

# Organic Chemistry


Products from Start to Finish



# From Start to Finish

Organic chemists synthesizing new molecules follow a general workflow. Biotage has developed tools for every step of the process, with the entire workflow in mind. This dedicated suite of products vastly expands the range of options in order to truly accelerate discoveries of new molecules for future innovations.

 [Learn More on www.biotage.com](http://www.biotage.com)

 **Support Documents**  
Find it easily using the part number in brackets (e.g. PPS418)

 **Video Tutorials and Webinars**



www.biotage.com contains thousands of support documents and videos for every product. Log in and download – for free.

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# Supporting the Whole Organic Workflow

## Synthesis Design

Forget traditional limitations in reaction conditions – with Biotage products these barriers do not apply to your successful experiment design.

## Synthesis – Reaction (p. 2–3)

Safe and rapid heating with microwaves accelerates reaction times, improves yields and drive difficult couplings.

The reaction mixture is often evaporated directly following synthesis

## Work-Up (p. 4–5)

Prepare the crude mixture for purification. This can involve filtration, catalyst removal, phase separation or various catch-and-release techniques.

## Purification (p. 6–7)

Intelligent flash purification systems and ultra high-performing columns will give you pure fractions every time.

## Evaporation (p. 8)

Remove DMF, water and DMSO in minutes. The versatility in this final step is what truly allows for creative workflow design.



**Reaction Mixture**

**Crude Product**

**Pure Product**

**End Product**

Biotage® Initiator+  
Microwave Synthesizer

Biotage® Work-up Products

Biotage® Selekt and Sfär  
Purification Products

Biotage® V-10 Touch  
Evaporator

Purify extracts from  
natural sources

Biotage® Selekt and Sfär  
Purification Products



## Synthesis – Reaction

Pioneers in microwave heating technology, Biotage carries this legacy into the latest instruments, automation robots and microwave vials for safe and reliable high speed organic reactions.








### Biotage® Initiator+

#### Fourth Generation Microwave Synthesizer

The Biotage Initiator+ represents a new generation of synthesizer instruments for organic, medicinal, materials, nano and polymer chemistry professionals. Controlled temperatures up to 300 °C and pressures up to 30 bar open new possibilities to performing difficult reactions – even with low boiling point solvents. The system automatically senses and performs reactions at their highest possible temperatures.

#### Learn More

-  **Microwave Synthesis - Fourth Generation Systems**  
Systems Brochure (PPS299)
-  **Microwave Reaction Tutorial - Reaction Examples for the Teaching Laboratory**  
User Manual (UI307)
-  **Biotage® Initiator+ Advanced Microwave Organic Synthesis**  
Webinar Video
-  **Setting Up Biotage® Initiator+**  
Video Tutorial
-  **Biotage® Initiator+ Microwave Organic Synthesizer - Advanced Settings**  
Video Tutorial








## Synthesis Automation

### Queue Up and Walk Away

Connecting a Robot Eight or Robot Sixty transforms Biotage® Initiator+ into a compact automation platform which helps optimize chemistry, supports multi-user environments, production of focused libraries, scale-up, and use of both large and small vials in any order without manual intervention.



#### Learn More

-  **Microwave Synthesis - Fourth Generation Systems**  
Systems Brochure (PPS299)
-  **Microwave Synthesis Automation**  
Robot 8/Robot 60 Product Note (SS-INT.R 0611)
-  **Automated Microwave Synthesis on Biotage® Initiator+**  
Video Tutorial


## Microwave Vials

### Four Vial Sizes

Initiator+ supports all Biotage vials from 0.2 to 20 mL, delivering greater flexibility and direct scale-up from milligrams to grams. The four different vial sizes can be used in any order or combination without system modifications.



#### Learn More

-  **Microwave Synthesis Vials**  
Product Note (PPS449)



## Work-Up

We all want our reactions to go perfectly the first time. But very often A+B leads to C+D, or more. Biotage can help with a wide array of modular clean up techniques for your application. From automatic liquid-liquid extraction to filtration, from catch & release to targeted metal removal, these tools greatly simplify and amplify productivity.



### Drying Organic Samples

#### ISOLUTE® Sodium Sulfate Drying Cartridges

Pre-packed sodium sulfate cartridges. Simply plug onto a luer tip and pass through. Immediate results and ultra convenient.

#### ISOLUTE® HM-N

Rapid aqueous work-up and removal of water soluble impurities from reaction mixtures.

### Filtration, Stopcocks, Adaptors and Processing Stations

Cost effective, ready to use, easy to parallelize, infinitely flexible, from simple filtration to multistage stacked reaction vessels. Cover, cap, adapt and build.

#### ISOLUTE® Filtration Cartridges

The convenient cost-effective alternative to traditional filtering.

#### Celite Cartridges

“Tar” and catalyst removal during first-stage reaction work-up.

#### ISOLUTE® Empty Reservoirs

Extend the cartridge volume.

#### Learn More

**Work-up Products**  
Product Brochure (PPS352)

**Industrial Products Portfolio**  
Product Brochure (PPS385)

### Catch and Release

During catch & release the media bed “catches” the compound of interest for subsequent elution by an appropriate solvent. Biotage has a range of cartridges targeting acidic, basic and neutral compounds.

#### ISOLUTE® SCX-2

Catch & release and scavenging of basic compounds.

#### ISOLUTE® PE-AX

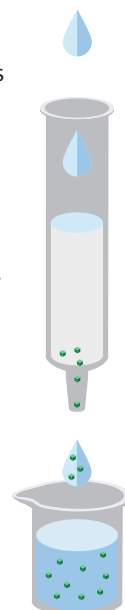
Catch & release and scavenging of acidic compounds.

#### ISOLUTE® PE-AX/SCX-2

Simultaneous scavenging of basic and acidic compounds.

#### ISOLUTE® 103

Concentration of prep-HPLC fractions using catch & release.





## Metal Scavenging

The ultimate product for metal removal. Targeting transitional metals, Biotage metal scavengers are the most powerful tools for quickly and efficiently removing Pd after Suzuki-Miyaura reactions. Kinetically fast and 100% reliable, whether small scale screening or multi-kg implementation, these materials have been designed with regulatory compliance and GMP in mind.




### Metal Scavenging Tool Kit

All in one metal scavenging kits to simplify the removal of metal contamination.

### Biotage® Argoscoop™

Resin dispenser – useful and coveted lab accessory.

#### Learn More

-  **Metal Scavenging Tool Kit**  
Product note (PPS377)
-  **Metal Scavenger User Guide**  
User guide (UI317)
-  **Biotage Metal Scavengers**  
Video Tutorial



## Phase Separation

Liquid-liquid extraction, but without a separating funnel. No glassware to wash and dry, can also break emulsions. Various volume capabilities, ready to use, easy to parallelize, and 100% effective and automatic. No need to visually stop flow, automatic stop when one phase has passed through. Solutions for when the organic phase is both more dense than the aqueous phase.

### ISOLUTE® Phase Separators

More efficient than traditional glass separating funnels.





# Purification

Biotage first pioneered pre-packed columns for flash chromatography in the 70s. Our unrivalled experience in the field enables us to keep on developing leading purification systems.



Biotage® Selekt



Isolera™ LS

## Flash Chromatography Systems

### Biotage® Selekt

The smallest flash purification instrument and the only one with two channels – switch from normal to reverse phase at a swipe of a finger.

Inside this instrument, you will find the widest range of UV-Vis detection (198–810  $\mu\text{m}$ ), and a fraction collector that pauses between tubes, so your sample is never lost. In addition a unique state-of-the-art 1-plate TLC-to-linear and 2-plate TLC-to-step method capability which recommends both column size and sample load. The instrument's step gradient can reduce solvent use up to 50%, and increase sample load by twice that of linear or isocratic purification. The default high equilibration flow rates reduce run time and solvent consumption.

All this enclosed in a compact, beautiful instrument, with an easy to use interface presented on a 15" touchscreen. Programming even the most complex purification becomes simplicity itself.

## Flash Chromatography Software

### Biotage® Isolera LS

Biotage® Isolera LS is the definitive flash chromatography system for reliable scaling up from grams to hundred gram scale purification. Enjoy all of the sophisticated software features of laboratory scale systems in a robust instrument built for scale-up labs. Isolera LS adds an integrated pump assisted loading mechanism for larger samples, and a funnel rack collection option which allows samples to be collected in larger fraction collection vessels.

### Spektra

Advanced software upgrade for Biotage® Selekt and Isolera™ LS. Features include simultaneous UV-detection on all wavelengths and baseline correction. The unique behavior of the lambda-all functionality, together with the uniquely designed baseline correction enables detection of poor UV absorbing compounds.







## Flash Cartridges




### Biotage® Sfär

Sfär is the Swedish word for “sphere”: we have made spherical silica our standard due to its higher surface area and higher loading capacity. Reliable and flexible, Biotage® Sfär columns deliver larger loading capacities, tighter elution bands and purer fractions than traditional flash columns.

Spherical silica in Sfär, with smaller particle size and a much higher surface area is more efficiently packed into columns, increasing the effective plate count whilst doubling the sample load capability. These revolutionary improvements result in a column that doubles the purification performance per run. The exceptional loading capacity of Sfär means a column half the size of that used in traditional flash can be employed maintaining purity and yield but in half the time and with half the solvent consumption.

All of the enhanced silicas available in our lab-scale columns are also available in our large scale process cartridge range. Whether your end game is research or product for clinical trials, you can be confident that Biotage can support your scale up needs, from grams to kilograms.

### Learn More

-  **Biotage® Sfär Columns From the Pioneers of Flash Purification**  
Product Brochure (PPS497)
-  **Industrial Product Portfolio**  
Product Brochure (PPS385)
-  **Biotage® Selekt: 5 Reasons to Selekt Biotage**  
Product Brochure (PPS495)

## Biotage® ELSD-A120

### Evaporative Light-scattering Detector

A universal detector designed for use with Biotage® Selekt when purifying organic compounds undetectable in UV or by visible light.





# Evaporation

What if NMP was as easy to remove as heptane? What would happen to the bottleneck in organic workflow?. With the powerful Biotage® V-10 Touch evaporator, chemists are no longer limited to only volatile solvents in reaction design.

## Biotage® V-10 Touch

### Walk-up, Walk-away Evaporation System

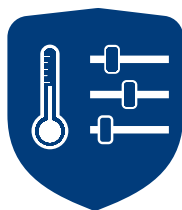
Biotage® V-10 solvent evaporation system rapidly dries samples dissolved in both aqueous and organic solvents up to 20 times faster than traditional rotary or centrifugal evaporators. A patented combination of drying techniques, including high-speed vial rotation, uniform IR controlled

heating, and vacuum drying, allows for both rapid evaporation and low temperature evaporation of high boiling solvents. Pre-defined evaporation methods have been optimized to protect the sample against overheating or bumping while still maintaining maximum evaporation speed.



### Speed without Bumps

With rotation speeds up to 8,000 rpm you can perform quick evaporation without the risk of bumping or contamination.



### Hot Precision

Precise contact-free heating with live IR control monitors your evaporation and keeps your sample safe at all times.



### Vacuum Powered Success

The 2 mbar built-in vacuum pump accelerates the evaporation process. By plugging in the external accessory pump, you can even evaporate DMSO and NMP in minutes.



#### Learn More

[Biotage® V-10 Touch Evaporation System Product Video](#)

[Biotage® V-10 Touch Product Folder \(PPS415\)](#)



# Your Complete Partner for Effective Chemistry

Biotage is a worldwide supplier of instruments and accessories designed to facilitate the work of laboratory and process chemists. With our deep knowledge of the industry, academic contacts and in-house R&D teams, we can deliver the best solutions to your challenges. We take great pride in our flexibility and ability to meet our customer's individual needs. With strong foundations in both analytical, organic and process chemistry, we can offer the widest range of solutions available on the market.

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