Scalable flash purification

From development to production

- Same media
- Better performance
- No surprises

Biotage®

Scalable flash purification |

Contents

4 Designed for your process - From innovation to production

6 One platform. Multiple scales - Purification designed for seamless scale-up

8 Overcoming scale-up challenges - The right system for every stage

10 Proven in multiple application areas - From APIs to advanced materials

12 Customized packing for your process - Scale with what you trust

14 Real-time UV monitoring - Detection for reproducible scale-up

16 Purifying products with metal scavenging

18 Support

20 Quality and compliance

22 Order information

Designed for your process

From innovation to production – one continuous path

Moving from laboratory-scale purification to commercial production should not require starting over. A scalable approach built on consistent media and predictable methods helps you maintain performance, control, and reproducibility throughout the entire journey. The Biotage seamless approach with scalable prepacked columns reduces process optimization, so you can shorten development timelines, minimize risk, and confidently deliver high-quality results at any scale.

A simpler way to scale purification with prepacked columns

Seamless scale-up

Scale-up becomes more manageable when the fundamentals stay the same. By using the same proven principles from milligrams to kilograms, you can reduce complexity, shorten timelines, and maintain performance at every stage.

Dependable results

By maintaining consistent media and methods throughout the process, you can scale from development to production without having to start over.

Lower solvent consumption

Reducing solvent consumption can lower both environmental impact and production costs. Efficient methods help you achieve more with less.

Global quality standards and compliance

Operate with confidence knowing your purification process is supported by global quality standards and compliance requirements.

***Scaling purification is not just "making it bigger"**—it's about balancing performance, cost, reproducibility, and compliance.*

Sunil Rana
Sr. global product manager
Scale-up business

One platform. Multiple scales.

Purification designed for seamless scale-up

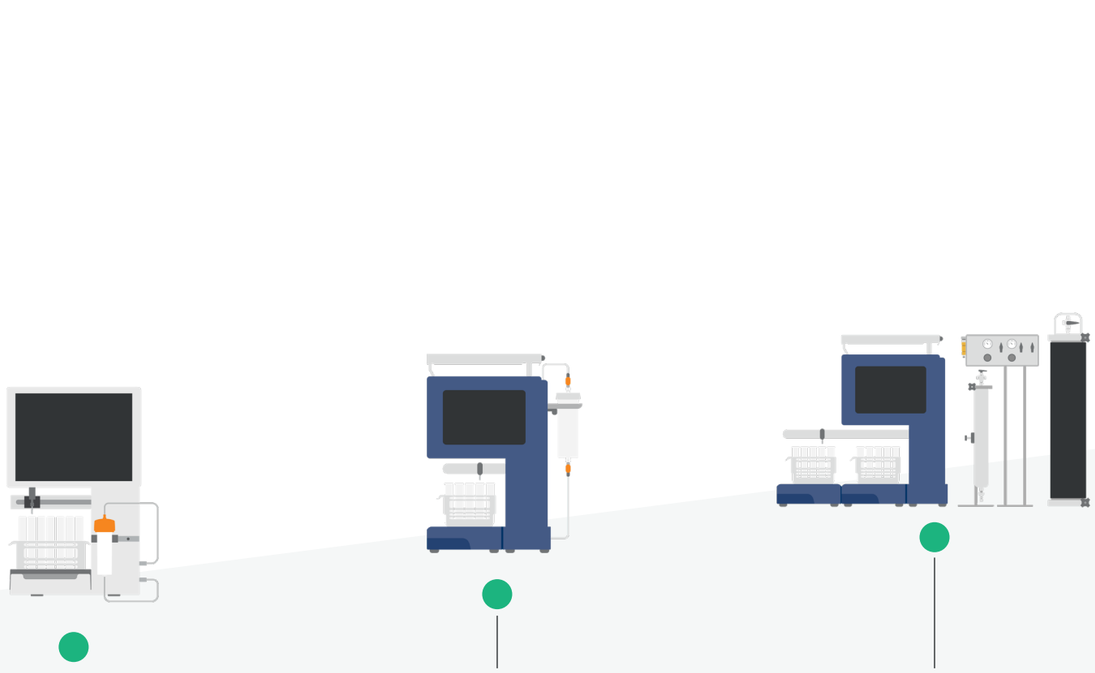
Design your purification process for manufacturing from the start. Using the same media and platform technologies from development through production enables smooth scale-up, preserves process knowledge, ensures consistent product quality, and supports efficient manufacturing.

Reliable scale-up at every stage

Development
Build robust, scalable methods with optimized purity, yield, and loading while minimizing solvent use.

Pilot scale
Transfer methods directly, maintaining separation performance and selectivity.

Manufacturing
Reproduce results at larger scale with consistent output, process control, and improved operational safety.



Biotage® Selekt

- Development
- Maximum sample size – normal-phase: 150 g*
- Flow rate: 300 mL/min
- Nominal cartridge mass: 5 g - 1.8 kg
- Automated

Isolera™ LS

- Development & production
- Maximum sample size – normal-phase: 150 g*
- Flow rate: 500 mL/min
- Nominal cartridge mass: 50 g - 1.8 kg
- Automated

Isolera™ LS 150

- Development & production
- Maximum sample size – normal-phase: 500 g*
- Flow rate: 500 mL/min
- Nominal cartridge mass: 50 g - 8 kg
- Automated

Biotage® Flash 75

- Production
- Maximum sample size – normal-phase: 100 g
- Flow rate: 250 mL/min
- Nominal cartridge mass: M: 400 g - L: 800 g
- Manual, ATEX, cGMP compliant

Biotage® Flash 150

- Production
- Maximum sample size – normal-phase: 500 g
- Flow rate: 1000 mL/min
- Nominal cartridge mass: M: 3 Kg - L: 6 Kg
- Manual, ATEX, cGMP compliant

Biotage® Flash 400

- Production
- Maximum sample size – normal-phase: 8000 g
- Flow rate: 6000 mL/min
- Nominal cartridge mass: M: 24 kg - L: 48 kg
- Manual, ATEX, cGMP compliant

* Nominal mass, actual loading will be sample dependent.

Overcoming scale-up challenges

The right system for every stage

Scaling chromatography is about achieving the same reliable performance at every scale – without adding complexity, risk, or unnecessary process changes.

Why choose a Biotage platform?

- Seamless scale-up from grams to kilograms
- Faster purification with higher productivity
- Consistent purity and predictable results
- Simple operation with robust, reliable performance

Larger scale development systems for building robust methods

Move from development to production with confidence. Once your method is established, it can be transferred to larger scales while maintaining consistent performance and reproducible results. This helps reduce risk, shorten timelines, and create a smoother path to production.

- Maintain peak shape and selectivity
- Scale without re-developing your method

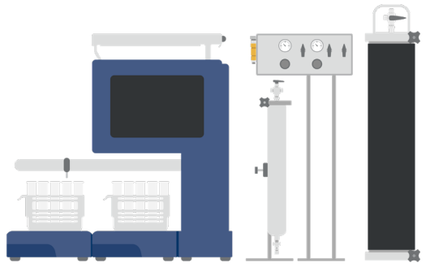
Biotage® Selekt, Isolera™ LS and Isolera™ LS 150

Scale-up success starts in development. With advanced detection and gradient optimisation tools, these systems help you build robust, reliable methods that translate seamlessly from development to larger-scale production.

- Optimise gradients to reduce solvent use
- Optimise purification early

Biotage® Selekt

Isolera™ LS



Isolera™ LS 150

Industrial systems for reliable scale-up

At larger scale, consistency and reliability become essential. Designed for preparative and production environments, these systems deliver the reproducibility and uptime needed to scale purification with confidence while maintaining control over performance, flow, and reproducibility.

- Confident scale-up – maintain process control and performance at a larger scale.
- Reliable reproducibility – consistent purification results from run to run.
- High system uptime – robust design for efficient, uninterrupted operation.

Optimized for each stage of scale-up

Biotage® Flash 75

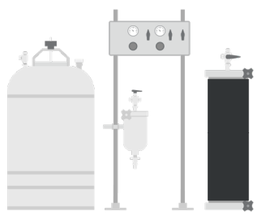
Ideal for early scale-up and pilot-scale applications, bridging the gap between method development and larger-scale purification. Purify up to 100 g samples at 250 mL/min.

Biotage® Flash 150

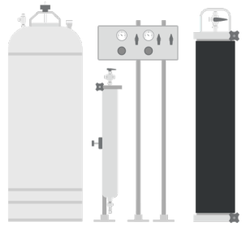
Delivers higher sample throughput and purification quantities while maintaining the speed, precision, and process control needed for reliable scale-up. Purify 500 g samples at up to 1000 mL/min.

Biotage® Flash 400

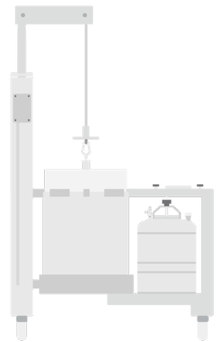
Built for production-scale purification, enabling kilogram-level processing with the robustness required for regulated operations. Isolate up to 8 kg of product per run at 6 L/min.



Biotage® Flash 75



Biotage® Flash 150



Biotage® Flash 400

Proven in multiple application areas

From APIs to advanced materials

Whether you're working with pharmaceutical compounds, natural products, or advanced materials, you can rely on a consistent scalable approach to deliver consistent purification performance across applications and chemistries.

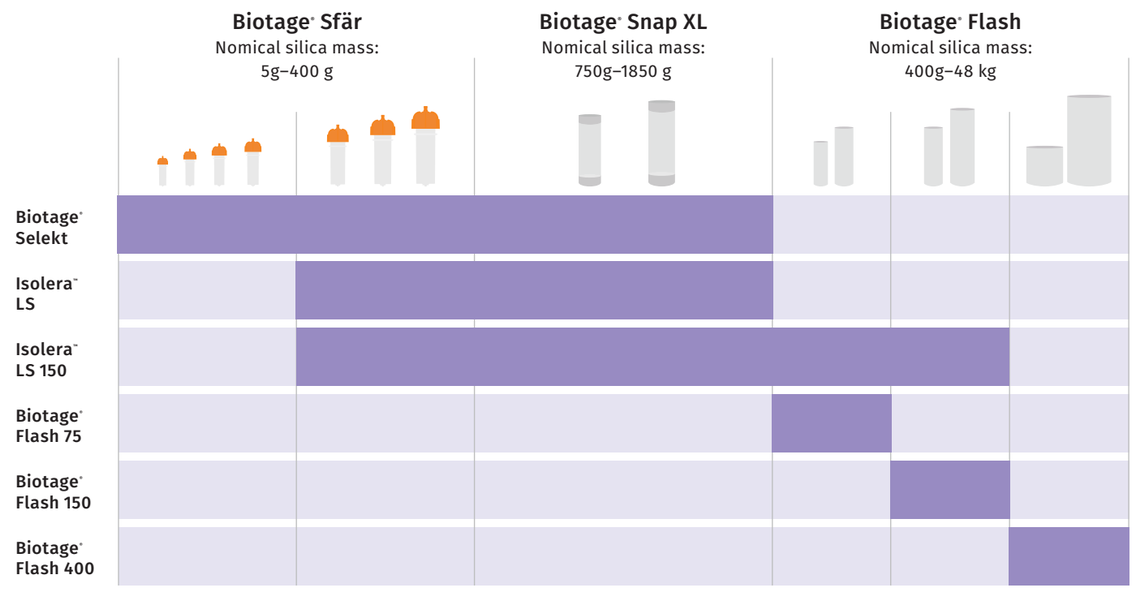
The versatility of the platform allows it to support diverse purification workflows, including:

- Pharmaceutical intermediates, APIs, and HP-APIs
- Small peptides, oligos, and lipids
- Natural products
- Advanced materials and research compounds

Video: Explore our Scale-up cartridges

Scalable flash purification | © Biotage 2026

Scalable column options



Media options

Phase	Media	Silica type	Typical particle size range (µm)	Pore volume mL/g	Typical surface area m^2/g	Typical pore diameter (Å)
Normal	Biotage® KP-Sil	Irregular	40–63	0.8	500	55
	Biotage® Sfär Silica 60	Spherical	50–70	1	725	50
	Biotage® HP-Sphere	Spherical	25–33	1	725	50
	Biotage® Sfär HC	Spherical	17–26	1	725	50
Reversed	Biotage® KP-C18-HS	Irregular	40–63	0.9	400	100
	Biotage® Sfär C18	Spherical	25–35	1.0	400	90
Specialty	Biotage® Sfär KP-Amino	Spherical	40–65	0.6	200	-
	ISOLUTE®-Amino	Irregular	40–63	0.8	500	55
	Carbon	Irregular	60–100	-	1400–1800	-

Irregular shaped particle

Spherical shaped particle

Customized packing for your process

Scale with what you trust

Method already locked in or validated? Keep what works as you scale. Pre-packed columns with your chosen media and ready to integrate into your existing platform infrastructure, configured columns help you maintain consistent performance, minimize process changes, and accelerate your path to larger-scale purification.

Skid-mounted Biotage 150 & 400 columns

Plug in, run, scale. The skid-mounted Biotage 150 and 400 radial compression modules are designed for seamless integration into your existing purification platform. Supplied with the core compression module and basic connectors, it enables Biotage 150 or 400 Flash columns to be quickly incorporated into your hardware and purification platform. With plug-and-play installation, you can get up and running fast, enabling efficient scale-up without major installation work or costly redesigns.

Configured columns with your chosen media

Scale up without changing the media you trust. Configured columns can be supplied pre-packed with your preferred media, allowing you to maintain established methods and consistent separation performance from development through production.

By eliminating the need for manual packing or alternative media, you can reduce variability, minimize risk, scale with greater confidence and reduce the down time from system cleaning. Integrate those pre-packed columns and flash modules into your existing platform.

Why choose configurable columns

- **Faster timelines** — ready-to-run columns with straightforward documentation
- **Reliable results** — reproducible performance without packing variability
- **Leaner operations** — less solvent and time vs. Prep HPLC when flash delivers the required resolution
- **Improved efficiency** — sealed prepacked columns enable quick changeovers and cleaning

Real-time UV monitoring

Detection for reproducible scale-up

When every gram matters, visibility is essential. Real-time UV monitoring gives you the confidence to make the right decisions throughout your purification process, helping you collect the right fractions the first time, improve purity, and reduce waste. The result is a more efficient, predictable process with less rework and better control of solvent consumption.

Built for real-world scale-up

Combining robust hardware, fiber optic technology, and flexible control software, our UV monitoring solution provides dependable, real-time detection in demanding purification applications.

- Inline, easy-to-integrate system
- Compatible with Biotage® Flash 75/150/400
- Can be positioned remotely using fiber optics
- Wireless data access for safer operation in sensitive areas

Video: All about the Biotage® Flash 150 UV-detector

Maximize yield, minimize waste

Make every purification run count with improved fraction collection, reduced waste, and higher product recovery. When confidence, traceability and documentation matter, our solutions help you:

- Collect the right fractions the first time
- Reduce reprocessing and solvent consumption
- Avoid losing valuable product

Fits seamlessly into your existing workflow

The system integrates easily with existing purification platforms, delivering reliable UV detection without adding complexity to your process.

What are the key features?

- Automatic calibration and system checks at start-up
- Flow cells designed for preparative purification at flow rates up to 6 L/min
- Adjustable flow cell path length for optimal detection performance
- Remote monitoring tablet-based software, or install on your own PC
- Supports your ATEX risk assessment via the use of fibre optic cables

Purifying products with metal scavenging

As your process approaches the final stages, efficient removal of residual metals becomes essential. A streamlined metal scavenging strategy helps you meet regulatory requirements, reduce reprocessing, and reach your final product with greater confidence.

Batch or flow, your choice

Metal scavenging doesn't have to add complexity to your process. Selective scavengers can be introduced directly into your mixture and removed by simple filtration, providing an efficient way to reduce residual metal content without redesigning workflows or disrupting established process steps.

Depending on your setup, use them in the way that fits your process:

- **Batch mode** – add and stir directly in your reaction mixture
- **Flow mode** – use packed columns for continuous processing. We can pack most media into columns, ask for more information from your local Biotage representative.

Remove metals, not product

Reduce metal contamination while maximizing product recovery. Selective scavengers remove unwanted metals efficiently, helping you meet specifications and maintain yield.

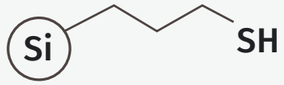
- Meet regulatory limits such as ICH Q3D
- Avoid repeated purification or rework
- Maintain yield and compound integrity

Works across a wide range of solvents and conditions

Compatible with a wide range of solvents and process conditions, scavengers can be integrated into existing workflows without changing your chemistry. This flexibility supports a consistent approach from method development to larger-scale production.

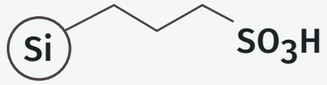
The right scavenger for every chemistry

A selection of scavengers is available to help you target specific metals and process requirements:



Si-Thiol

Versatile scavenger effective for a wide range of metals, including palladium, platinum, copper, mercury, silver, and lead. A reliable choice for many organic chemistry workflows.



SCX-2

Strong cation exchanger designed for removal of alkaline metals and certain transition metals, offering targeted and efficient removal of metals.

Activated carbon

High surface area adsorbent used for broad impurity removal, including metal residues and colour bodies, supporting both batch and flow processes.

Get support beyond the system

Helping you move from implementation to production

Scaling purification often requires more than equipment alone. From custom column packing and system integration to documentation and technical expertise, dedicated support helps you implement, maintain, and scale your process with confidence.

Helping you move forward with confidence

Expert support is available to help you implement, optimize, and maintain your process:

- Custom column packing
- Integration into existing systems
- Documentation for regulated environments
- Technical expertise and global support

Quality and compliance

Biotage operates under an ISO 9001:2015-compliant Quality Management System, supported by dedicated Site Quality and Group Quality & Regulatory teams.

Qualified suppliers and review processes help ensure that products meet scale-up requirements.

Materials and components are assessed for compliance with relevant standards, including USP Class VI requirements for wettable parts where applicable.

Instruments are supplied with relevant certifications such as CE, TÜV, and ASME when required.

Biotage-supported reagents and scavengers are manufactured in ISO 9001:2015-compliant facilities. All materials are batch- and lot-controlled, providing traceability throughout the supply chain.

Regulatory support

Biotage products are available off-the-shelf and in multi-kilogram quantities, supported by comprehensive documentation, including:

- Certificate of Analysis (CoA)
- SDS documentation
- Batch and lot information
- Chemical loading data
- Batch identity and consistency data
- Wettable path and Resin Regulatory support
- Instructions and recommended usage guidelines

Biotage also provides technical and regulatory support to assist with product implementation and process development.

Sustainability

Sustainability is an integral part of how Biotage operates. We work to reduce waste, emissions, and environmental impact across our operations while maintaining high standards for product quality and safety.

Biotage is a signatory of the United Nations Global Compact and supports internationally recognized principles related to human rights, labor standards, environmental responsibility, and anti-corruption.

Certifications and environmental standards

ISO 9001:2015

Biotage has been certified to ISO 9001 since 1995. The certification covers the design and manufacture of sorbent and resin materials for sample preparation and purification, as well as laboratory automation equipment. Registration number FM31206

ISO 14001:2015

Biotage is certified to ISO 14001 for environmental management, supporting a structured approach to reducing environmental impact and promoting responsible operations.Registration number EMS640981.

Environmental Permit

Biotage holds an environmental permit from Natural Resources Wales under the Environmental Permitting Regulations (England and Wales). Registration number: EPR/DP3832EF.

Impurity and chemical control

TSE/BSE Statement

Biotage polystyrene backbone resin materials and silica-based products are manufactured from either petroleum-derived chemicals or inorganic salts. Raw materials are traceable and do not contain materials of animal or biological origin; nor do ancillary chemicals used in production processes.

Compliance and validation support

Biotage scale-up purification platforms are designed to support regulated environments and are certified for use in major global markets, including Europe and North America.. Systems are supplied with CE marking and ASME “UM” stamp.

Biotage® Flash 75/150/400 systems are fully supported by

- Operating manuals to support SOP development and validation activities
- Engineering documentation package
- Certificate of Performance
- Certificate of Compliance for validation filing
- Please enquire for more details.

ATEX compliance

Biotage® Flash 75, 150, and 400 systems comply with the ATEX Product Directive (2014/34/EU) for equipment used in potentially explosive atmospheres.

Extractables and material control

Where single-use components are required to support impurity control or reduce operational risk, Biotage® Flash 75/150/400 cartridges are constructed of medium- or high-density polyethylene (HDPE) or polypropylene and comply with FDA extractables requirements under 21 CFR 177.1520.

Resin and silica products are thoroughly washed and tested during manufacturing to minimize the risk of introducing contaminants into downstream processes and reduce the burden of solvent utilization for our clients.

Biotage metal scavengers are designed to minimize extractable impurities, helping reduce the risk of introducing additional contaminants during purification and metal removal processes.

Shelf life

Many Biotage scale-up consumables have a shelf life of up to five years due to the stability of the raw materials and product components. Refer to individual product specifications for details.

REACH compliance

Biotage monitors raw material sourcing and supplier changes to support compliance with REACH requirements.

Products manufactured and supplied by Biotage to the best of our knowledge do not contain Substances of Very High Concern (SVHCs)

Order information

Biotage® Flash 75/150 main system/parts

Product number	Product name
SF-022-19041	Flash 75M system
SF-022-19071	Flash 75L system
SF-022-25071	Flash 150M system
SF-022-25151	Flash 150L system
419997	Flash 150M sub-assembly for Isolera™ LS
419998	Flash 150L sub-assembly for Isolera™ LS
FB-012-19040SP	Flash 75M Radial Compression Barrel
FB-012-19070SP	Flash 75L Radial Compression Barrel
FB-012-25070SP	Flash 150M Radial Compression Barrel
FB-012-25150SP	Flash 150L Radial Compression Barrel
FC-022-19041SP	Flash 75M Radial Compression Module
FC-022-19071SP	Flash 75L Radial Compression Module
FC-022-25071SP	Flash 150M Radial Compression Module
FC-022-25151SP	Flash 150L Radial Compression Module
SIM-0502SP	SIM 500
SIM-1002SP	SIM 1000
SIM-2002SP	SIM 2000

Biotage® Flash 400 main system/parts

Product number	Product name
SF-521-50070-23	Flash 400M system (facelift)
SF-521-50150	Flash 400L system (classic)
SF-521-50150-23	Flash 400L system (facelift)
FB-012-50070-22SP	Flash 400M Radial Compression Barrel
FB-012-50070-23SP	Flash 400M Radial Compression Barrel
FB-012-50150-22SP	Flash 400L Radial Compression Barrel
FB-012-50150-23SP	Flash 400L Radial Compression Barrel
FC-022-50070-22SP	Flash 400M Radial Compression Module
FC-022-50070-23SP	Flash 400M Radial Compression Module
FC-022-50150-22SP	Flash 400L Radial Compression Module
FC-022-50150-23SP	Flash 400L Radial Compression Module
FCW-022-50150-23SP	Flash 400 M/L skid mount
FCW-022-50070-23SP	Flash 400 M/L skid mount

Isolera™ LS main system/parts

ISO-1LSW-150L	Isolera™ LS 150L System
ISO-1LSW-150M	Isolera™ LS 150M System
SER-ISLS-150-IN	Installation and Familiarization - Isolera™ LS 150
S-150L-KIT	Upgrade connection kit for Isolera™ LS and Flash 150L System
ISO-1LS-150M-KIT	Upgrade connection kit for Isolera™ LS and Flash 150M System
ISO-1LSV	Isolera™ LS, One Channel, Ext Col. Bed, 200-400 nm UV
ISO-1LSW	Isolera™ LS, One Channel, Ext Col. Bed, 200-800 nm UV-VIS

UV monitor

UV-FL400	UV Monitor for Biotage® Flash 400 system
UV-FL150	UV Monitor for Biotage® Flash 150 system
416239SP	Flow Cell, 2mm, 1/4" SS for Biotage® Flash 75/150 systems
416240SP	FlowCell, TriClamp, 2mm, 1/2" SS for Biotage® Flash 400 system
UV-UPGRD FL150/400	UV Monitor upgrade for Biotage® Flash 400 (from 150)

Media for POC or analytical / method development

9401-0100	Biotage® Sfär C18, 100 g
9401-1000	Biotage® Sfär C18, 1Kg
9443-0100	Biotage® Sfär Silica HC, 20µm, 100 g
9443-1000	Biotage® Sfär Silica HC, 20µm, 1 Kg
9445-0100	Biotage® Sfär Silica 60 µm, 100 g
9445-1000	Biotage® Sfär Silica 60 µm, 1 Kg
9454-0100	ISOLUTE® Flash NH2, 100 g
9454-1000	ISOLUTE® Flash NH2, 1 Kg
K0-1107-0100	Biotage® KP-SIL, 100 g
K0-1107-1000	Biotage® KP-SIL, 1 Kg
L0-1118-00100	KP-C18-HS, 100 g
L0-1118-01000	KP-C18-HS, 1 Kg
N0-0909-0100	Biotage® Sfär KP-Amino, 100 g
N0-0909-1000	Biotage® Sfär KP-Amino, 1 Kg

Chemistry media

Product number	Product name
180-0050-B	ISOLUTE® Si-Thiol 500 mg/3 mL (50/pk)
180-0050-BG	ISOLUTE® Si-Thiol 500 mg/3 mL (Tabless) (50/pk)
180-0050-C	ISOLUTE® Si-Thiol 500 mg/6 mL (30/pk)
180-0100-C	ISOLUTE® Si-Thiol 1 g/6 mL (30/pk)
180-0100-D	ISOLUTE® Si-Thiol 1 g/15 mL (20/pk)
9180-0100	ISOLUTE® Si-Thiol, 100 g
9180-1000	ISOLUTE® Si-Thiol 1 kg
9180-10000	ISOLUTE® Si-Thiol 10kg
9180-25000	ISOLUTE® Si-Thiol, 25 kg
9536-0100	ISOLUTE® Si-Propylsulfonic Acid (SCX-2), 100 g
9536-1000	ISOLUTE® Si-Propylsulfonic Acid (SCX-2), 1 kg
9536-10000	ISOLUTE® Si-Propylsulfonic Acid (SCX-2), 10 kg
9536-25000	ISOLUTE® Si-Propylsulfonic Acid (SCX-2), 25 kg
CR-4021-01000	Flash Activated Carbon, Bulk, 1Kg

Service

SER-150-IN	Installation and Familiarization - Biotage® Flash 75/150
SER-150-IQOQ	Qualification Package - IQ/OQ - Biotage® Flash 75/150
SER-400-IN	Installation and Familiarization - Biotage® Flash 400
SER-400-IQOQ	Qualification Package - IQ/OQ - Biotage® Flash 400
SER-IND-UV-IQOQ	Qualification Package - IQ/OQ - UV Monitor Industrial Flas
UV-UPGRD FL150/400	UV Monitor upgrade for Biotage® Flash 400 (from 150)

Biotage is a global solutions partner for customers in drug discovery, development, and analytical testing. With deep expertise in separation and purification technologies and a focus on intelligent workflow solutions, we help advance and protect human health efficiently and reliably.

Learn more about us at biotage.com

For local office contact information,
visit biotage.com/contact

Literature Number: BR03

Biotage®