

# CombiFlash<sup>®</sup>

AUTOMATED CHROMATOGRAPHY SYSTEMS

Featuring EZ Prep



**TELEDYNE ISCO**  
Everywhere you look™

# CombiFlash® EZ Prep built on a strong history of chromatography innovations

The CombiFlash EZ Prep system is the latest innovation from Teledyne Isco. Nearly 60 years ago, founder Dr. Allington recognized a need for fraction collection to automate preparative liquid chromatography. He developed a fraction collector which is commonly used in chromatography laboratories worldwide. The company continues its emphasis on innovations resulting in a number of patents and products, especially for the laboratory scale preparative market.

## Early Innovations

Early innovations include developing the first absorbance detector that uses Absorbance Units (AU), receiving patents on peak detection to control fraction collection, and creating high pressure gradients for high performance liquid chromatography (HPLC). Through the 1960s and 70s, Teledyne Isco manufactured a variety of pumps and detectors suitable for both low and high pressure liquid chromatography. In the 1980s, Teledyne Isco launched a semi-preparative HPLC system including a large volume auto sampler. In the late 1990s, Teledyne Isco recognized a need for an automated Flash chromatography system to support small molecule research.

## Market Leader

Since that time, Teledyne Isco has been a market leader in Flash chromatography equipment, selling thousands of systems. The Flash products include multiple generations of personal Flash gradient systems, parallel and sequential Flash systems, a fully automated large scale laboratory system, and a range of detection technologies including Evaporative Light Scattering Detection (ELSD) and Mass Spectrometry. These products are supported by a full line of RediSep Flash chromatography columns covering a wide range of sizes and separation media.

## Reliable Chromatography Expert

Teledyne Isco combines a dedicated work force with a progressive, vertically integrated ISO 9001 manufacturing operation. The facility combines research, engineering, sales, service, and manufacturing including plastic molding, machine shop, automated column packing, and assembly operations.

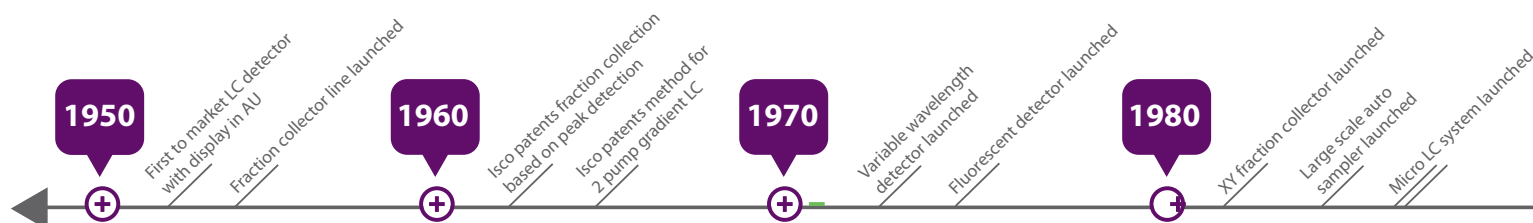
Following Dr. Allington's lead and the ongoing open dialogue with users, Teledyne Isco continues to build upon a rich history of pioneering products leading up to the creation of the EZ Prep system. It is this ongoing tradition of innovation that allows Teledyne Isco to meet your chromatography needs now and well into the future.

## Never lose your fraction.

As soon as the collection rack is inserted in the system, the RFID (radio-frequency identification) tag instantly identifies the rack. Tagged racks ensure proper tube fill, enable rack exchange during separation, and viewing last run on detected rack.

## Ensure safe operation and ideal methods with RFID tagged columns.

With RFID Flash columns, PeakTrak automatically loads a proper method and exchanges solvents when needed. Safe operating pressures are set for both Flash and Prep HPLC columns.



# COMBIFlash EZ PREP



## Start a separation in seconds with our PeakTrak® software.

Select a column to load default run, load your sample, and press play. The color-coded screen tells you if the system is in Flash or Prep HPLC mode. You can easily change parameters during the run.

## Error-free separation with active level sensing.

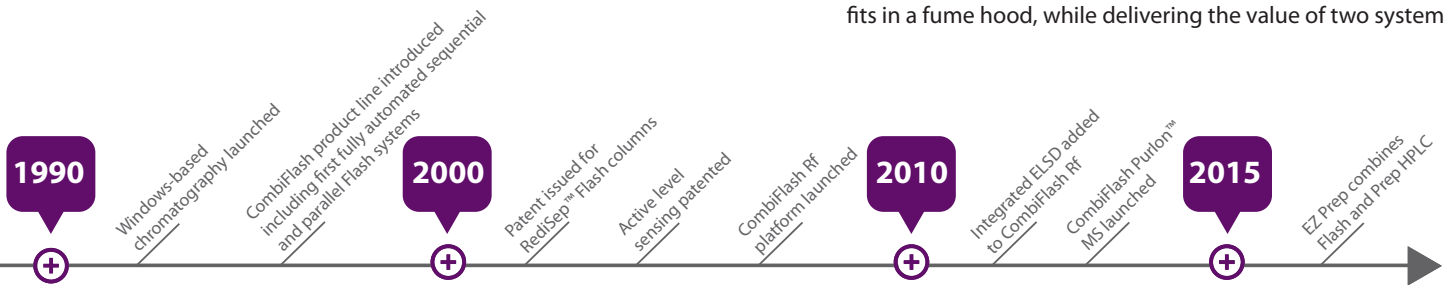
Never run out of solvents, overflow the waste container, or damage Prep HPLC columns.

## Achieve greatest purity with Prep HPLC capacity.

3500 psi pressure and 200 mL/min binary gradient allow you to run diverse types of Flash and Prep HPLC columns. Save time by running any Prep HPLC column faster with greater pressure capability.

## Get two systems in less space than most single systems.

The EZ Prep Flash and Prep HPLC chromatography system easily fits in a fume hood, while delivering the value of two systems.



# Performance meets simplicity.

Flash + Prep HPLC in one system

Intuitive PeakTrak<sup>®</sup> software

Small footprint

Supports widest column range

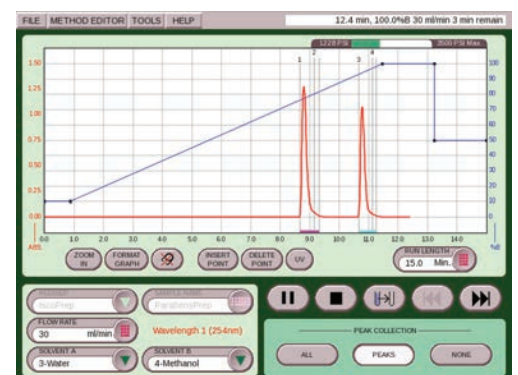
Active error prevention

The CombiFlash EZ Prep system from Teledyne Isco is a dual function purification system that enables the user to perform both Flash and Preparative (Prep) purifications on the same instrument. Eliminating the need for two separate systems, the EZ Prep system provides the flexibility to seamlessly switch between Flash and Prep HPLC modes without compromising performance.

The intuitive user interface of the PeakTrak software minimizes any learning curve, enabling the user to efficiently complete their purification, saving time and solvent consumption. The simple, single screen control of critical operating parameters and detection modes is finally available in Prep HPLC. PeakTrak software is easy to use, yet powerful enough to offer the control needed to purify compounds. The same PeakTrak software platform for both Flash and Prep HPLC allows anyone, regardless of their Prep HPLC experience, to easily complete a purification.

It's ideal for Flash users who occasionally need the resolving power provided by Prep HPLC and who need the ability to separate a wide range of diverse sample amounts. Meeting varying purity requirements using multiple detection options is something the EZ Prep is well suited for. These multiple detection options include: UV, UV-Vis, ELSD, and MS.

Whether you have a limited budget or limited lab space, the first choice for your purification needs is the CombiFlash EZ Prep.



All key parameters, located on one screen, can be changed on the fly.

# Simplify your separation in 3 easy steps.

Load a RediSep® column or select the installed Prep HPLC column.

1

PeakTrak® automatically loads a suitable method, ensures you have sufficient solvent available, and flushes the plumbing to switch between Flash and Prep HPLC. Don't worry about the collection rack; the EZ Prep system recognizes mixed rack sizes and adjusts accordingly.

Load your sample.

2

A wide variety of sample loading options allow you to load your compound onto the column for the best separation.

Press play.

3

That's it. If needed, you can edit any parameter "on the fly".

COMBIFlash **EZ** PREP



## Combine Flash and Prep HPLC functionality in only 17"

The CombiFlash® EZ Prep purification system is the slimmest of its kind, enabling you to fit a Flash and Prep HPLC in a space similar to an analytical HPLC. Additionally, you can increase system flexibility with an Evaporative Light Scattering Detector (ELSD) with no increase in size. You have the freedom to place solvents anywhere, from on top of the instrument to the floor.

## Achieve the highest compound purity

The CombiFlash EZ Prep is compatible with the highest resolution Prep HPLC columns, providing maximum purity over a wide range of column chemistry. The system can purify <10 mg to 30 g with purity up to 99% with proper column selection. The high pressure capability allows reduced run time at higher flow rates. In Prep HPLC mode, columns up to 50 mm in diameter with particle size down to 5 µm can be used at flows up to 200 mL/min and pressure up to 3500 psi (241 bar).

## Easily switch between Flash and Prep HPLC

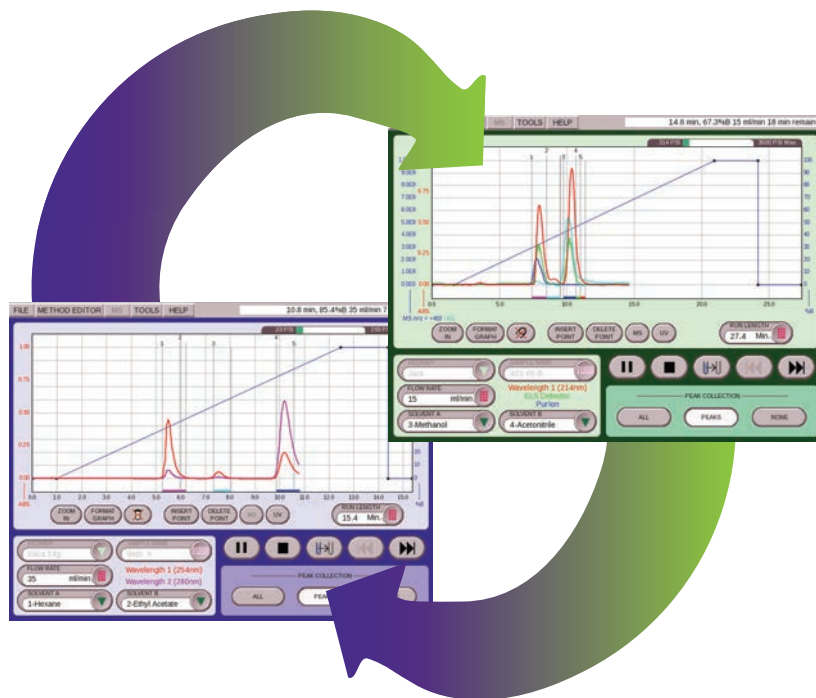
The CombiFlash EZ Prep purification system introduces an Automatic Phase Change option that seamlessly switches from normal phase Flash chromatography solvents to reverse phase Prep HPLC solvents. Intuitive PeakTrak® makes it easy to tell at a glance whether the CombiFlash EZ Prep system is in Flash or Prep HPLC mode. The display screen is blue if the system is in Flash mode and green if in Prep HPLC mode. (See right.)

## Never run out of solvents

With Teledyne Isco's patented active level sensing, you can walk away from your purification run with confidence. The system will not run out of solvent before the separation is complete, overflow the waste reservoir, or damage valuable Prep HPLC columns.

PeakTrak displays a message prior to beginning the run if there are insufficient solvents to complete the separation, so you never need to stop midway through the separation. Additionally, waste level sensing eliminates hazardous waste reservoir overflow by pausing the run and displaying a message.

## FLASH



## PREP

## Best-in-class fraction collection prevents sample loss and solvent spills

Teledyne Isco's best-in-class RFID-encoded collection racks ensure proper loading every time; preventing errors, solvent spills and sample loss. When the collection rack is inserted in the EZ Prep system, PeakTrak identifies tube size and sets the appropriate volume. Additionally, users can mix and match rack sizes and replace filled racks even during separation for virtually limitless fraction collection capability. Collection racks range in size from 13 mm test tubes to bottles. PeakTrak also prevents inadvertent operation if a Flash column or collection rack is not present, eliminating spillage.

## Intuitive PeakTrak makes purifications simple

Locating compounds is easy with color-coding on the chromatogram and the collection rack display. Tube numbers or physical locations can be used to identify peaks of interest. If you have analyzed your fractions and the compound is still on the column, you may load the column back on the Rf system and resume the separation. To confirm which rack contains your compound, load the rack into the EZ Prep system to review the rack's contents. After recognizing the RFID tag, the system will display the chromatogram for the compounds in that rack.

## Simple control options to meet your specific needs

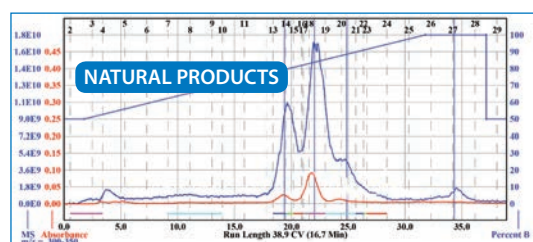
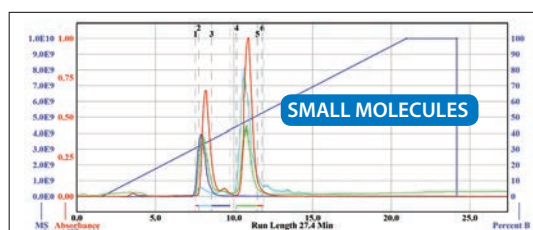
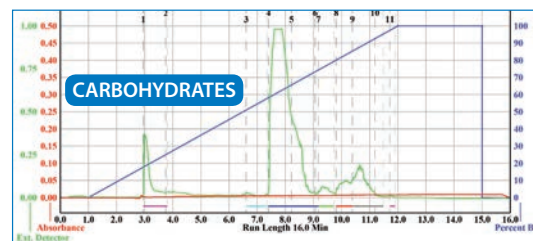
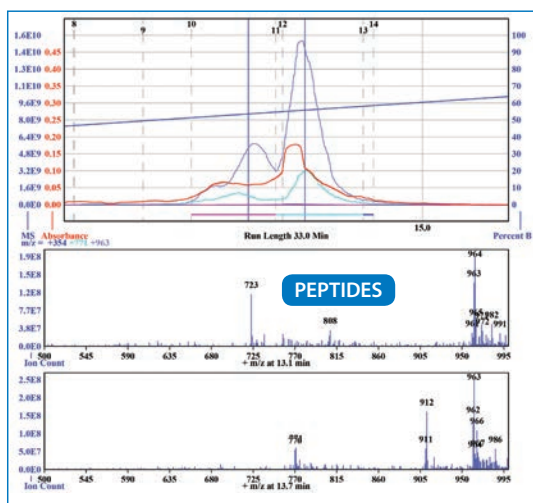
As with all CombiFlash systems, the EZ Prep saves you time and increases separation success. An intuitive touch screen display provides fast access and virtually eliminates errors, as users select from clearly defined menus and prompts on a single screen. Methods and results can be saved to a USB device as raw data or a PDF file to be managed later.

Network capabilities save time inside and outside of the laboratory. Simultaneous users can control and monitor purifications via web browser on a network computer or smart device (e.g., tablet), reducing time spent in the laboratory. For the ultimate in data accessibility, files are automatically saved to the instrument or may be saved to the network or printed.

## Quality Customer Service

Teledyne Isco employees, sales representatives, and distribution network put customers first to ensure they have the products and support needed to succeed. We take pride in developing and manufacturing quality, innovative products that are built to last. An ISO 9001:2008 certified company, Teledyne Isco uses lean manufacturing to produce CE compliant and shipment-tested products to the purification market. Furthermore, global service coverage with certified field technicians and convenient depot repair for remote locations is available.





## High-resolution purification for a wide range of applications

The CombiFlash EZ Prep can be used in a variety of applications, including organic synthesis, drug discovery, natural products, food additives, dyes, small molecules, peptides, agrochemicals, inorganic ligands, and other research applications.

### Peptides

The EZ Prep with RediSep Prep C4 column separated these peptides to 98% purity based on small differences in their structures. Although both peptides have the same molecular weight, the Purlon mass spectra fragmentation patterns show the compounds are different.

### Carbohydrates

Compounds without chromophores are easily seen with the optional built-in ELSD. Carbohydrates can be purified in either Flash or Prep HPLC mode of the EZ Prep. Refer to chromatography application note (AN80), "Evaporative Light Scattering Detectors as an Alternative Detection Method for Flash Chromatography".

### Small Molecules

Synthesized compounds are easily resolved using a Prep HPLC column with UV, ELSD or mass-directed fractionation, ensuring compounds are not missed. 3500 psi (241 bar) saves time with the ability to increase flow on your Prep HPLC column.

### Natural Products

Crude mixtures of natural products can be isolated with Flash, and a higher purity achieved with Prep HPLC. Capsaicins are purified on the RediSep® Prep C18 column from fractions of an alumina Flash column.

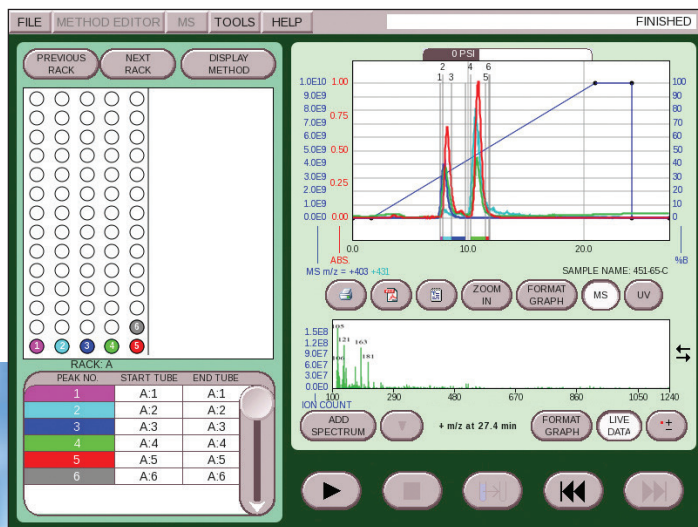
For a complete listing of application notes and more information on the notes referenced above, refer to the Liquid Chromatography page of the Teledyne Isco website, [www.isco.com](http://www.isco.com).



## A CombiFlash® system to meet your specific needs

You can always meet your purification needs with the CombiFlash family of products. Teledyne Isco offers a variety of configurations to best detect your compounds: UV, UV-Vis, (both include Spectra and All Wavelength), ELSD and mass-directed purification. The newest member, the affordable and versatile EZ Prep system, offers multiple detection options and a wide range of columns. For example, start with a UV or UV-Vis detector, then add an ELSD to detect non-chromophoric compounds as the need arises. Or, combine with the CombiFlash® Purlon mass spectrometer module to obtain maximum detection selectivity and improve efficiency with mass-directed fractionation.

Teledyne Isco's easy-to-use PeakTrak software provides "on the fly" gradient editing, enabling you to optimize the separation as it is happening, even during a Prep HPLC separation. For the ultimate time and solvent-saving process, combine the EZ Prep with the Purlon mass spectrometer with "Terminate on Target" to stop the purification when your desired compound has eluted.



**Left:** Purification using UV, ELSD, and mass-directed detection and fractionation.

*There are many benefits when you select the EZ Prep system with the detection technology to meet your needs.*

### Photodiode Array (PDA) Detector (Standard)

- Detect with either UV (200-400 nm) or optional UV-Vis (200-800 nm)
- Fractionate peaks by slope, thresholds, time windows or changes in spectral purity to maximize purity and recovery
- Change sensitivity with multiple flow cells (optional) and PeakTrak gain settings

### Optional ELSD

- Detect compounds with no chromophore
- Integrate ELSD into PeakTrak software for ease of use
- Add to EZ Prep with no increase in footprint

### Optional Mass Spectrometer

- Provide easy-to-use PeakTrak user interface for mass directed collection
- Stop purification with "Terminate on Target" once the target compounds are detected to save time and solvent
- Trigger fraction collection for up to four different masses or range of masses
- Provide mass summary spectra for contents of any fraction tube to determine fraction purity
- Detect the widest variety of compounds with electrospray ionization (ESI) or atmospheric pressure chemical ionization (APCI), detecting a mass range of 50-2000 Da
- Inject your sample prior to separation to verify ionization of the sample and select the ion of interest for peak detection and fractionation
- Automatically clean mass spectrometer interface

# CombiFlash<sup>®</sup> Rf<sup>+</sup>

## Industry Leader

The industry leading CombiFlash Rf<sup>+</sup> with PeakTrak<sup>®</sup> software increases productivity whether you're purifying synthetic compounds, natural products, or peptides. With flow rates up to 200 mL/min at 200 psi (13.8 bar), the CombiFlash Rf<sup>+</sup> is capable of normal and reverse phase purifications from a few milligrams up to over 30 g.

Save valuable bench space with the smallest footprint of any automated Flash system. This network-compatible system saves you time by allowing remote monitoring from almost anywhere.



- Eliminate errors using RFID with RediSep<sup>™</sup> columns and racks to load optimal parameters
- Avoid poor separations or a hazardous waste spill with the Rf<sup>+</sup>'s active solvent and waste level sensing
- Scale up successful separations using automatic method scaling, even export to the CombiFlash Torrent<sup>®</sup>
- Get the purest peak possible using the purity indicator to cut close eluting peaks
- Load your samples and walk away, with the automated injection valve
- Purify a wide range of compounds using any of four solvents in a binary gradient
- Achieve best-separation possible using solid load cartridges
- Predict optimal purification conditions with gradient optimizer software

# CombiFlash<sup>®</sup> Rf<sup>+</sup> Lumen<sup>™</sup>

## Universal Flash Chromatography

Detection of compounds with minimal or no UV absorption such as carbohydrates, steroids, and lipids require more than just UV absorbance detection. The CombiFlash<sup>®</sup> Rf<sup>+</sup> Lumen<sup>™</sup> with integrated Evaporative Light Scattering Detector (ELSD) compliments UV or UV-Vis detection to deliver the widest compound detection range in the industry.



- Add ELSD with no increase in footprint
- Detect even light-sensitive compounds by turning off the UV detection and relying on the ELSD
- Turn off the ELSD when it is not needed for zero sample loss

# CombiFlash<sup>®</sup> Rf<sup>+</sup> PurIon

## Selective Flash Chromatography



CombiFlash<sup>®</sup> Rf<sup>+</sup> PurIon takes the guesswork out of your purification routine with mass directed fractionation. Collect only the peaks of interest by selecting target masses for collection. This eliminates the need for further analysis and saves time with fewer fractions, so you can quickly move on to the next step.

- Minimize learning curve with integrated mass spectrometer control
- Verify ionization and identify possible adducts using the ion finder in method development
- Save time and solvents with “Terminate on Target” which stops the separation once the peaks of interest are collected
- Detect a wide range of compounds with 2000 Dalton mass range, easily change ESI and APCI interfaces, and select ionization polarity
- Locate your compound real-time and post-run with mass spectral data display

# CombiFlash<sup>®</sup> Torrent<sup>®</sup>







## Large Scale Chromatography

Get the ease of use and reliability provided by CombiFlash Rf<sup>+</sup> systems and RediSep columns for development scale purification with the CombiFlash Torrent<sup>®</sup> purification system. The system can be adapted to a variety of large scale purification needs.

- Purify hundreds of grams in a few hours
- Collect large fractions with up to 72 bottles or 6-port fraction valve
- Load difficult compounds with a choice of solid load cartridges or liquid loading with optional sample pump
- Safely work with large quantities of solvents with fully grounded fluid paths and active level sensing

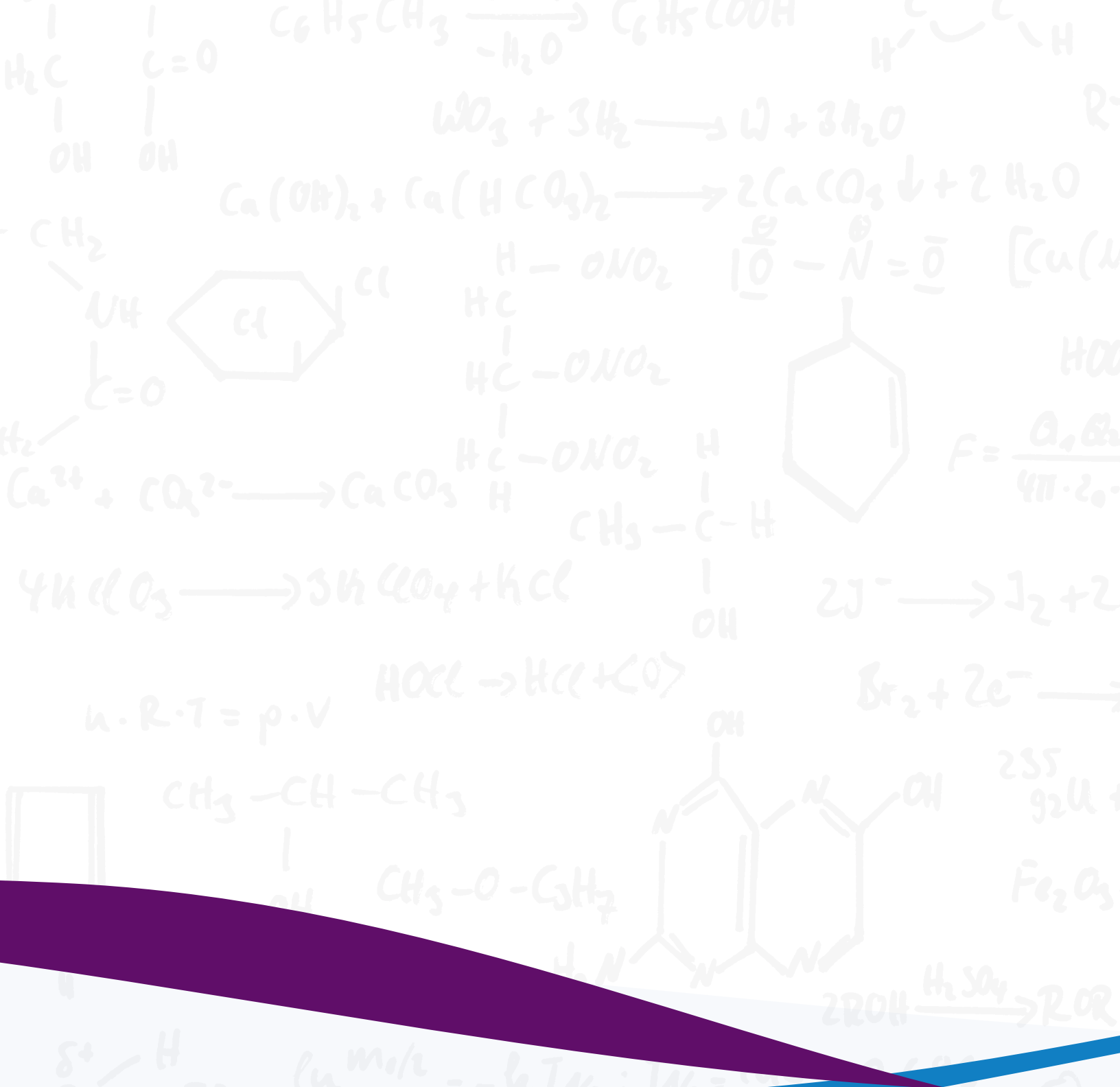


# Choose the CombiFlash® system that's right for you

	CombiFlash Torrent	CombiFlash Rf 150	CombiFlash Rf <sup>+</sup>	CombiFlash Rf <sup>+</sup> Lumen	CombiFlash Rf <sup>+</sup> Purlon	CombiFlash EZ Prep
						
<b>Flow Range</b>	50 mL - 1 L/min	10 – 100 mL/min	1 – 200 mL/min	1 – 200 mL/min	1 – 200 mL/min	5-200 mL/min (Flash & Prep)
<b>Maximum Pressure</b>	100 psi, 6.9 bar	150 psi, 10.3 bar	200 psi, 13.8 bar	200 psi, 13.8 bar	200 psi, 13.8 bar	3500 psi, 240 bar
<b>Add On 4X Module</b>	No	No	Yes	Yes	Yes	Yes
<b>Sample Sizes</b>	1 - 300 g	4 mg – 33 g	4 mg – 33 g	4 mg – 33 g	4 mg – 33 g	4 mg – 33 g
<b>Column Sizes</b>	80 g up to 3 kg	4 g – 330 g, up to 3 kg with adapters	4 g – 330 g, up to 3 kg with adapters	4 g – 330 g, up to 3 kg with adapters	4 g – 330 g, up to 3 kg with adapters	4 g – 330 g, up to 3 kg with adapters; Prep: 10-50 mm, up to 250 mm
<b>Gradient Optimization Software</b>	Standard	Standard	Standard	Standard	Standard	Standard
<b>RediSep Rf Column Detection</b>	Automatic	None	Automatic	Automatic	Automatic	Automatic
<b>Pumping System</b>	Dual piston pumps with active valve	Ceramic single piston with active valve	Dual syringe pumps	Dual syringe pumps	Dual syringe pumps	Dual head HPLC Pumps
<b>Standard Detection</b>	Variable UV	Variable UV	Variable UV	Variable UV and ELSD	Variable UV and Mass Spectrometer	Variable UV
<b>Optional Detection</b>	UV-Vis and ELSD	UV-Vis	UV-Vis	UV-Vis	UV-Vis and ELSD	UV-Vis, ELSD, and Mass Spectrometer
<b>Spectral Display</b>	UV or UV-Vis	UV or UV-Vis	UV or UV-Vis	UV or UV-Vis	Mass and UV or UV-Vis	UV or UV-Vis
<b>External Detector Input</b>	Standard through Fraction Collector	None	Standard	Standard	Standard	Standard
<b>Programmable Gradients</b>	Linear, Step, Isocratic	Linear, Step, Isocratic	Linear, Step, Isocratic	Linear, Step, Isocratic	Linear, Step, Isocratic	Linear, Step, isocratic
<b>Gradients</b>	Two solvent, binary	Two solvent, binary	Four solvent binary with isocratic third solvent as modifier	Four solvent binary with isocratic third solvent as modifier	Four solvent binary with isocratic third solvent as modifier	Four solvent binary
<b>Sample Injections</b>	Multiple Options	Manual Load	Automated, self-cleaning injection valve	Automated, self-cleaning injection valve	Automated, self-cleaning injection valve	Automated, self-cleaning Flash injection valve; Prep HPLC injection valve with loop
<b>Controller</b>	10.4" (26.4 cm) touchscreen	10.4" (26.4 cm) touchscreen	10.4" (26.4 cm) touchscreen	10.4" (26.4 cm) touchscreen	10.4" (26.4 cm) touchscreen	10.4" (26.4 cm) touchscreen
<b>Dimensions (W x D x H)</b>	18.5 x 17.9 x 28.1 in., 47 x 43.5 x 71.4 cm	14.1 x 17 x 24 in., 35.8 x 43.2 x 61.0 cm	14.1 x 17 x 24 in., 35.8 x 43.2 x 61.0 cm	14.1 x 17 x 24 in., 35.8 x 43.2 x 61.0 cm	14.1 x 17 x 24 in., 35.8 x 43.2 x 61.0 cm (excluding MS)	17 x 17 x 26.5 in., 52.4 x 52.4 x 82.5 cm
<b>Ionization Probe Options</b>	N/A	N/A	N/A	N/A	ESI or APCI	N/A
<b>Mass Range</b>	N/A	N/A	N/A	N/A	50 - 1200 Dalton Purlon + Purlon S 50 - 2000 Dalton Purlon L	N/A

Teledyne Isco reserves the right to improve products and change specifications at any time.





**TELEDYNE ISCO**  
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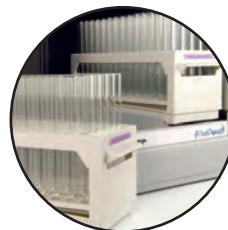
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Performance



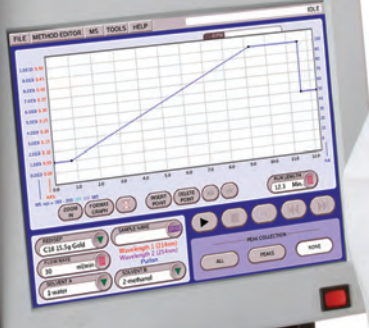
Reliability



Productivity



**CombiFlash**®  
Automated Flash  
Chromatography Systems



RediSep Rf  
Technology Inc.

CombiFlash Rf

16 x 150mm, 18ml

16 x 150mm



# CombiFlash® Rf+ Family of Purification Systems

## Flash chromatography is the science of refinement...

Teledyne Isco continues to refine its CombiFlash Rf+ Purification systems for simplified ease of use, increased throughput, superior results and the ideal system configuration to meet the laboratories' needs. Years of experience are behind our safer, smaller, simpler, more capable and more efficient Flash chromatography instruments.

Standard features include:

- Large fraction capacity for longer runs without changing racks. Fraction capacity is virtually unlimited with rack changes.
- Radio Frequency Identification (RFID) technology reduces setup time and the potential for errors as well as rack verification so tubes are not missed or overfilled.
- Built-in method-scaling adjusts simply from milligram to multi-gram purifications.
- Safety features exceed regulatory requirements for CE and CSA.
- Vapor and over-pressure sensors for vigilant safety monitoring.
- Active level sensing eliminates lost runs due to lack of adequate eluting solvent and waste overflow.
- Air purge dries columns for easy disposal.

## Develop a purification method to produce a desired result...

The CombiFlash Rf+ family centers around the flexibility to satisfy the wide variety of needs in Flash chromatography. Furthermore, the family offers specialized configurations to perform these purification tasks at a superior level.

- Versatile enough for both discovery and development-scale purification of organic compounds.
- Capable enough to scale-up purification for drug discovery, agrochemicals, petrochemicals, natural products, polymers and catalysts from milligram to multi-gram samples.

## The best possible purification for your specific sample mixture...

Each member of the CombiFlash Rf family is specifically engineered to meet your unique needs. What do you need to achieve - increased throughput, exceptional ease of use, the necessary flexibility of scale and separation methods? The CombiFlash system adapts to a variety of workload, detection, and automation needs.

Advance your lab's capabilities by selecting the right CombiFlash Rf system for your purification needs.

## Making Flash Chromatography Intuitive

While flexibility is at the heart of the CombiFlash Rf family, what is common to all CombiFlash Rf models is our simple, straight forward PeakTrak software:

There is no longer a need to build methods where all operating parameters must be detailed before any purification can be run. PeakTrak gets you started with one simple button push.

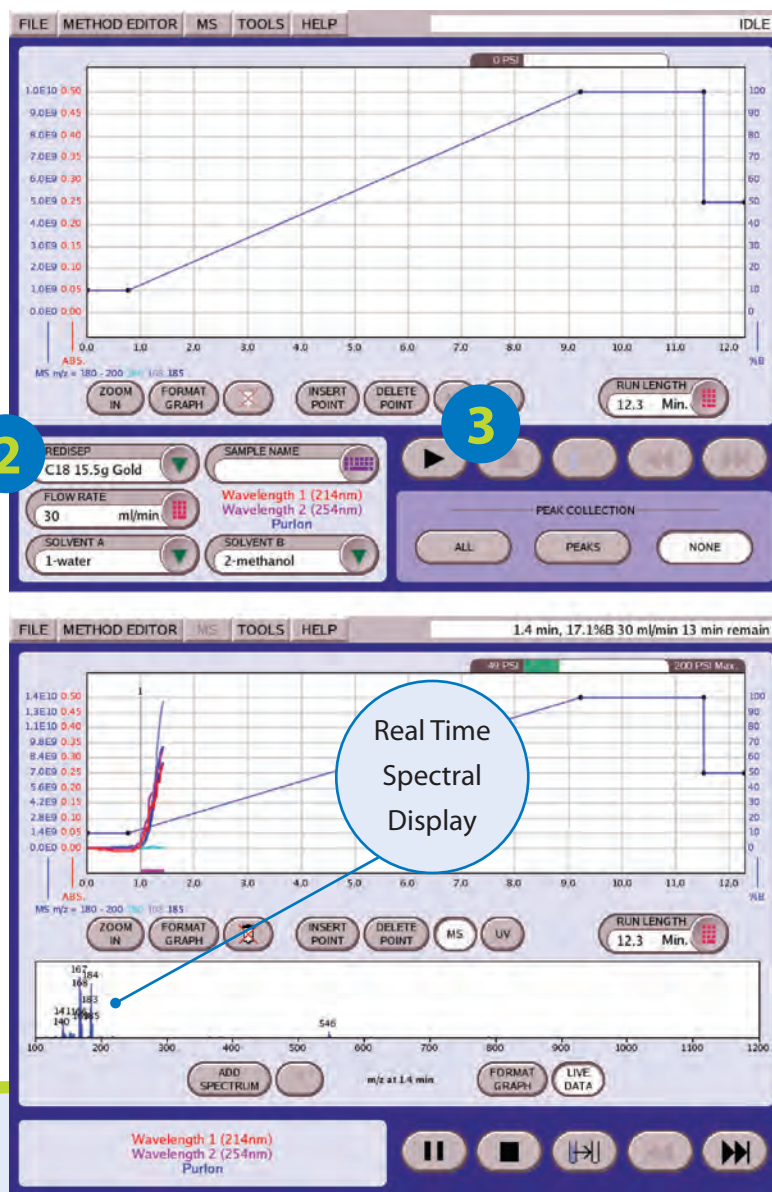
To get started, is as simple as 1,2,3...

- 1 Prepare your sample
- 2 Install a column. The system automatically loads the method.
- 3 Press Play

Once the purification run starts, all of the run data is at your fingertips - even the spectral data. Intelligently designed software like PeakTrak is what makes Teledyne Isco's CombiFlash Systems the world's most popular family of automated Flash chromatography systems.

Don't want to be tied to the lab?

PeakTrak network software supports common protocols, providing you remote monitoring and control of purifications.



- Intuitive Touch Screen Display for instrument use and programming
- Immediate access to all of the information you need quickly and efficiently
- Real-time method control and editing
- Click and drag gradients

# CombiFlash® Rf<sup>+</sup> Purlon:

## Making Flash Chromatography Selective

CombiFlash® Rf<sup>+</sup> Purlon takes the guesswork out of your purification routine with mass directed purification. Simply program the Flash system to collect only those peaks matching the mass of your target compound. This eliminates the need for further analysis and saves time in post-purification processing.

### Key features include:

- Real-time and post-run mass spectral data display.
- Robust quadrupole technology.
- Quickly switch between the standard ESI probe to APCI for difficult to ionize compounds.
- Simplified user interface – no MS expertise required.
- A quick self-cleaning function reduces or eliminates maintenance needs.
- Select Terminate after Target to save time and solvent.



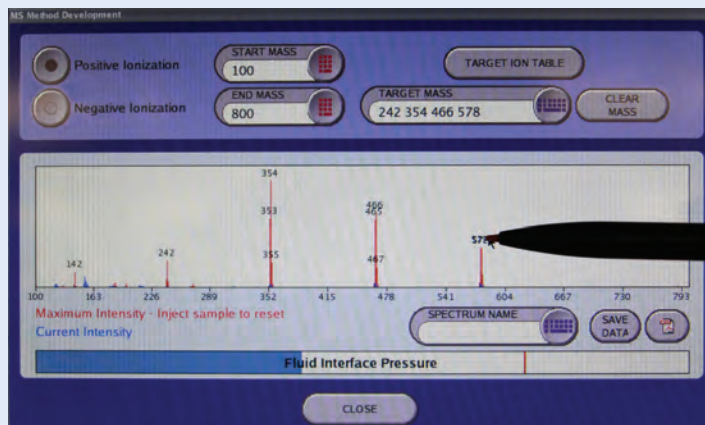
## CombiFlash® Rf<sup>+</sup> PurIon

### Verify Before You Purify

The method development screen allows you to quickly identify the detectable ions in your sample.

The Purlon L mass spectrometer has a mass range from 50 to 2000 Dalton with 1 Dalton resolution. The system autoswitches between positive and negative modes with sample introduction via either electrospray ionization (ESI) or atmospheric pressure chemical ionization (APCI) probes. Preset mass spectrometer operating parameters simplify system operation or adjust parameters to optimize ionization conditions.

The CombiFlash system lets you fractionate up to four specific targeted masses or a mass range and three target masses. Use the mass spectrometer with either a UV or UV-Vis detector and the Evaporative Light Scattering Detector to gain maximum control of your compound purification.



# CombiFlash® Rf<sup>+</sup> Lumen:

## Making Flash Chromatography Universal



Integration of an Evaporative Light Scattering Detector (ELSD) allows detection of compounds with minimal UV absorption such as carbohydrates, steroids, and lipids.

The CombiFlash® Rf<sup>+</sup> Lumen combines ELSD with either UV or UV-Vis detection to deliver the widest compound detection range in the industry.

### Key features include:

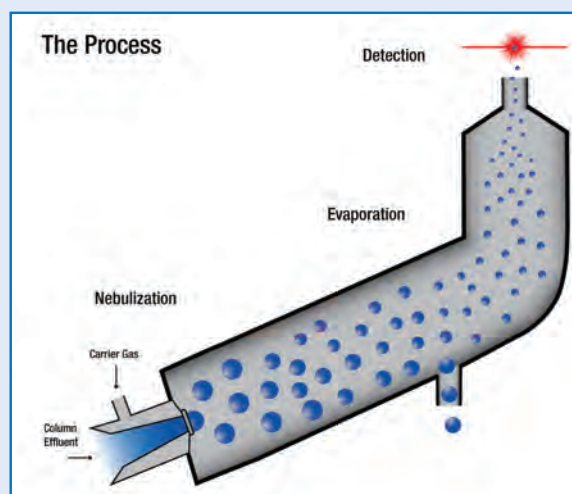
- Conserve valuable hood space - the CombiFlash Rf<sup>+</sup> Lumen has an integrated ELSD.
- ELSD operating parameters are automatically adjusted to optimize detection based on purification solvents in use.
- Detect light sensitive compounds by turning off the UV lamp.

## CombiFlash® Rf<sup>+</sup> Lumen™

### ELSD Function

The ELSD withdraws a miniscule portion of the liquid eluting from the chromatographic column into the detector module. This fluid is nebulized using a stream of inert gas and forms an aerosol cloud of solvent droplets containing your compound. The aerosol cloud is evaporated, leaving micro-particles of compound.

The gas stream carries these micro-particles to the detector where a laser light illuminates the gas stream. When a compound is present, the particles cause the laser light to scatter creating a detector signal. This signal triggers collection of your compound.



# CombiFlash® Rf+:

## Making Flash Chromatography Easy

The CombiFlash® Rf+ increases productivity whether you're purifying synthetic compounds, natural products, peptides, or polymers. The system is compatible with both normal and reversed phase conditions to meet all your purification needs. With flow rates up to 200 mL/min at pressures of 200 psi (13.8 bar), the CombiFlash Rf+ is capable of purifications requiring columns up to 330 g in size.



With the smallest footprint of any automated Flash chromatography system, the CombiFlash Rf+ saves valuable bench or hood space. This network-compatible system saves you time by allowing remote monitoring and control of the purification progress from your desk.

### Other features include:

- RFID on columns and racks eliminates errors, tracks column usage, and identifies rack contents.
- Easy automatic method scaling up to 330 g columns eliminates the need to redevelop methods.
- Four solvent flexibility – run binary gradients from any two of four solvents, add a third solvent as a modifier.
- An automated injection valve lets you load samples and walk away.
- Gradient Optimizer - determines optimal separation parameters while minimizing run time and solvent usage.
- View UV spectra in real time – monitor the spectra to allow compound confirmation.
- Active solvent and waste level sensing eliminates mobile phase shortages and chemical spills.
- Purity Indicator – identifies co-eluting impurities under peaks of interest.

## CombiFlash® Rf+

### Making Flash Chromatography Upgradeable

CombiFlash Rf+ can grow as your needs change. Quickly add a Purlon module to any MS-ready system. Should your detection needs suddenly require ELSD, any CombiFlash Rf+ is field upgradeable to a CombiFlash Rf+ Lumen™ system. Or, add the 4x module for even greater unattended productivity.

# CombiFlash® Rf 150:

## Making Flash Chromatography Economical

The CombiFlash® Rf 150 delivers normal or reversed phase purifications at a fraction of the cost of preparative HPLC. The system operates at pressures up to 150 psi (10.3 bar). The rugged construction makes this unit a daily workhorse for your demanding schedule.

Beginning users will be up and running in a matter of minutes with our intuitive PeakTrak user interface. Don't waste valuable time learning complex software when it could be better spent purifying samples.

The system accepts a variety of rack sizes so that purified compounds can be collected in volumes appropriate for the column size being used.

### Like other models in the CombiFlash family, the CombiFlash Rf 150 features:

- Real-time method editing and control.
- Touch-and-drag gradients.
- Gradient optimization.
- Flow rates for fast purifications – 100 mL/minute.
- Real-time spectral display.
- Variable wavelength UV detector (UV-Vis optional).
- Column sizes from 4 to 330 grams.

# CombiFlash® Rf 150



# CombiFlash Torrent<sup>®</sup>:

## Making Flash Chromatography Productive

Get the ease of use and reliability provided by CombiFlash Rf+ systems and RediSep columns for development scale purification with the CombiFlash Torrent<sup>®</sup> purification system. The system is designed to adapt to a variety of large-scale purification needs.

### The CombiFlash Torrent offers flexible sample introduction and Fraction collection options:

- Choose between Solid Load Cartridges or liquid loading to introduce samples onto column.
- Liquid loading can be either manual or via a sample load pump.
- Fraction collection options include a 6-port fraction valve to collect large volumes or collection into up to four Foxy R2 high flow fraction collectors.
- The flow path is fully grounded to prevent static buildup.
- Active solvent and waste level sensing technology eliminates chemical spills and mobile phase shortages.

**CombiFlash**  
**Torrent<sup>®</sup>**



For complete details, download our CombiFlash Torrent brochure located on our website [www.isco.com](http://www.isco.com)

# RediSep® Rf and RediSep Rf Gold®:

## Making Flash Chromatography Work

Teledyne Isco offers two lines of Flash Chromatography columns. Both RediSep® Rf and RediSep Rf Gold® offer the following advantages:

- High flow rates for fast purification of target compounds.
- Reliable, consistent performance from automated precision packing.
- Column sizes available for purifying milligrams to hundreds of grams.
- RFID technology for automatic set up on compatible instruments (except 4 g silica and 8 g alumina).
- Fits all Isco CombiFlash automated organic purification instruments (fits other systems using adapters).
- Long shelf life in airtight, re-sealable packages.
- Available in bulk discounted quantities.
- Luer lock inlet end fittings.

### RediSep Rf Gold - High-performance spherical media for sharper peaks and faster purifications

When more resolution is needed for those difficult separations, chemists choose our RediSep Rf Gold columns to take advantage of the benefits of this patented silica media.

Advantages include:

- Outstanding resolution to purify closely eluting compounds and isomers.
- Faster purification runs saving time and solvent.
- More concentrated fractions, reducing post-run solvent evaporation time.
- Lower back pressures than competing columns.

RediSep Rf Gold columns are available in several reusable phases such as:

- C18
- C18Aq - for high aqueous separations (>50%)
- Amine
- Cyano
- Diol

### RediSep Rf - High resolution and reproducibility for your normal-phase separations

RediSep Rf disposable columns for Flash purification of organic compounds are simply the most economical silica gel columns you can buy. Compare them to other brands and see the high resolution and reproducible results possible for normal phase separations.

In addition to silica, RediSep Rf columns are available in several alternative phases such as:






- C18
- Alumina – Basic, Neutral, Acidic
- SAX
- SCX

For a complete listing of column options, check out our RediSep Rf Consumables brochure located on our website [www.isco.com](http://www.isco.com)





# Choose the CombiFlash® System that Meets Your Needs

	CombiFlash Torrent	CombiFlash Rf 150	CombiFlash Rf+	CombiFlash Rf <sup>+</sup> Lumen	CombiFlash Rf <sup>+</sup> Purlon
					
<b>Flow Range</b>	50 mL - 1 L/min	10 – 100 mL/min	1 – 200 mL/min	1 – 200 mL/min	1 – 200 mL/min
<b>Maximum Pressure</b>	100 psi, 6.9 bar	150 psi, 10.3 bar	200 psi, 13.8 bar	200 psi, 13.8 bar	200 psi, 13.8 bar
<b>Add On 4X Module</b>	N/A	N/A	68-5230-007	68-5230-007	68-5230-007
<b>Sample Sizes</b>	1 - 300 g	4 mg – 33 g	4 mg – 33 g	4 mg – 33 g	4 mg – 33 g
<b>Column Sizes</b>	80 g up to 3 kg	4 g – 330 g, up to 3 kg with adapters	4 g – 330 g, up to 3 kg with adapters	4 g – 330 g, up to 3 kg with adapters	4 g – 330 g, up to 3 kg with adapters
<b>Gradient Optimization Software</b>	Standard	Standard	Standard	Standard	Standard
<b>RediSep Rf Column Detection</b>	Automatic	None	Automatic	Automatic	Automatic
<b>Pumping System</b>	Dual piston pumps with active valve	Ceramic single piston with active valve	Dual syringe pumps	Dual syringe pumps	Dual syringe pumps
<b>Detection</b>	Variable UV std, UV-Vis optional	Variable UV std, UV-Vis optional	Variable UV std, UV-Vis optional	ELSD, Variable UV std, UV-Vis optional	Mass Spectrometer, Variable UV std, UV-Vis and ELSD optional
<b>Spectral Display</b>	UV or UV-Vis	UV or UV-Vis	UV or UV-Vis	UV or UV-Vis	Mass and UV or UV-Vis
<b>External Detector Input</b>	Standard through Fraction Collector	None	Standard	Standard	Standard
<b>Programmable Gradients</b>	Linear, Step, Isocratic	Linear, Step, Isocratic	Linear, Step, Isocratic	Linear, Step, Isocratic	Linear, Step, Isocratic
<b>Gradients</b>	Two solvent, binary	Two solvent, binary	Four solvent binary with isocratic third solvent as a modifier	Four solvent binary with isocratic third solvent as a modifier	Four solvent binary with isocratic third solvent as a modifier
<b>Sample Injections</b>	Multiple Options	Manual Load	Automated, self-cleaning injection valve	Automated, self-cleaning injection valve	Automated, self-cleaning injection valve
<b>Controller</b>	10.4" (26.4 cm) touchscreen	10.4" (26.4 cm) touchscreen	10.4" (26.4 cm) touchscreen	10.4" (26.4 cm) touchscreen	10.4" (26.4 cm) touchscreen
<b>Dimensions (W x D x H)</b>	18.5 x 17.9 x 28.1 in., 47 x 43.5 x 71.4 cm	14.1 x 17 x 24 in., 35.8 x 43.2 x 61.0 cm	14.1 x 17 x 24 in., 35.8 x 43.2 x 61.0 cm	14.1 x 17 x 24 in., 35.8 x 43.2 x 61.0 cm	14.1 x 17 x 24 in., 35.8 x 43.2 x 61.0 cm (excluding MS)
<b>Ionization Probe Options</b>	N/A	N/A	N/A	N/A	ESI or APCI
<b>Mass Range*</b>	N/A	N/A	N/A	N/A	50 - 1200 Dalton Purlon + Purlon S *50 - 2000 Dalton Purlon L

\*Teledyne Isco reserves the right to improve products and change specifications at any time.

# Ordering Information

System Description <sup>3</sup>	Part Number	Detector Options				Processor Options	Rf 4X
		UV <sup>1</sup>	UV-Vis <sup>2</sup>	ELSD	MS	MS Ready	Compatible
<b>CombiFlash Rf 150</b>	68-5230-014	x					No
	68-5230-015		x				No
<b>CombiFlash Torrent</b>	68-5240-003	x		Optional			No
	68-5240-004		x	Optional			No
<b>CombiFlash Rf+</b>	68-5230-021	x				No	Yes
	68-5230-022		x			No	Yes
	68-5230-031	x				Yes	Yes
	68-5230-032		x			Yes	Yes
<b>CombiFlash Rf+ Lumen</b>	68-5230-023	x		x		No	Yes
	68-5230-024		x	x		No	Yes
	68-5230-033	x		x		Yes	Yes
	685230-034		x	x		Yes	Yes
<b>CombiFlash Rf+ Purlon (1200 Da)</b>	68-5230-041	x			x	Yes	Yes
	68-5230-042		x		x	Yes	Yes
	68-5230-043	x		x	x	Yes	Yes
	68-5230-044		x	x	x	Yes	Yes
<b>CombiFlash Rf+ Purlon S (1200 Da, Polarity Autoswitch)</b>	68-5230-045	x			x	Yes	Yes
	68-5230-046		x		x	Yes	Yes
	68-5230-047	x		x	x	Yes	Yes
	68-5230-048		x	x	x	Yes	Yes
<b>CombiFlash Rf+ Purlon L (2000 Da, Polarity Autoswitch)</b>	68-5230-049	x			x	Yes	Yes
	68-5230-050		x		x	Yes	Yes
	68-5230-051	x		x	x	Yes	Yes
	68-5230-052		x	x	x	Yes	Yes

<sup>1</sup> - Wavelength user selectable from 200 - 400 nm

<sup>2</sup> - Wavelength user selectable from 200 - 800 nm

<sup>3</sup> - Standard options include one set of two collection racks and a 25 g Adjustable Solid Load Cartridge Cap (not applicable to Torrent)

For more information about capabilities and benefits of the **CombiFlash** Instruments, visit our website at [www.isco.com](http://www.isco.com).

Be sure to download other brochures and application notes made available on our website.

## CombiFlash Rf 4x

Add the 4X module to the CombiFlash Rf+, CombiFlash Rf+ Lumen, or the CombiFlash Rf+ Purlon and get four times the throughput. The CombiFlash Rf 4x module adds three additional channels to the CombiFlash system resulting in a four-sample, full-featured, automated version of the innovative CombiFlash Rf personal purification system. The built-in control software allows each channel to have its own purification conditions.



## Options

CombiFlash Rf 4x Module	
CombiFlash Rf 4x Module for CombiFlash Rf 200, Rf 200i, Rf+, Rf+ Lumen, and Rf+ Purlon systems.	68-5237-046
CombiFlash Rf Upgrades	
Mass Spectrometry Options	
CombiFlash Purlon Mass Spectrometer and Fluid Interface. This option upgrades a CombiFlash Rf+ system (P/N 68-5230-031 and 68-5230-032) to a CombiFlash Rf+ Purlon Automated Flash Chromatography/Mass Spectrometry System. It also upgrades CombiFlash Rf+ Lumen systems (P/N 68-5230-033 and 68-5230-034).	68-5237-050
CombiFlash Purlon Mass Spectrometer, Fluid Interface, and upgraded motherboard assembly. This option upgrades CombiFlash Rf+ systems (P/N 68-5230-021 and 68-5230-022) to a CombiFlash Rf+ Purlon Automated Flash Chromatography/Mass Spectrometry System. It also upgrades CombiFlash Rf+ Lumen systems (P/N 68-5230-023 and 68-5230-024). This option can also add mass spectrometry capabilities to CombiFlash Rf 200 and CombiFlash Rf 200i systems.	68-5237-051
Fluid Interface. This option allows the user to interface a third party mass spectrometer to any Teledyne Isco CombiFlash Rf+ system. Mass spectrometer parameters are not controlled via PeakTrak. Mass spectrometer must be capable of sending an analog signal out to the external detector port on the CombiFlash Rf+.	68-5237-081
Integrated ELSD Upgrade Option	
Rf 200i Field Conversion Kit. Any Rf 200 manufactured with a serial number greater than 212G20013 can be retrofitted with this module. Any CombiFlash Rf+ can be retrofitted to add an integrated ELSD.	60-5237-077
CombiFlash Rf System Accessories	
CombiFlash Rf Racks and Bottles	
CombiFlash Rf racks, 13 x 100 mm, qty 2 (108 tubes/rack)	60-5237-013
CombiFlash Rf racks, 16 x 100 mm, qty 2 (75 tubes/rack)	60-5237-061
CombiFlash Rf racks, 16 x 125 mm, qty 2 (75 tubes/rack)	60-5237-031
CombiFlash Rf racks, 16 x 150/160 mm, qty 2 (75 tubes/rack)	60-5237-032
CombiFlash Rf racks, 18 x 150 mm, qty 2 (70 tubes/rack)	60-5237-033
CombiFlash Rf racks, 18 x 180 mm, qty 2 (70 tubes/rack)	60-5237-034
CombiFlash Rf racks, 25 x 150 mm, qty 2 (30 tubes/rack)	60-5237-035
CombiFlash Rf rack, 480 mL French square bottle, qty 1 rack for 12 bottles.	60-5237-040
CombiFlash Rf racks, 28 x 61 mm (20 mL scintillation vials), qty. 2. (27 vials per rack)	60-5394-469
CombiFlash Rf racks, 28 x 95 mm (40 mL scintillation vials), qty. 2. (27 vials per rack)	60-5394-468
Collection bottles, glass, 480 mL, case of 40	60-2137-062
CombiFlash Rf Sample Loading Options	
Adjustable Solid Load Cartridge Cap (SLCC 5 g). Includes one loading rod.	60-5237-047
Adjustable Solid Load Cartridge Cap (SLCC 25 g). Includes one loading rod.	60-5237-048

## Industries/Applications:

- **Pharmaceutical** – small molecule drug development
- **Agrochemical** – pesticide and herbicide design
- **Dyes** – biological and colorants
- **Polymer** – purification of monomers and catalysts prior to polymerization
- **Natural Products** – extraction and purification of plant material







# CombiFlash Torrent<sup>®</sup>

The Next Generation in Scale-up Flash Purification

- 0.5 to 300 grams
- Scale up
- Chemical Development
- Manufacturing



Speed • Performance • Reliability



# CombiFlash Torrent<sup>®</sup>

- ▶ **1 L/min flow rate**
- ▶ **100 psi rated**
- ▶ **300 g purifications**

## Performance

Our one liter-per-minute gradient system allows you to separate up to 300 grams in a single purification run.

## Safety

Patented, solvent sensing technology monitors solvent supply and waste to enable true, walk-away automation. Pressure and vapor sensors ensure safe operation. Fully grounded tubing allows high flow rates. Air purging of the column after use simplifies disposal.

## Versatility

Tailor a system to meet your needs with a variety of sample, solvent, fraction, and waste handling configurations.

## Ease of Use

Teledyne Isco's powerful yet easy-to-use PeakTrak<sup>®</sup> software—the industry standard in Flash chromatography—lets you intuitively access every method parameter from one screen.



## RediSep<sup>®</sup>R<sub>f</sub> and RediSep<sup>®</sup>R<sub>f</sub> Gold

Enjoy easy, error-free setups on large purifications with the CombiFlash Torrent. Method automation through the use of RFID technology on Teledyne Isco's RediSep R<sub>f</sub> columns reduces setup time and errors.

RediSep R<sub>f</sub> columns are available in silica, alumina, and functionalized materials such as C18, amine, cyano, and diol. RediSep R<sub>f</sub> columns come in sizes up to 3 kilograms, with easy-to-use tapered fittings.

High performance RediSep R<sub>f</sub> Gold columns utilize small, spherical media to provide improved resolution, faster flow rates, and shorter run times, without excessive backpressure.



### Reliable pumps

Produce an accurate and reproducible binary gradient, even with shallow gradient profiles at 1 L/min.

### Custom inlets and outlets

Accommodate your laboratory's solvent sources and waste collection.

### Patented level sensing

Active level sensing ensures adequate solvent for purifications and prevents waste overflows.

### Sample load cartridge

Load low-solubility samples with confidence. Use as a guard column with reusable columns.

### Automated six-port injection valve

Enables true walk-away automation of column equilibration, sample loading, purification, column and cartridge air purge, and post-run valve cleaning. Its large diameter, easy-to-clean external tubing keeps suspended solids moving.

### Sample load pump

Pump large volumes of liquid samples via an open-top cartridge or laboratory vessel.



### Peak cutting options

Trigger peak collection via slope, threshold, or time windows. Detect at one, two, or all wavelengths using the internal UV or UV-vis PDA detector. Alternatively, add an external detector.

### Fractionation valve for targeted collection

Use PeakTrak software to control this six-port fractionation valve to collect peaks within time windows.



### Foxy® R2

Daisy-chain up to four Foxy R2 fraction collectors for hundreds of fractions. Choose from a variety of collection containers.

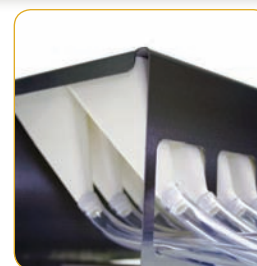


**480 mL**  
bottle racks  
shown

### Error-free RFID detection

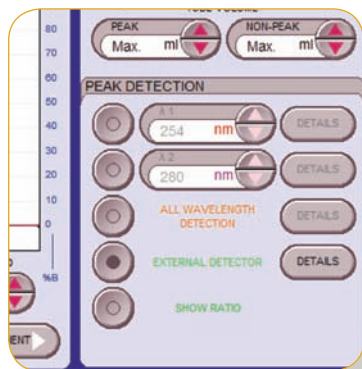
CombiFlash Torrent recognizes RediSep columns and automatically selects an optimized purification method. Rack sensors allow for mixed racks and unlimited fractions with intelligent rack management.

**Test tubes**  
16 to 25 mm  
test tube racks



**Funnel racks**  
collect unlimited  
fraction volumes

# More Options



## External detector

Connect any external detector (ELSD, RI, e.g.) with an analog output to cut peaks using the detection parameter of your choice.



## Reverse flow kit

Configure the flow path to remove air more rapidly by redirecting the solvent upward through the column.



## Pressurized solvent containers

Deliver solvents conveniently while effectively controlling vapor. The containers support our patented liquid level sensing.

# Specifications

<b>Sample size:</b>	0.5 to 300 grams
<b>RediSep Rf column sizes:</b>	80 gram to 3 kilogram
<b>Flow rate:</b>	50 – 1000 mL/min
<b>Maximum pressure:</b>	100 psi (6.89 bar)
<b>Detection:</b>	200 – 360 nm (200 – 780 nm optional) with single, dual, or All-wavelength Collection. Accepts external detector input.
<b>Gradient:</b>	Binary, high pressure solvent mixing with linear, step, or isocratic capability. Two solvent inlets.
<b>Gradient accuracy:</b>	<2% full scale from 0.2 to 1.0 liter/min.
<b>Sample injection:</b>	Automated injection with options of solid load cartridges, liquid load, or direct injection.
<b>Controller:</b>	10.4 inch (26.7 cm) touchscreen
<b>Software:</b>	On-screen method development and control with PeakTrak software
<b>Fraction collection:</b>	Up to four fraction collectors, fractionation valve, or manual collection
<b>Solvent management:</b>	Patented, active level sensing for inlet and waste containers
<b>Module dimensions:</b>	(W x D x H) 18.5 x 17.9 x 28.1 inches (47 x 43.5 x 71.4 cm)
<b>Module weight:</b>	65 lbs (29.5 kg)
<b>Operating voltage:</b>	100 VAC 50 Hz, 117 VAC 60 Hz, 234 VAC 50 Hz
<b>Safety and sample security:</b>	<ul style="list-style-type: none"> <li>• Static-dissipative tubing throughout</li> <li>• Vapor sensor for internal leak detection</li> <li>• Overpressure sensor</li> <li>• Active solvent and waste level sensing</li> <li>• Audible alarm when user intervention is required</li> </ul>
<b>Certification:</b>	CE

# Selection Information

## CombiFlash Torrent Modules

The CombiFlash Torrent Development-scale Flash chromatography fully integrated module includes fitting adaptors for all compatible column and cartridge sizes, and prime tube assembly.

CombiFlash Torrent Module with UV detection,  
200 – 360 nm . . . . . 68-5240-003

CombiFlash Torrent Module with UV-vis detection,  
200 – 780 nm . . . . . 68-5240-004

## Fraction Collection Options

CombiFlash Torrent Fraction Valve . . . . . 60-5247-006

High Flow Foxy R2 fraction collector . . . . . 68-2130-007

### Racks for High Flow Foxy R2 fraction collector

Foxy R2 accommodates two, from any combination:

Rack for 16 mm diameter tubes (100) . . . . . 60-2137-151

Rack for 18 mm diameter tubes (72) . . . . . 60-2137-152

Rack for 25 mm diameter tubes (36) . . . . . 60-2137-153

Foxy R2 accommodates one of the following:

Set of two racks for (18) 480 mL glass bottles.

Each rack holds 9 bottles. . . . . 60-5247-004

Preparative rack with 26 ETFE (or ECTFE) funnels

and 50 feet of 3/8-inch vinyl FEP-lined tubing. . . . . 60-2137-162

## Sample Injection Options

Adjustable Solid Load Cartridge Caps (SLCC)

25 gram SLCC . . . . . 60-5237-048

65 gram SLCC . . . . . 60-5237-044

260 gram SLCC . . . . . 60-5247-008

750 gram SLCC . . . . . 60-5247-009

CombiFlash Torrent sample load pump. . . . . 60-5247-007

## Solvent Line Options

Two braided stainless steel inlet lines, 4 feet  
for bench top. One waste line. . . . . 60-5249-004

Two braided stainless steel inlet lines, 5 feet  
for on or below bench top. One waste line . . . . . 60-5249-005

Two braided stainless steel inlet lines, 9 feet.  
One waste line. . . . . 60-5249-009

Two corrugated tube inlet lines, 4 feet for  
benchtop, for 4 liter bottles. One waste line . . . . . 60-5247-011

### Solvent and Waste Cap Sets

Solvent Inlet cap set (2) for 83B closure. . . . . 60-5394-510

Waste Outlet cap (1) for 83B closure . . . . . 60-5394-512

Solvent Inlet cap set (2) for 100 mm closure . . . . . 60-5394-511

Waste Outlet cap for (1) 100 mm closure . . . . . 60-5394-513

## Optional Accessories

Two, 10 L pressurized solvent canisters,  
compatible with level sensing . . . . . 60-5247-014

Network cable . . . . . 480-6545-01

25 feet 1/4-inch OD black, conductive tubing  
with fittings . . . . . 60-5247-012

Reverse flow kit . . . . . 60-5247-013

External detector interface kit including flow  
splitter, cables, and tubing. . . . . 68-5247-015

Collection bottles, 480 mL glass, case of 40 . . . . . 60-5237-062

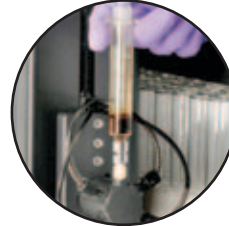
Call your Teledyne Isco Sales Representative  
to assist you in configuring an entire system  
to meet your needs.



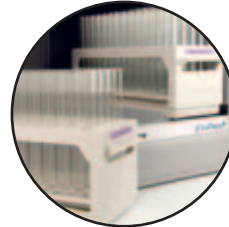
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[www.isco.com/lc](http://www.isco.com/lc)



Performance



Reliability



Productivity



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# RediSep<sup>®</sup> Rf Column Overview

Teledyne Isco's reliable RediSep Rf preparative chromatography products are designed to consistently produce high purity compounds. You'll enjoy fast, easy purification and scale-up from milligram to hundreds of grams.

## Reliable and Reproducible

RediSep Rf columns are precision-packed for high resolution and reproducibility. They feature a one-piece design with luer end fittings for quick, easy connection to Teledyne Isco CombiFlash<sup>®</sup> and other chromatography systems. RediSep Rf sets the standard in Flash chromatography columns.

## Versatile

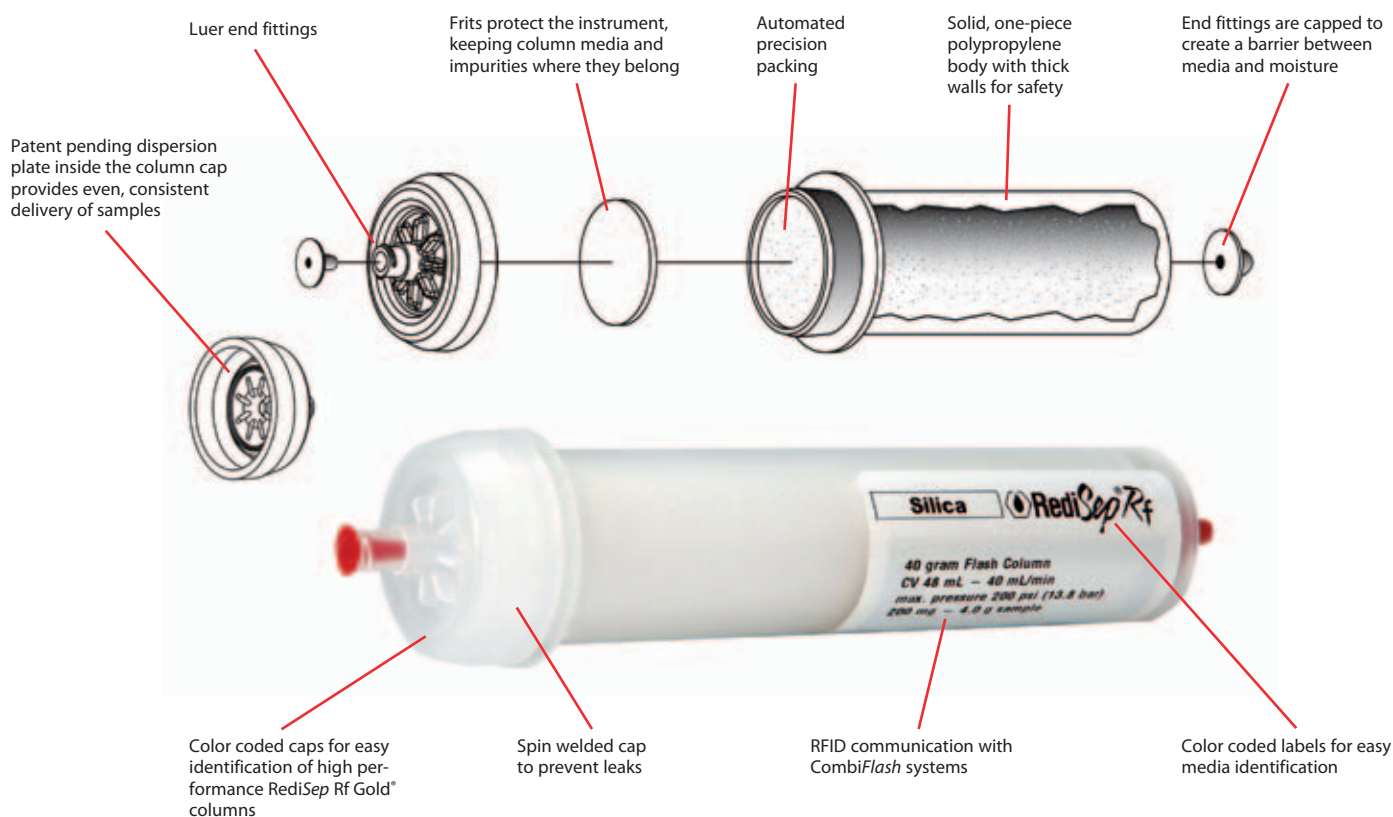
RediSep Rf columns are available in 4 gram up to 3 kg column sizes allowing purification from 10 milligrams up to 300 grams. The enhanced product offering with high performance Gold and new stationary phases expands the utility of RediSep Rf. A wide offering of TLC plates makes method development easy.

## RFID Confidence

Through RFID technology, the CombiFlash Rf+ and Torrent<sup>®</sup> systems automatically detect the column type and size and programs a default method optimized for the RediSep column. Method automation reduces setup time and the potential for errors.

## Safe

Extra thick walls on the RediSep Rf columns and cartridges are pressure rated for safe operation. Machine welded end fittings ensure the column is able to withstand the pressure capability of modern flash systems and not leak valuable compound.



# RediSep Rf Gold<sup>®</sup>

## High Performance Flash Chromatography

### Resolution with Speed

As a pioneer in Flash chromatography, Teledyne Isco continues to bring you the latest innovations to improve your productivity. RediSep Rf Gold high performance Flash columns deliver superior sample purity through the use of fine spherical silica gel (20 – 40  $\mu\text{m}$ ).

RediSep Rf Gold spherical silica provides improved performance without increasing the back pressure. Spherical packing creates the best possible linear beds for even separations. Spherical silica is available bare, and bonded with C18, amine, diol, and cyano.

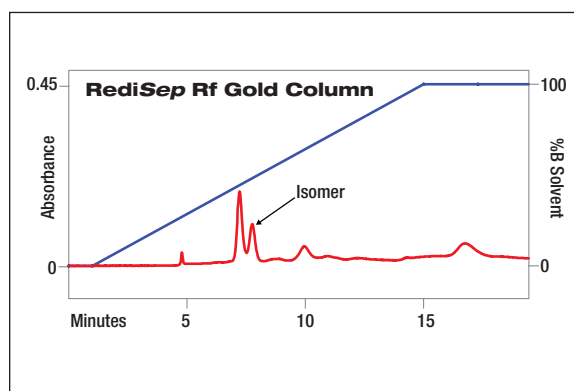
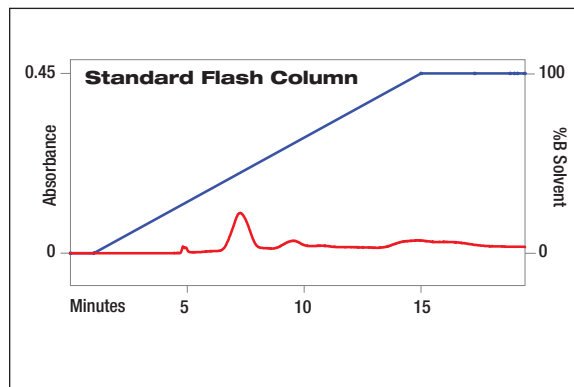


U.S. patent 7,776,220 granted.  
European patent 1,316,798 granted.

### Gold Resolution – $\Delta Rf \leq 0.1$

Improve your resolution with smaller particles. Patented spherical Flash media creates the benefit of tighter packing without an increase in back pressure.

- Provide twice the resolving power of typical disposable Flash chromatography columns.
- Separate difficult compounds with low  $\Delta Rf$ , such as isomers or trace compounds
- Purify your tough compounds on a single column



Run Conditions:

Column size:	40 g
Load:	333 mg (on 5 g cartridge)
Solvents:	Hexane & Ethyl Acetate
Flow rate:	40 mL/min
Run time:	19.4 min

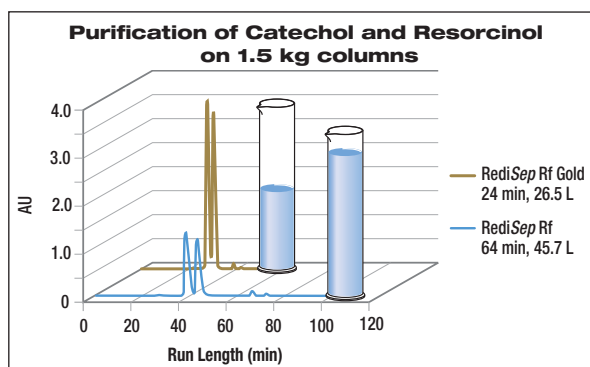
See Application Note AN70 at  
[www.isco.com/products/lcappnotes.asp](http://www.isco.com/products/lcappnotes.asp)  
for complete information.



## Gold Speed – $\Delta Rf > 0.1$

Take advantage of the sharper peaks provided by spherical media to shorten purification time. Convert your methods to Gold Speed at a click of a button with PeakTrak® software.

- Save up to 60% on time and 30% on solvents
- Separate silica sensitive compounds faster
- Dry compounds faster by collecting in 2/3 -fewer fractions



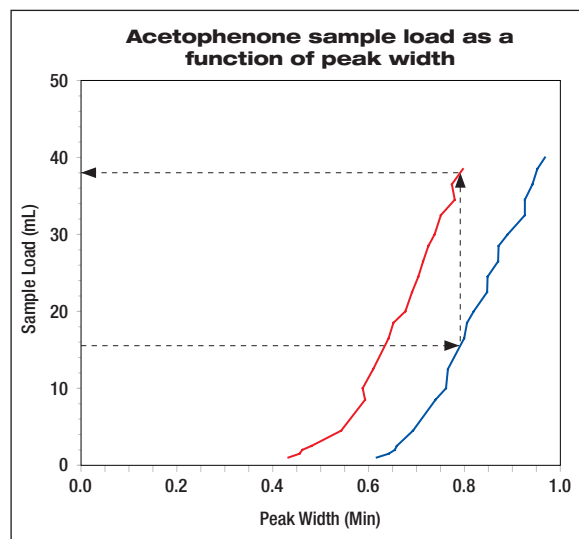
Run Conditions:

Column size:	40 g
Load:	0.4 g (1% load)
Solvents:	Hexane & Ethyl Acetate
Flow rate:	40 mL/min, 80 mL/min

See Application Note AN72 at [www.isco.com/products/lcappnotes.asp](http://www.isco.com/products/lcappnotes.asp) for complete information.

## Gold High Load

Take advantage of the extra resolution to load twice as much compound on the RediSep Rf Gold column. Choose a smaller column size and save time and solvent.



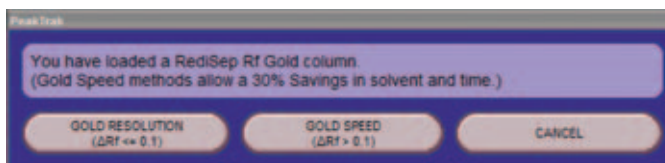
Run Conditions:

Column size:	12 g spherical RediSep Rf Gold, 12 g irregular non-RediSep
Loads:	0.02 – 0.80 g (0.2 – 7% load)
Solvents:	Hexane & Ethyl Acetate

See poster reprint “Spherical Silica Increases Loading Capacity” at [www.isco.com/products/lcappnotes.asp](http://www.isco.com/products/lcappnotes.asp) for complete information.



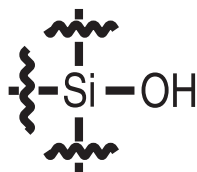
## The RFID Advantage



Simply select between Gold Resolution and Gold Speed methods on CombiFlash systems with RFID.

# RediSep<sup>®</sup> Rf Normal Phase Silica

RediSep Rf disposable, bare silica columns for Flash purification of organic compounds are the benchmark for normal phase separations. This high quality media is specified for high resolution and reproducibility for everyday purifications.



## Specifications:

- Reusability: Single use
- Particle size: 40 – 63  $\mu\text{m}$  irregular
- Mesh size: 230 – 400
- Pore size: 60  $\text{\AA}$
- Surface area  $\text{m}^2/\text{g}$ : 500  $\pm$ 50
- Loading capacity: 0.1 – 10%

## RediSep Rf Normal Phase Disposable Flash Columns, 40 – 60 micron

Sample Load		Size	Qty/Pkg	Flow Rate (mL/min)	Catalog #
$\Delta\text{CV} \leq 1$	$\Delta\text{CV} \geq 6$				
20 mg	0.4 g	4 g	20	18	69-2203-304
60 mg	1.2 g	12 g	20	30	69-2203-312
120 mg	2.4 g	24 g	15	35	69-2203-324
200 mg	4 g	40 g	15	40	69-2203-340
400 mg	8 g	80 g	12	60	69-2203-380
600 mg	12 g	120 g	10	85	69-2203-320
Filter	12 g	125 g	6	200	69-2203-314
1.1 g	22 g	220 g	6	150	69-2203-422
1.65 g	33 g	330 g	4	200	69-2203-330
3.8 g	75 g	750 g	4	300	69-2203-275
7.5 g	150 g	1.5 kg	3	600	69-2203-277
15 g	300 g	3.0 kg	1	950	69-2203-527

## Sample Loading — $\Delta R_f$ or $\Delta\text{CV}$ ?

This catalog provides sample loading recommendations in  $\Delta\text{CV}$  (column volumes). Here's how:

- $\Delta R_f$  values are inversely proportional to the elution time of a component from a column as shown by:

$$\text{CV} = 1/R_f$$

- $\Delta\text{CV}$  can be determined using the following formula:

$$\Delta\text{CV} = 1/R_{f1} - 1/R_{f2}$$

- $\Delta\text{CV}$  is a better predictor for cartridge separations

Greater sample loads are possible with easy separations, or those with a  $\Delta\text{CV} \geq 6$ . As the  $\Delta\text{CV}$  approaches  $\leq 1$ , the separation becomes more difficult, necessitating lesser sample loading on the column or choosing a RediSep Rf Gold high resolution column.



## Normal Phase TLC Plates

5 x 10 cm, box of 200..... 69-2203-400

# RediSep Rf Gold® Normal Phase Silica

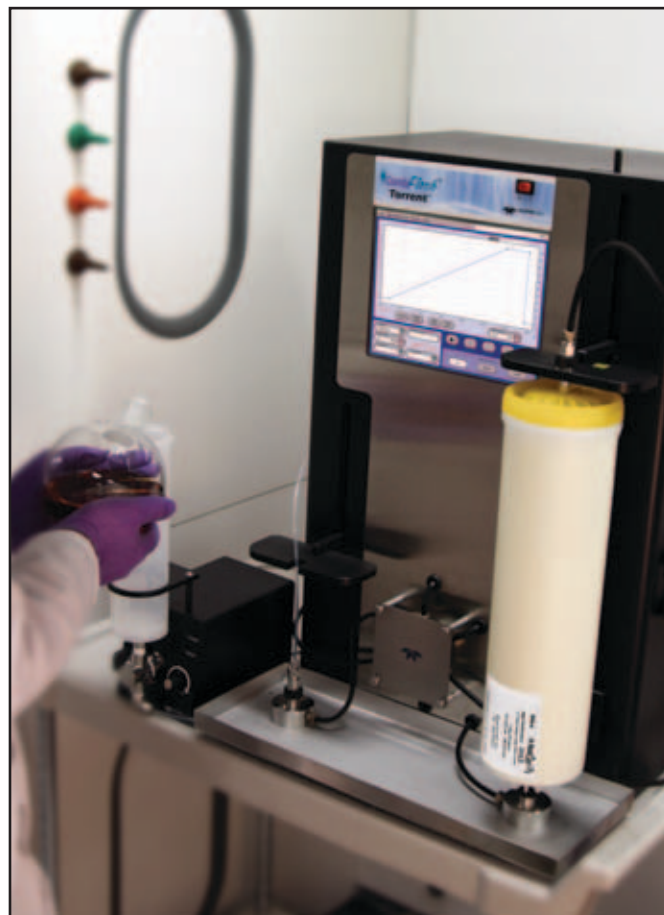
RediSep Rf Gold high performance Flash columns deliver superior sample purity through the use of fine spherical silica gel (20–40 µm). RediSep Rf Gold normal phase silica offers the capability to improve resolution and isolate difficult compounds such as isomers and impurities. Alternatively, the improved resolution solvents can allow for faster run times or higher loads to save time and solvents.

## Specifications:

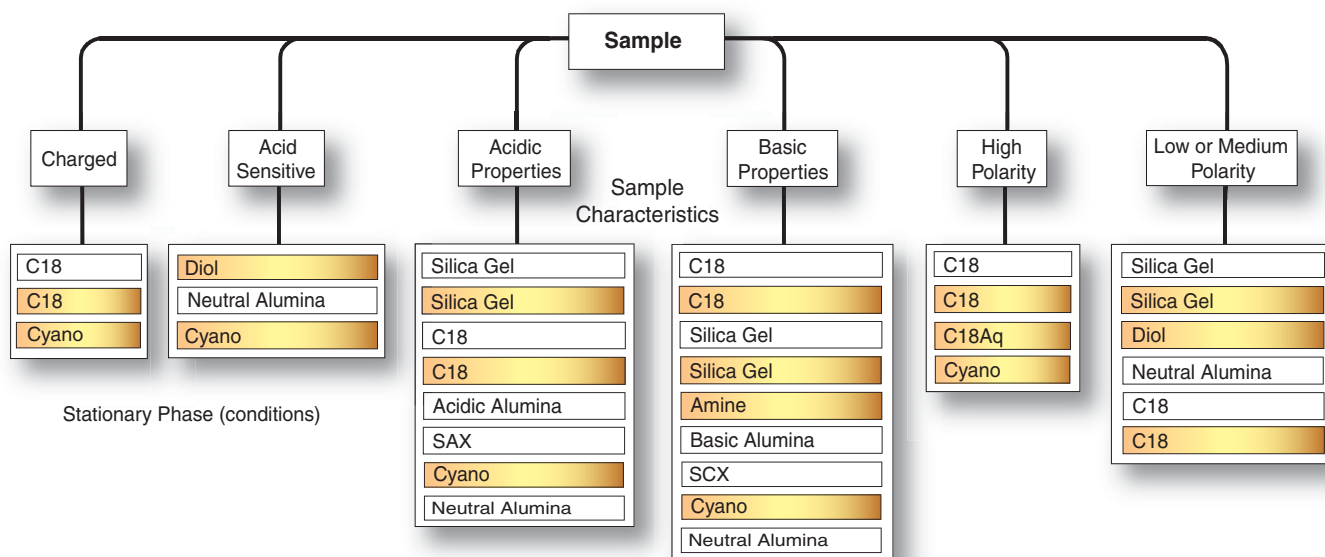
- Reusability: Single use
- Particle size: 20 – 40 µm spherical
- Mesh size: 400 – 632
- Pore size: 60 Å
- Surface area m<sup>2</sup>/g: 500 ±50
- Loading capacity: 0.1 – 1% Gold Resolution  
1 – 10% Gold Speed  
2 – 20% Gold High Load

## RediSep Rf Gold Normal Phase Silica Columns, 20–40 micron

Sample Load		Size	Qty/Pkg	Flow Rate (mL/min)	Catalog #
ΔCV≤1	ΔCV≥6				
20 mg	0.4 g	4 g	14	18	69-2203-344
60 mg	1.2 g	12 g	14	30	69-2203-345
120 mg	2.4 g	24 g	10	35	69-2203-346
200 mg	4 g	40 g	10	40	69-2203-347
400 mg	8 g	80 g	6	60	69-2203-348
600 mg	12 g	120 g	6	85	69-2203-349
1.1 g	22 g	220 g	4	150	69-2203-359
1.65 g	33 g	330 g	3	200	69-2203-369
3.8 g	75 g	750 g	3	300	69-2203-427
7.5 g	150 g	1.5 kg	2	600	69-2203-428
15 g	300 g	3.0 kg	1	950	69-2203-529

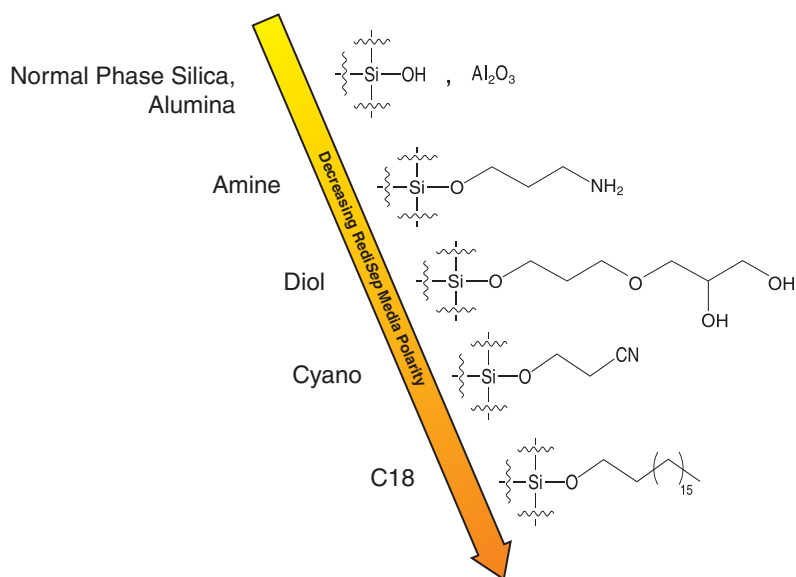


# Column Media Selection Guide



40–60 µm irregular media RediSep Rf columns.  
 20–40 µm spherical media RediSep Rf Gold® high performance columns.

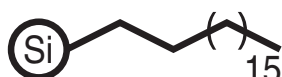
## Stationary Phase Polarity



**Contact Teledyne Isco  
 for custom adapters  
 to use RediSep Rf columns  
 on non-CombiFlash® systems.**

# RediSep® Rf C18

Teledyne Isco RediSep Rf C18 Reversed-phase columns save time and money for the purification of medium to high polarity as well as ionic compounds. Packed with C18-derivatized silica, RediSep Rf Reversed-phase columns provide reproducible, high-capacity purification without the cost and complexity of prep-HPLC.



## Specifications:

- Reusability: 20 runs (average)
- Particle size: 40 – 63 µm irregular
- Mesh size: 230 – 400
- Pore size: 60 Å
- Surface area m<sup>2</sup>/g: 500 ±50
- Carbon Content: >17%
- Endcapped: Yes
- Loading capacity: 0.1 – 2%

## RediSep Rf C18 Columns 40 – 60 micron

Sample Load		Size	Qty/Pkg	Flow Rate (mL/min)	Catalog #
ΔCV≤1	ΔCV≥6				
4.3 mg	86 mg	4.3 g	2	18	69-2203-410
13 mg	260 mg	13 g	1	30	69-2203-411
26 mg	520 mg	26 g	1	35	69-2203-412
43 mg	860 mg	43 g	1	40	69-2203-413
86 mg	1.72 g	86 g	1	60	69-2203-416
130 mg	2.6 g	130 g	1	85	69-2203-414
240 mg	4.8 g	240 g	1	150	69-2203-418
360 mg	7.2 g	360 g	1	200	69-2203-415



## C18 TLC Plates

Reversed-phase C18 TLC Plates..... 69-2203-586

Plates may also be used for RediSep Rf Gold C18 and RediSep Rf Gold C18Aq method development.



## Storage Instructions for All C18 Columns

Proper storage will allow RediSep Rf C18, RediSep Rf Gold® C18, and RediSep Rf Gold C18Aq columns to be reused:

- Never allow the column to dry out after use. Turn off the air purge on instrument.\*
- Remove all organic modifiers by flushing the column with 3 column volumes of 80% methanol or acetonitrile in water.
- Store the column in flush solvent with end caps in place.

\*CombiFlash® Rf and Torrent systems will turn off the column air purge as needed by reading the column RFID tag.

# ● RediSep Rf Gold® C18

RediSep Rf Gold C18 Reversed-phase columns are packed with 20–40 µm spherical bonded silica, providing improved separation. Achieve near prep-HPLC results with greater sample recovery to easily purify up to gram-scale on your Flash system. The end-capped C18 chains allow up to 20 separations at pH 10 without destroying the silica.

## Specifications:

- Reusability: 20 runs (average)
- Particle size: 20 – 40 µm spherical
- Mesh size: 400 – 632
- Pore size: 100 Å
- Surface area m<sup>2</sup>/g: 300 ±50
- Carbon content: 15% ±2
- Endcapped: Yes
- Loading capacity: 0.1 – 2%



## RediSep Rf Gold C18 Columns 20–40 micron

Sample Load		Size	Qty/Pkg	Flow Rate (mL/min)	Catalog #
ΔCV≤1	ΔCV≥6				
5.5 mg	110 mg	5.5 g	2	18	69-2203-328
15.5 mg	310 mg	15.5 g	1	30	69-2203-334
30 mg	600 mg	30 g	1	35	69-2203-335
50 mg	1.0 g	50 g	1	40	69-2203-336
100 mg	2 g	100 g	1	60	69-2203-337
150 mg	3 g	150 g	1	85	69-2203-338
275 mg	5.5 g	275 g	1	150	69-2203-339
415 mg	8.3 g	415 g	1	200	69-2203-341
0.95 g	19 g	950 g	1	180	69-2203-492
1.9 g	38 g	1.9 kg	1	260	69-2203-493
3.8 g	76 g	3.8 kg	1	360	69-2203-528



# ● RediSep Rf Gold® C18Aq

RediSep Rf Gold C18Aq is especially designed for highly aqueous conditions. Monofunction C18 bonding is interspersed with hydrophilic ligands to prevent phase collapse in high aqueous conditions. RediSep Rf Gold C18Aq should be used in separations requiring 0–50% organic. These columns are useful for highly polar, water soluble compounds such as dyes, glycopeptides, and nucleotides.

## Specifications:

- Reusability: 20 runs (average)
- Particle size: 20 – 40 µm spherical
- Mesh size: 400 – 632
- Pore size: 100 Å
- Surface area m<sup>2</sup>/g: 300 ±50
- Carbon content: 11% ±2
- Endcapped: Yes
- Loading capacity: 0.1 – 2%

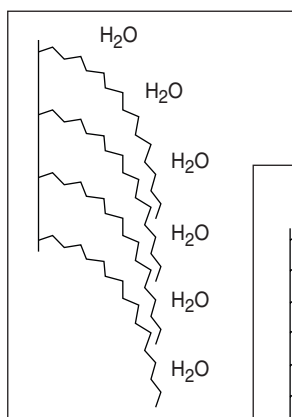
## RediSep Rf Gold C18Aq Columns 20–40 micron

Sample Load		Size	Qty/Pkg	Flow Rate (mL/min)	Catalog #
ΔCV≤1	ΔCV≥6				
5.5 mg	110 mg	5.5 g	2	18	69-2203-558
15.5 mg	310 mg	15.5 g	1	30	69-2203-559
30 mg	600 mg	30 g	1	35	69-2203-560
50 mg	1.0 g	50 g	1	40	69-2203-561
100 mg	2 g	100 g	1	60	69-2203-562
150 mg	3 g	150 g	1	85	69-2203-563
275 mg	5.5 g	275 g	1	150	69-2203-564
415 mg	8.3 g	415 g	1	200	69-2203-565
0.95 g	19 g	950 g	1	180	69-2203-566
1.9 g	38 g	1.9 kg	1	260	69-2203-567
3.8 g	76 g	3.8 kg	1	360	69-2203-568



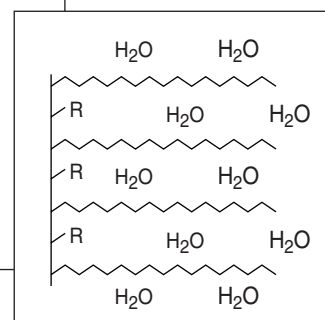
### C18 Silica

Phase Collapse/Dewetting



### C18Aq Silica

R= hydrophilic group



# RediSep Rf Gold<sup>®</sup> Amine

RediSep Rf Gold Amine columns can be used in either normal or reversed-phase conditions for the purification of compounds with basic properties by interacting with the hydrogen bonds. Functionalized amine silica protects the acidic silanol groups to result in sharper peaks and purity.

Useful in the separation of drug intermediates such as those with adenine, pyridine, or aniline groups. Use bonded amine to purify 2°, 3°, and heterocyclic amines without using dichloromethane. Amine media also eliminates the need to add a mobile phase modifier such as TEA, which reduces the time required to remove solvent from purified fractions.

Use caution when purifying aldehydes and ketones which may react with amine side chains to form imines. Test a small amount on a small column.



## Specifications:

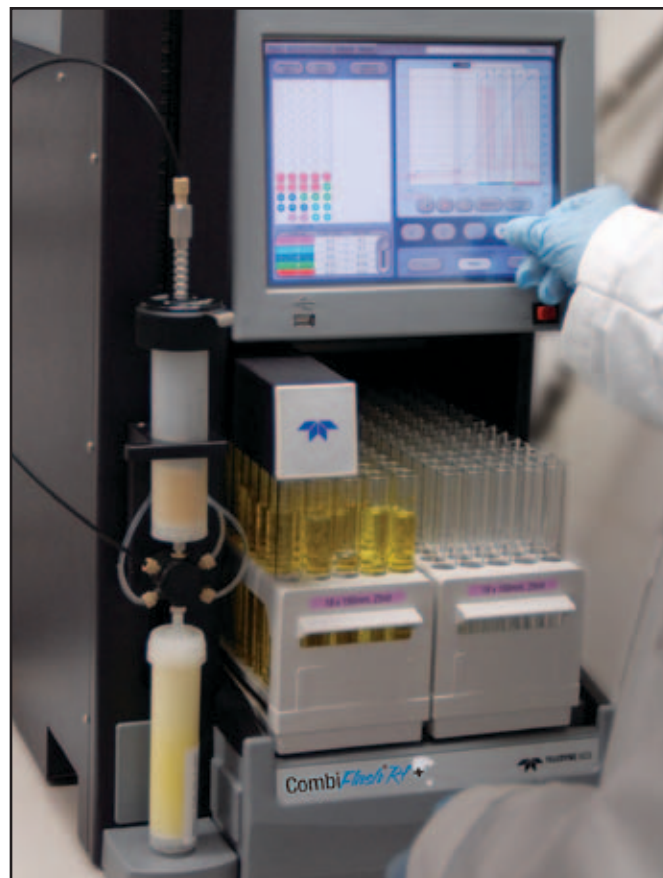
- Reusability: 20 runs (average)
- Particle size: 20 – 40 µm spherical
- Mesh size: 400 – 632
- Pore size: 100 Å
- Surface area m<sup>2</sup>/g: 300 ±50
- Loading capacity: 0.1 – 2%

## RediSep Rf Gold Amine Columns 20 – 40 micron

Sample Load		Size	Qty/Pkg	Flow Rate (mL/min)	Catalog #
ΔCV≤1	ΔCV≥6				
5.5 mg	110 mg	5.5 g	2	18	69-2203-504
15.5 mg	310 mg	15.5 g	1	30	69-2203-505
30 mg	600 mg	30 g	1	35	69-2203-506
50 mg	1.0 g	50 g	1	40	69-2203-507
100 mg	2 g	100 g	1	60	69-2203-508
150 mg	3 g	150 g	1	85	69-2203-509
275 mg	5.5 g	275 g	1	150	69-2203-510
415 mg	8.3 g	415 g	1	200	69-2203-511
0.95 g	19 g	950 g	1	300	69-2203-512
1.9 g	38 g	1.9 kg	1	600	69-2203-513
3.8 g	76 g	3.8 kg	1	950	69-2203-534

## RediSep Gold Amine TLC Plates

5 x 10 cm, box of 50, with F254 indicator . . . . . 69-2203-573



## Storage Instructions for Amine, Cyano, and Diol Columns

Proper storage will allow amine, cyano, and diol columns to be reused:

- Do not allow the column to dry out after first use. Turn off the air purge on instrument.\*
- If run solvents are immiscible with storage solvents, wash the column with an intermediate solvent.
- Remove all organic modifiers or strong organic solvents by flushing the column with 3 column volumes of:
  - **Amine and Diol columns:** 80% acetonitrile in water or 100% isopropanol.
  - **Cyano columns:** 80% methanol or acetonitrile in water or 100% isopropanol.
- Store the column in flush solvent with end caps in place.

\*CombiFlash<sup>®</sup> Rf and Torrent systems will turn off the column air purge as needed by reading the column RFID tag.



# RediSep Rf Gold<sup>®</sup> Cyano

RediSep Rf Cyano columns have a cyano bound silica gel. Cyano functionality creates a slightly hydrophobic nature, and has different selectivity. Cyano may be used in either normal or reversed-phase conditions. Cyano is always the least retentive media in either normal or reversed phase conditions, making it ideal for extremely polar compounds.



## Specifications:

- Reusability: 20 runs (average)
- Particle size: 20 – 40 µm spherical
- Mesh size: 400 – 632
- Pore size: 100 Å
- Surface area m<sup>2</sup>/g: 300 ±50
- Loading capacity: 0.1 – 2%

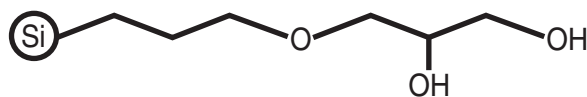
## RediSep Rf Gold Cyano Columns 20 – 40 micron

Sample Load		Size	Qty/Pkg	Flow Rate (mL/min)	Catalog #
$\Delta CV \leq 1$	$\Delta CV \geq 6$				
5.5 mg	110 mg	5.5 g	2	18	69-2203-494
15.5 mg	310 mg	15.5 g	1	30	69-2203-495
30 mg	600 mg	30 g	1	35	69-2203-496
50 mg	1.0 g	50 g	1	40	69-2203-497
100 mg	2 g	100 g	1	60	69-2203-498
150 mg	3 g	150 g	1	85	69-2203-499
275 mg	5.5 g	275 g	1	150	69-2203-500
415 mg	8.3 g	415 g	1	200	69-2203-501
0.95 g	19 g	950 g	1	300	69-2203-502
1.9 g	38 g	1.9 kg	1	600	69-2203-503
3.8 g	76 g	3.8 kg	1	950	69-2203-533

# RediSep Rf Gold<sup>®</sup> Diol

RediSep Rf Gold Diol functionalized silica gel behaves similar to bare silica by forming hydrogen bonds and is a good reusable option. Diol is neutral and less polar with greater retention times than bare silica. This media offers an alternative for separations of low to medium polarity compounds.

Care should be taken with ketones and also 1° and 2° amine compounds or solvents.



## Specifications:

- Reusability: 20 runs (average)
- Particle size: 20 – 40 µm spherical
- Mesh size: 400 – 632
- Pore size: 100 Å
- Surface area m<sup>2</sup>/g: 300 ±50
- Loading capacity: 0.1 – 2%



## RediSep Rf Gold Diol Columns 20 – 40 micron

Sample Load		Size	Qty/Pkg	Flow Rate (mL/min)	Catalog #
$\Delta CV \leq 1$	$\Delta CV \geq 6$				
5.5 mg	110 mg	5.5 g	2	18	69-2203-514
15.5 mg	310 mg	15.5 g	1	30	69-2203-515
30 mg	600 mg	30 g	1	35	69-2203-516
50 mg	1.0 g	50 g	1	40	69-2203-517
100 mg	2 g	100 g	1	60	69-2203-518
150 mg	3 g	150 g	1	85	69-2203-519
275 mg	5.5 g	275 g	1	150	69-2203-520
415 mg	8.3 g	415 g	1	200	69-2203-521
0.95 g	19 g	950 g	1	300	69-2203-522
1.9 g	38 g	1.9 kg	1	600	69-2203-523
3.8 g	76 g	3.8 kg	1	950	69-2203-535

## RediSep Gold Diol TLC Plates

5 x 10 cm, box of 50, with F254 indicator ..... 69-2203-574

# RediSep<sup>®</sup> Rf Alumina

Single use alumina columns run under normal phase conditions and offer different selectivity to silica. Neutral alumina columns are useful when samples are acid sensitive and prone to degradation on normal phase silica gel.

Use acidic alumina to purify acidic compounds without adding modifiers such as acetic acid. Choose basic alumina to purify basic compounds without basic modifiers such as TEA or ammonium hydroxide. This avoids solvent swapping, washing the chromatography system, or contaminating subsequent runs.



## Specifications:

- Reusability: Single use
- Particle size: 40 – 63  $\mu\text{m}$  irregular
- Mesh size: 230 – 400
- Pore size: 60  $\text{\AA}$
- Surface area  $\text{m}^2/\text{g}$ : 200  $\pm$ 50
- pH: Acidic 4.5  $\pm$ 0.4  
Neutral 7.0  
Basic 9.7  $\pm$ 0.3
- Loading capacity: 0.5 – 4%



## RediSep Rf Alumina Columns

Sample Load		Size	Qty/Pkg	Flow Rate (mL/min)	Acidic Cat. # 69-2203-	Neutral Cat. # 69-2203-	Basic Cat. # 69-2203-
$\Delta\text{CV}\leq 1$	$\Delta\text{CV}\geq 6$						
40 mg	320 mg	8 g	20	18	430	440	450
120 mg	960 mg	24 g	20	30	431	441	451
240 mg	1.92 g	48 g	15	35	432	442	452
400 mg	3.2 g	80 g	15	40	433	443	453
800 mg	6.4 g	160 g	12	60	436	446	456
1.2 g	9.6 g	240 g	10	85	434	444	454
2.2 g	17.6 g	440 g	6	150	438	448	458
3.3 g	26.4 g	660 g	4	200	435	445	455

## RediSep Rf Alumina TLC Plates

Neutral, 5 x 10 cm, box of 30, with F254 indicator . . . . . 69-2203-569  
Basic, 5 x 10 cm, box of 30, with F254 indicator . . . . . 69-2203-403



# RediSep® Rf SAX

Strong anion exchange (SAX) silica gel fully retains acidic compounds. SAX columns can be used as a clean-up tool or to isolate acidic products. They work as a catch and release process.

## RediSep Rf SAX Columns

Sample Load†	Size	Qty/Pkg	Flow Rate (mL/min)	Catalog #
≤6.27 mmol	5.7 g	2	18	69-2203-381
≤18.7 mmol	17 g	1	30	69-2203-382
≤37.4 mmol	34 g	1	35	69-2203-383
≤62.7 mmol	57 g	1	40	69-2203-384
≤125.4 mmol	114 g	1	60	69-2203-387
≤187 mmol	170 g	1	85	69-2203-385
≤344.3 mmol	313 g	1	150	69-2203-389
≤517 mmol	470 g	1	200	69-2203-386

†Sample load = mmol x compound molecular weight/1000.

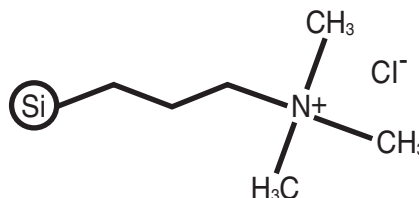
# RediSep® Rf SCX

Strong cation exchange (SCX) silica gel fully retains basic compounds. SCX columns can be used as a clean-up tool or to isolate basic products. They work as a catch and release process.

## RediSep Rf SCX Columns

Sample Load†	Size	Qty/Pkg	Flow Rate (mL/min)	Catalog #
≤3.5 mmol	5 g	2	18	69-2203-390
≤10.5 mmol	15 g	1	30	69-2203-391
≤21 mmol	30 g	1	35	69-2203-392
≤35 mmol	50 g	1	40	69-2203-393
≤70 mmol	100 g	1	60	69-2203-396
≤105 mmol	150 g	1	85	69-2203-394
≤192 mmol	275 g	1	150	69-2203-398
≤287 mmol	410 g	1	200	69-2203-395

†Sample load = mmol x compound molecular weight/1000.



## Specifications:

- Reusability: 20 runs (average)
- Particle size: 40 – 63 µm spherical
- Mesh size: 230 – 400
- Pore size: 100 Å
- Surface area m<sup>2</sup>/g: 300 ±50
- Loading capacity: 0.8 ±0.2 mmol/g

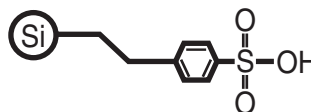
## Storage Instructions for SAX & SCX Columns

Proper storage will allow SAX & SCX columns to be reused:

- Never allow the column to dry out after first use. Turn off the air purge on instrument.\*
- Regenerate the column with:
  - **SAX Column:** 10 column volumes of 5% NH<sub>4</sub>OH in methanol.
  - **SCX Column:** 10 column volumes of 1M acetic acid in methanol.
- Flush with 10 column volumes of 80% methanol in water or 100% isopropanol.
- Store the column in flush solvent with end caps in place.

Depending on your sample, the column activity may decrease during use.

\*CombiFlash® Rf and Torrent systems will turn off the column air purge as needed by reading the column RFID tag.



## Specifications:

- Reusability: 20 runs (average)
- Particle size: 40 – 63 µm spherical
- Mesh size: 230 – 400
- Pore size: 100 Å
- Surface area m<sup>2</sup>/g: 300 ±50
- Loading capacity: 0.8 ±0.2 mmol/g

# RediSep® Solid Load Cartridges

RediSep solid load cartridges improve the resolution of the compound and eliminate reaction byproducts when compared to liquid injection techniques. Prepare pre-filled solid load cartridges by pipetting the dissolved sample onto the top of the cartridge. Prepare empty solid load cartridges by filling the cartridge with a slurry mixture of the dissolved sample and supporting media. For optimal benefits, remove the solvent by vacuum before placing the cartridge on the purification system.

## Adjustable Solid Load Cartridge Cap (SLCC)

- For use with RediSep sample load cartridges.
- Fits 2.5 and 5 gram sample load cartridges.  
For use on CombiFlash® Rf systems.....60-5237-047
- Fits 12 and 25 gram sample load cartridges.  
For use on CombiFlash Rf  
and Torrent® systems .....60-5237-048
- Fits 32 and 65 gram sample load cartridges.  
For use on CombiFlash Rf  
and Torrent systems.....60-5237-044
- Fits 130 and 260 gram sample load cartridges.  
For use on CombiFlash Torrent systems .....60-5247-008
- Fits 375 and 750 gram sample load cartridges.  
For use on CombiFlash Torrent systems .....60-5247-009

## Empty Disposable Sample Load Cartridges

Size	Qty	Catalog #
5 g	30	69-3873-235
25 g	30	69-3873-240
65 g	12	69-3873-225
260 g	6	69-3873-201
750 g	4	69-3873-224

## Prepacked Disposable Sample Load Cartridges

Size	Normal Phase Silica		Celite		C18	
	Qty	Cat. # 69-3873-	Qty	Cat. # 69-3873-	Qty	Cat. # 69-3873-
2.5 g	20	238	20	312	5	247
5 g	20	236	20	313	5	237
12 g	15	243	15	314	4	248
25 g	15	241	15	315	4	242
32 g	12	310	12	318	3	249
65 g	12	226	12	319	3	250
125 g	4	311				
260 g	4	202				
375 g	4	229				
750 g	4	231				



## Cartridge Dryer

- Solid Load Cartridge Dryer  
Includes adapters for Rf cartridges .....60-2200-010

## Bulk RediSep® Media

Media	Particle	Container Size	Catalog Number
Silica	63 – 200 µm irregular	450 g	60-3874-091
		950 g	60-3874-045
		25 kg	60-3874-047
Silica	40 – 63 µm irregular	950 g	60-5394-478
		25 kg	60-5394-479
Gold Silica	20 – 40 µm spherical	950 g	60-5394-480
		25 kg	60-3874-055
C18	40 – 63 µm irregular	450 g	60-5394-499
		950 g	60-5394-482
		25 kg	60-3874-059
Gold C18	20 – 40 µm spherical	450 g	60-5394-498
		950 g	60-5394-481
		25 kg	60-5394-493
Gold C18Aq	20 – 40 µm spherical	450 g	60-5394-507
		950 g	60-5394-508
		25 kg	60-5394-509
Gold Amine	20 – 40 µm spherical	450 g	60-5394-500
		950 g	60-5394-491
		25 kg	60-5394-486
Gold Diol	20 – 40 µm spherical	450 g	60-5394-502
		950 g	60-5394-494
		25 kg	60-5394-495
Gold Cyano	20 – 40 µm spherical	450 g	60-5394-501
		950 g	60-5394-496
		25 kg	60-5394-497
Alumina Acidic	40 – 63 µm irregular	950 g	60-5394-489
Alumina Neutral	40 – 63 µm irregular	950 g	60-5394-488
Alumina Basic	40 – 63 µm irregular	950 g	60-5394-487
SCX	40 – 63 µm spherical	450 g	60-5394-504
SAX	40 – 63 µm spherical	450 g	60-5394-503



## Self-pack Flash Column Kits

Self-pack column kits allow use of the reusable RediSep Rf cartridges in place of a column. Each kit includes a solid load cartridge cap, one package of empty cartridges with frits, and bulk silica gel, 40 – 60 µm.

- 1 – 5 gram kit  
with 950 grams bulk silica gel .....60-3877-206
- 5 – 25 gram kit  
with 1900 grams bulk silica gel .....60-3877-207\*
- 25 – 65 gram kit  
with 1900 grams bulk silica gel .....60-3877-208
- 65 – 260 gram kit  
with 2850 grams bulk silica gel .....60-3877-209

\*To use with CombiFlash Companion systems, purchase external column adaptor, 60-5394-432, extra.

## Self-pack Flash Column Kit Accessories

- Package of 150 frits, 5 gram.....60-5237-052
- Package of 100 frits, 25 gram .....60-5237-053
- Package of 75 frits, 65 gram.....60-5237-054
- Package of 25 frits, 260 gram .....60-5237-055



# RediSep® Library

Teledyne Isco has an extensive library of application notes, posters, and paper reprints. Selected resources are listed below.

## Silica ●

**AN70**, Higher Resolution Results with RediSep Rf Gold® Silica Columns

**Poster Reprint**, Purification of Carbohydrates by MPLC

**Poster Reprint**, Spherical Silica Increases Loading Capacity

## C18 ●

**AN49**, Improvements in RP MPLC as Alternative to Prep HPLC

**AN51**, RediSep C18 Column – Purification of peptides

**AN55**, RediSep C18 Column – Purification of low-solubility polar heterocycles

## Amine ●

**AN31**, RediSep Amine Column – Purification of high pKa Organic Compounds Case Study 1

**Poster Reprint**, Advanced Topics RediSep Specialty Media

## Cyano ●

**AN60**, RediSep Neutral Alumina Column – Purification of High pKa Organic Compounds Case Study 1

**Poster Reprint**, Advanced Topics RediSep Specialty Media

## Diol ●

**AN27**, Rapid Purification of Tocopherols

**Poster Reprint**, Diol Columns – Pretend They're Normal Phase

## SAX ●

**AN44**, RediSep SAX Column – Purification of acidic compounds with multipurpose scavenger column Case Study 1

## SCX ●

**AN39**, RediSep SCX Column – Purification of High pKa Organic Compounds Case Study 1

## Solid Load Cartridges ●

**AN15**, Dry samples improve resolution in normal phase flash chromatography

## Detection Techniques

**AN22**, Expanded Compound Wavelength Detection with UV-Vis

**AN80**, Evaporative Light Scattering Detectors

**AN81**, CombiFlash® All-wavelength Collection

## General Information

**AN20**, Acetone as an Alternative to Ethyl Acetate

Our full library is available online at [www.isco.com/lcappnotes](http://www.isco.com/lcappnotes)



## Request your free copy

“Effective Organic Compound Purification — Guidelines and Tactics for Flash Chromatography.”

Visit [www.isco.com/flashguide](http://www.isco.com/flashguide)

# Rely on CombiFlash®

## CombiFlash® Rf+ and Rf+ Lumen

- Driven by intuitive, powerful PeakTrak® software
- Smallest footprint of any automated Flash system
- Real time and Post Run Spectral Display
- RFID technology for columns and racks
- Rf+ Lumen has integrated ELSD in addition to UV or UV-Vis detection



## CombiFlash® Rf+ Purlon, Purlon L and Purlon S

- Fractionate on target mass ion(s) or mass range
- Real time and post run spectral data display
- Quickly switch between ESI and APCI ionization probes
- Choose the model that meets your needs
  - Purlon: 50 – 1200 Dalton range, selectable ionization polarity
  - Purlon S: 50 – 1200 Dalton range, auto-switching ionization polarity
  - Purlon L: 50 - 2000 Dalton range, with auto-switching ionization polarity

## CombiFlash Torrent®

- Purify 0.5 to 300 grams in a single run
- Up to 1 liter/minute at 100 psi
- Versatile sample, solvent, fraction, and waste options
- Fully-grounded solvent path for safety
- Easily scale up methods from CombiFlash Rf systems



# How to Order

Within the USA, RediSep® Rf and CombiFlash® products are sold direct from the factory to the customer, with support from local representatives in many areas. To arrange for a consultation, product demonstration, or other service from your sales representative, just call our toll-free number below.

**Phone:** (800) 228-4373 (toll-free)

(402) 464-0231

**Fax:** (402) 465-3022

**E-mail:** [iscoOrders@teledyne.com](mailto:iscoOrders@teledyne.com)

} Monday-Friday, 7:30 AM – 5:00 PM Central Time

**Outside the USA and Canada,  
contact your Teledyne Isco  
dealer or call + 1 402 464 0231**

Teledyne Isco reserves the right to change specifications without notice.