Copyright 1999 Waters Corporation

Record Detail

10

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, µBondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

Details of SPE device & HPLC column formats & sorbent chemistries are listed as well as sample matrix & compounds prepared/separated.

Netscape: Lib #: 981040 - SPE: Citius, Altius, Fortius

Waters Applications Bibliography Record Detail

Product Information may be found in catalog

Access chemical product information in [1998 - 1999 Waters Chromatography Columns & Supplies Catalog: PDF Edition](#)

Hot Spot: SPE Device format info

Hot Spot: sorbent info

Hot Spot: Key to Technique Abbreviations

Title: SPE: Citius, Altius, Fortius
File Number: 981040
Authors: Patrick D McDonald
Source: 22nd International Symposium on Chromatography [ISC '98], Rome, September 15th, 1998
Year: 1998 **Volume:** Poster #P112 **Page:** 20 pp
SPE: Oasis® HLB 30 mg 1 cc Cartridge
Oasis® MCX 60 mg 3 cc Cartridge
Oasis® HLB 30 mg 96-well Plate
Oasis® HLB 10 mg 96-well Plate
Sorbent: HLB, MCX, HLB, HLB
Compounds: Vitamin A palmitate; Vitamin E acetate; Vitamin D2; Naproxen; Ibuprofen; Salicylic Acid; Sulfadiazine; Sulfamerazine; Acetaminophen; Theobromine; Paraxanthine; Theophylline; Caffeine; Procainamide; Ranitidine; Oxycodone; Propranolol; Naltrexone; Salbutamol; Doxepin; Nordoxepin; Nortriptyline; Imipramine; Amitriptyline; Trimipramine; Betamethasone valerate; Methadone; Methadone metabolite [EDDP]
Matrix: porcine serum; urine
Analytical Technique: RP/HPLC/UV
Column: µBondapak CN 10 µm Steel 3.9 mm x 300 mm
SymmetryShield RP8 3.5 µm Steel 4.6 mm x 75 mm
SymmetryShield RP18 5 µm Steel 3.9 mm x 150 mm
Waters products:

More Record Detail

11

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, μ Bondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

Details of SPE device & HPLC column formats & sorbent chemistries are listed as well as sample matrix/compounds prepared





Abstract →
(if available)

Click on link
to see PDF of
actual document

Notes: ABSTRACT: This year marks the twentieth anniversary of the commercialization of the first miniature cartridge columns containing silica-based adsorbents designed for SPE (1). The ideas that led to this invention, the history of column liquid-solid phase extraction [CLSE - modern SPE], and the rapid development of SPE in the last two decades as a preferred sample preparation technique will be traced. SPE is hundreds of years old; fragrance manufacturers in Grasse to this day still extract labile oils from jasmine petals via the ancient process of embedding them in paraffin wax. Pioneering work by Schwartz in the 1950's and 1960's in which CLSE was performed on both the mini- and micro-scale (in glass melting-point capillary tubing), with on-column derivatization and/or complexation, specific for certain compound classes, is virtually unrecognized today. So, too, are some of the first laboratory-scale applications of hydrophobic polymers for reversed-phase CLSE by Bradlow in the late 1960's. There were three characteristics of the first commercial product for CLSE/SPE that led to the rapid adoption of the technique: a convenient, efficient, disposable, miniature column format; a family of reproducible, reliable sorbents chosen and quality-controlled specially for SPE; and a package that maintained the integrity of the sorbent until it was used. A new generation of formats and stationary phase chemistries which enable the practice of SPE to be faster, with higher sample throughput, and stronger performance will be emphasized. The unique properties of new sorbents which have spurred a renaissance in the use of polymer packings and dramatically improved SPE performance will be reviewed. (1) PD McDonald, RV Vivilecchia, DR Lorenz, "Triaxially Compressed Beds", US Patent #4,211,658 (1980).

 [Click Here for Document](#) 768K

Related PDFs:

-  [Learn more about Waters Symmetry family of columns and cartridges](#) 1.1 MB
-  [Learn how to convert C18-silica-based SPE methods to Oasis® HLB sorbent](#) 32K
-  [Learn about the family of Oasis® HLB Sample Extraction Products](#) 1 MB
-  [Learn More about Oasis® MCX Sample Extraction Products](#) 192K

Links to related PDF documents

Copyright 1999 Waters Corporation

Instant Document Access

12

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, μ Bondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

Actual Document: 24 pages; 744K

Related Document: 8 pages; 512K

**SPE: CITIUS,
ALTIUS,
FORTIUS**

ISC '98
ROMA
Poster 112
15 Sept 1998

Patrick D. McDonald, Ph.D.
Waters Corporation
34 Maple Street
Milford, MA 01757 USA
mcdonald_pat@waters.com

Waters, Oasis, Symmetry, SymmetryShield, Sep Pak, μ Bondapak are trademarks of Waters Corporation. © 1998 Waters Corporation

This poster, which reviews the history of the development of modern SPE, from the perspective of one of its pioneering inventors, *is not available anywhere else.*



Columns for Every Step in the Drug Discovery and Development Process

- Superior Peak Shape
- Unmatched Reproducibility
- Extended Column Lifetime
- Fast Analysis Without Sacrificing Resolution
- Direct Scale Up From Analytical to Prep
- Design for LC/MS

Meeting the Constantly Changing Demands of Pharmaceutical R&D
Pharmaceutical scientists are under pressure to bring new drug candidates to market faster. In order to achieve this, you may have to deal with shortened timelines and parallel development projects. If that isn't enough, the new International Conference on Harmonisation (ICH) regulatory guidelines are placing more stringent demands on assay sensitivity, making fast and accurate validation more difficult. Because of these pressures, there is one area where you simply cannot afford to compromise: your choice of HPLC columns. That's why pharmaceutical scientists around the world put their trust in the Symmetry family of columns.

Symmetry columns provide the highest standard of reproducibility for total confidence in the long-term compliance of your HPLC methods, with unmatched peak symmetry for maximum sensitivity and accurate quantitation. No other column delivers as much. Waters offers 3.5, 5 and 7 μ m

particle sizes in the complete range of column lengths and internal diameters to take you all the way from lead generation and optimization to development of validated assays for stability testing and impurity profiles. And now, with the introduction of the innovative SymmetryShield[®] RP18 and RP8 columns, based on our patented embedded polar group technology, Waters has again set the new performance standard for peak shape of basic compounds regardless of mobile phase pH. You get all of this along with column-to-column and batch-to-batch reproducibility so consistent that the column is virtually eliminated as a source of variability in your HPLC methods. Unique among suppliers of HPLC columns, Waters controls the entire column manufacturing process from silica synthesis to column hardware manufacture. Control of the process from start to finish is the investment we've made so that you can meet the constantly changing demands of pharmaceutical R&D.

Waters

In depth information is available *when you need it.*

Boolean Operators

13

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, µBondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

Boolean Operators
can be used to
increase the
specificity of any
search.

The wildcard
operator [*] is
especially
important:

e.g., *symmetry** finds
Symmetry,
Symmetry®,
SymmetryShield, &
Symmetry300; while
symmetry only finds
Symmetry.

Boolean Symbol	Explanation	Typing this:	Finds records that contain:
OR	Finds records containing either of the words or conditions.	phenol OR cresol	Either phenol or cresol
AND	Finds records containing both words or conditions.	phenol AND cresol	Both phenol and cresol
()	Used to denote a condition in a search string.	(phenol OR cresol) AND thymol	Either phenol and thymol or cresol and thymol
*	Wildcard indicating zero or more characters [including punctuation marks]. It may be used at beginning, middle, and/or end of character string.	*phenol	2,4-dinitrophenol or phenol or chlorophenol
		phenol*	phenol or phenolics or phenolphthalein
		phen	2,4-dinitrophenylhydrazine or phenol or acetaminophen
		FD*C	FD&C
" "	Literal text phrase or an exact word match	"2*6*dimethylaniline in bovine"	2,6-dimethylaniline in bovine

NOTE: Punctuation marks such as ,) (; / - or ' are treated as spaces in search strings.

NOTE: Text searches are not case sensitive; e.g., typing hplc finds records that contain hplc and HPLC.

When looking for a chemical name, try using the wildcard operator in conjunction with the root or search for the common name or a compound class name: e.g., **cholesten** or *cholesterol*.

Other Hints for successful searches:

- Don't enter too much information, but try to use enough characters and combinations of words to achieve specificity in your search.
- Try to use search strings that return only those records of interest; e.g., searching for the brand name Symmetry will return several hundred records, but searching for Symmetry AND barbital will only return a few records.
- To search for a word or fragment that contains one or more punctuation marks [but no spaces] that are important to its meaning, use an asterisk in place of each punctuation mark in the search string; see the example in the table above for FD&C.
- If you need to search for an exact phrase containing punctuation, use the literal text operator; see example in table above for 2,6-dimethylaniline.
- Keep in mind that different authors may express similar things with different forms of the same word; e.g., a search for chromatography will not return chromatographic, but a search for chromatogra* will return both, as well as chromatogram and chromatographer. But neither search will return HPLC or LC.
- ➔ ● When searching for a compound name containing an alphanumeric string of numbers, symbols, and punctuation marks, try using the wildcard operator before and/or after the longest root word in the name; e.g., to find 3 β -hydroxy- Δ^5 -cholestenol, search for *cholestenol.
- ➔ ● If you know the common name for a compound, try that before searching for the root of the IUPAC-type name; e.g., to find 3 β -hydroxy- Δ^5 -cholestenol, search instead for "cholesterol".
- If you are familiar with other Boolean symbols, you may construct more complicated search strings.
- If the first search doesn't work, go back to the form and try another approach.

[Go BACK to the Waters Applications Bibliography Search Page](#)

Clicking on SPE Device Icon in Record Detail accesses detailed information on various formats.







Netscape: SPE device formats

Waters Applications Bibliography

SPE Device Formats*

[Access Chemical Product Information in Waters 1998-1998 Chromatography Columns & Supplies Catalog: PDF Edition](#)

In this database, icons denote the format of the Waters SPE device(s) used in the cited work. A key to the icons and brief descriptions of these formats appear below.

	Plus Cartridges: Maximum Versatility		Vac Cartridges: Economical Automation
	Classic Cartridges: Most Widely Referenced		Vac RC Cartridges: Larger Reservoir Capacity
	Light Cartridges: Reduced Volume for Higher Sensitivity		Extraction Plates: High Throughput Automation

Waters SPE Devices are available in a variety of designs, each offering specific functional benefits. All device types, however, are filled by weight with the same high-quality sorbents. This uniformity of packing chemistry makes transfer of methods from one design to another straightforward and predictable. All cartridges and plates are sealed in special poly-foil pouches to maintain product integrity, packing activity, and purity until the package is opened.

Clicking on
SPE Sorbent
name in
Record
Detail links
to more
information
on sorbent
chemistry &
properties.

Waters Applications Bibliography **SPE Sorbents***

[Access Chemical Product Information in Waters 1998-1998 Chromatography Columns & Supplies Catalog: PDF Edition](#)

- [Introduction: Sorbent Chemistries](#)
- [Sorbent Properties & Typical Applications](#): select a [Separation Mode](#) or Sorbent below:

[Reversed-Phase Sorbents](#)

- [Oasis® HLB](#)
- [C₁₈](#)
- [tC₁₈](#)
- [C₈](#)
- [tC₂](#)
- [Porapak™ Rxx](#)

[Normal-Phase Sorbents](#)

- [Silica](#)
- [Alumina A, N, E](#)
- [Florisil™](#)

[Mixed-Mode and Ion Exchange Sorbents](#)

- [Oasis® MCX](#)
- [Accell™ Plus QMA](#)
- [Accell™ Plus CM](#)

[Specialty Sorbents](#)

- [DNPH-Silica](#)
- [XPOsure™](#)

[Normal- or Reversed-Phase Sorbents](#)

- [Aminopropyl \[NH₂\]](#)
- [Cyano \[CN\]](#)
- [Diol](#)

Introduction: Oasis® and Sep-Pak® Brand SPE Sorbent chemistries

The wide variety of sorbent chemistries available from Waters lets you tailor a sample preparation step to the specific needs of your application. There are hydrophilic phases that

Hot Spot Link – 3

17

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, μ Bondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

Oasis® HLB

An exceptionally clean, highly reproducible, patented (pending) copolymer synthesized with a unique composition that is hydrophilic-lipophilic-balanced for **both** strong reversed-phase retention **and** water-wettability. Compatible with sample or eluents from pH 1 to 14.

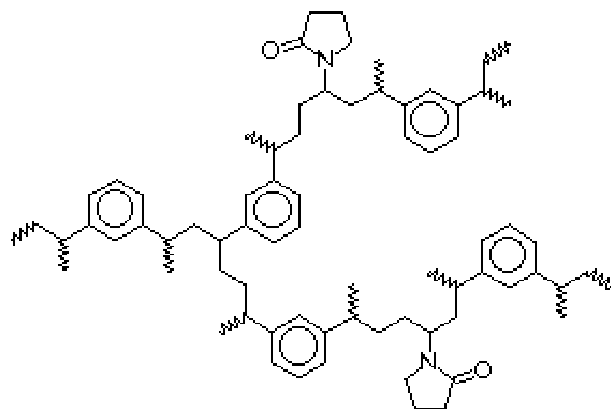
Used to adsorb both polar and non-polar compounds simultaneously from aqueous media; typical applications include drugs and their metabolites from biological fluids, environmental pollutants from water.

HLB can be substituted for, has a wider spectrum of retention, and is more reproducible than C₁₈ and all other silica- or polymer-based reversed-phase media. Oasis® HLB is the ideal starting point for new reversed-phase SPE method development.

Pore Size (nominal): 80 Å

Particle Size: 30 μ m [or 60 μ m for LP grade]▲

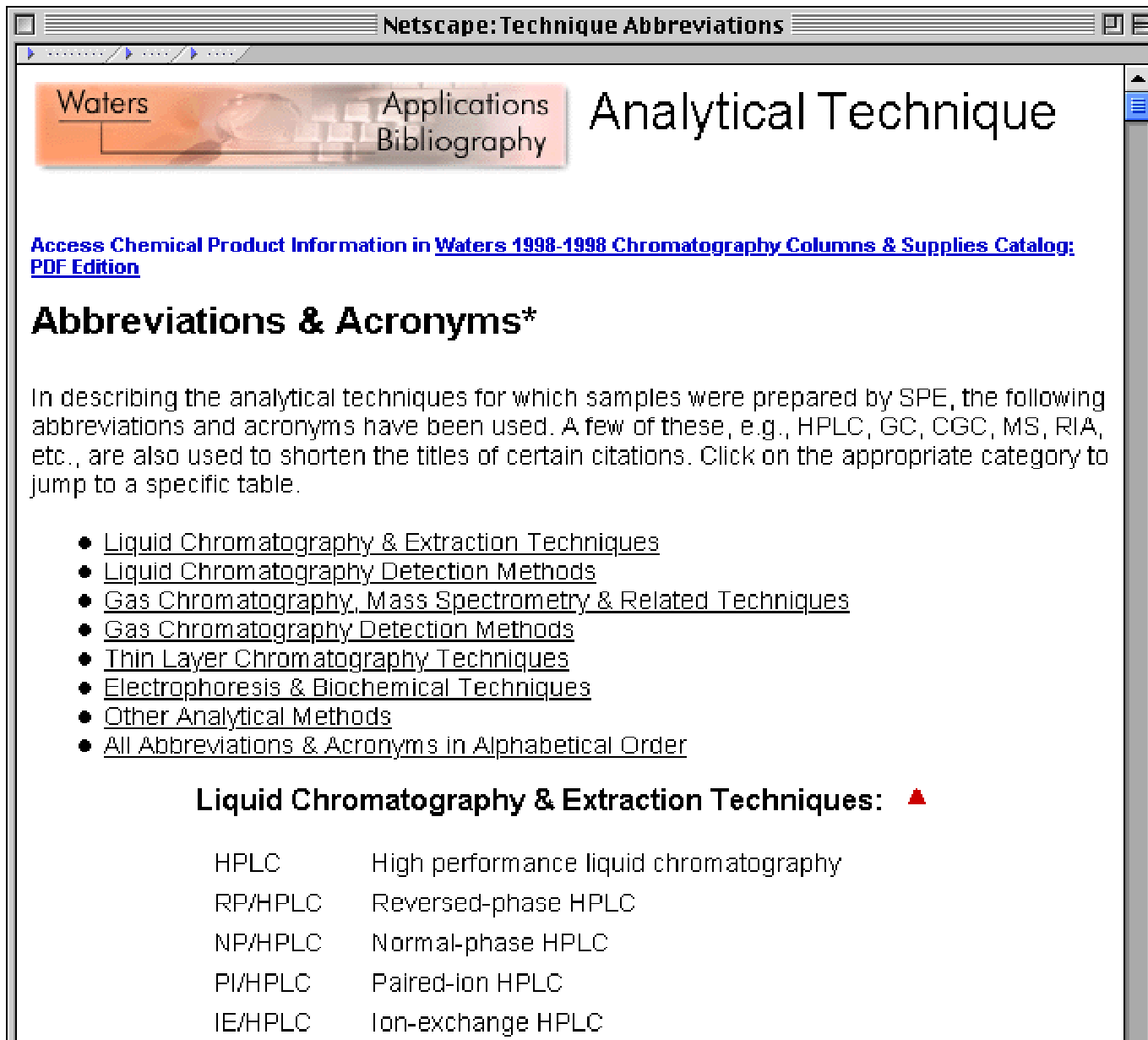
Surface Functionality: m-Divinylbenzene & N-vinylpyrrolidone copolymer



Sorbent information includes physical & chemical characteristics.

Product information can also be found in brochures linked as **PDF** files to DB records, as well as in linked catalog **PDF** files.

An extensive list of abbreviations & acronyms used in database record fields is reached by clicking on the Analytical Technique abbreviation hot spot on the Record Detail page.



Netscape: Technique Abbreviations

Waters Applications Bibliography Analytical Technique

[Access Chemical Product Information in Waters 1998-1998 Chromatography Columns & Supplies Catalog: PDF Edition](#)

Abbreviations & Acronyms*

In describing the analytical techniques for which samples were prepared by SPE, the following abbreviations and acronyms have been used. A few of these, e.g., HPLC, GC, CGC, MS, RIA, etc., are also used to shorten the titles of certain citations. Click on the appropriate category to jump to a specific table.

- [Liquid Chromatography & Extraction Techniques](#)
- [Liquid Chromatography Detection Methods](#)
- [Gas Chromatography, Mass Spectrometry & Related Techniques](#)
- [Gas Chromatography Detection Methods](#)
- [Thin Layer Chromatography Techniques](#)
- [Electrophoresis & Biochemical Techniques](#)
- [Other Analytical Methods](#)
- [All Abbreviations & Acronyms in Alphabetical Order](#)

Liquid Chromatography & Extraction Techniques: ▲

HPLC	High performance liquid chromatography
RP/HPLC	Reversed-phase HPLC
NP/HPLC	Normal-phase HPLC
PI/HPLC	Paired-ion HPLC
IE/HPLC	Ion-exchange HPLC

What's Included in Database

19

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, μ Bondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

- Most Citations are for articles in journals
- Lectures, Posters, Seminars presented by Waters scientists
- Applications Notes, Newsletters, e.g.:
 - Waters *Column* articles
 - Waters *Performance Perspectives*
 - Waters *AMD & Integrity Mass Spec Notes*
 - Waters *Symmetry & Oasis Application Notes*
- Product Brochures
- Product Manuals [book length]

Record Detail will specify the appropriate procedure at bottom of page:

- Where available, download the Portable Document Format [**PDF**] file immediately.
- When copyright permission is available, an *email* photocopy request form link appears on Record Detail page. Fill it out & send.
- For most articles cited, Waters does not own the copyright. You must take the reference to your local *librarian*.

- We have been compiling HPLC & SPE references for more than 20 years into a succession of database formats.
- Using a fast server & web link, we have now made this collection accessible to everyone on the worldwide web.
- Start your search for ways to prepare or separate a compound **here**, using information not always found in fee-based, private databases of abstracts.

Suggestions?

22

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, μ Bondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

We are pleased to offer you the *benefits of many thousands of hours* we have spent scanning one of the world's highest quality collections of chromatographic information.

We *welcome* your *feedback* on our ongoing & evolving project.

Please email/send us your ideas, suggestions, & stories of how our database may have helped you in some small or significant way! *Thank you!*

Gracias Amigos

23

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, μ Bondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

Database Creation & Maintenance



Grace Lavallee

Assistant Librarian
Reference Procurement
& Request Fulfillment

Carla Clayton

Senior Librarian
DB Pioneer, Architect &
Data Entry since 1978!

Maureen Allegrezza

Database Administrator
Design & Ongoing Data Entry

IT Architecture



Ken McGovern

Notes /Domino
Programmer & Directory
Architect

Jeff O'Halloran

Lotus Notes Consultant
FileMaker Pro Migration

Kevin Landry

Notes Programmer &
Web Server Architect

Randy Sheehan: automated rollup of files to web server; **Marcos Cerda**: set up our intranet server directories;
Brian McDonald: [my son] showed us how to return # of records found in Results [*Lotus said it was impossible!*]

Want More Information?

24

Poster #PA13/31: HPLC'99, Granada, 31 May 1999

Waters, Millennium, Oasis, Symmetry, SymmetryShield, Symmetry300, μ Bondapak, Sentry, XTerra are trademarks of Waters Corporation. © 1999 Waters Corporation

Please leave your *name, address, & email address*

[on business card or **PRINT** *clearly* on a piece of paper] in the large *envelope provided*.

Please *indicate* which option [**A**, **B** or **C**] you prefer:

- A.** a *paper* copy of this poster by mail
- B.** a **PDF** copy of this poster via email attachment
[indicate whether your client is a PC or a MAC]
- C.** an *email notification* of how & when to view or
download a PDF copy of this poster through the
Waters Applications Library at
<http://www.waters.com>