TELEDYNE | Teledyne LABS

ACCQ*Prep*® SFC

Preparative SFC System

CHROMATOGRAPHY

Green Preparative SFC: Chiral or achiral separations in a single, compact solution

The only system on the market to offer bulk collection from stacked injections and multi-sample, walk-up, open-bed collection in one unit.

The compact ACCQ*Prep*® SFC simplifies method complexity and ensures successful separations for users of all experience levels. When paired with an optional SFC AutoSampler (2x2 or 4x2), the ACCQ*Prep* SFC offers versatility without limitations, all in the smallest Prep SFC footprint on the market. Add the mass spectrometer and ELSD option to collect based on mass(es) and separate out weak UV absorbing compounds with certainty.

Equipped with a powerful pumping system, the ACCQ*Prep* SFC is capable of running up to 200 mL/min from 5 to 70 percent cosolvent composition to help elute a wide range of compounds, from non-polar to polar, and small molecules to large molecules like peptides and oligonucleotides. To perform stacked injections without drifting peaks, stability in the CO_2 flow and system back-pressure is intelligently controlled via mass-flow feedback and automated back-pressure regulation.

At the core of the ACCQ*Prep* SFC is a patented Gas-Liquid Separator (GLS) that reduces carryover, is low maintenance and is capable of high cosolvent flow. This unique design enables bulk collection into up to eight vessels with the standard fractionation valve, or expanded open-bed fraction collection with the simple addition of a 2x2 or 4x2 SFC AutoSampler for unattended, multi-sample purifications.

Teledyne ISCO's reputation for intuitive, functional and easy to use purification software is at the heart of the ACCQ*Prep* SFC, with its familiar PeakTrak® interface navigated via a high-resolution, integrated 15" touchscreen. Quickly make on-the-fly gradient and peak collection changes on the main screen. The Method Editor is easily accessible on a single page with a convenient and practical layout of detailed method parameters.

Powerful, Easy-to-Use Control

PeakTrak®

- Intuitive PeakTrak software minimizes the learning curve and enables the user to efficiently complete their purification, save time, and reduce solvent consumption.
- Log in through a network connection and control the separation remotely from your desktop.

Single Touchscreen Operation

- Start a separation in seconds. Choose a column, place the sample probe, press play, and walk away.
- Easily make on-the-fly chromatographic changes using the touchscreen while a run is in process.

Photo Diode Array Detection

- UV and UV-Vis detectors use PDA technology
- Display spectra in real time or post run
- Collect peaks based on purity indicators

Active Solvent and Waste Level Sensing

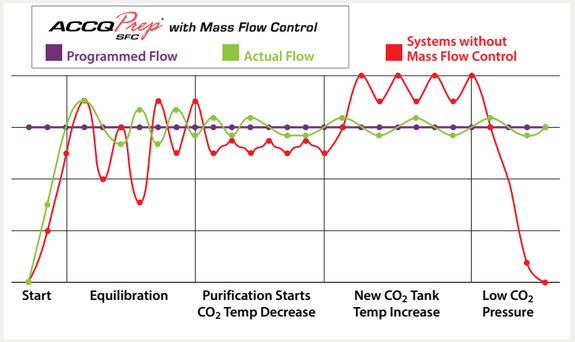
- Know before you run with predictive solvent needs and proprietary, time-tested active solvent/waste monitoring setting up long stacked-injection sequences or multi-sample queues for success.
- Never run a column dry or overfill your waste container.

Pumping System—Flow Control from 50-200 mL/min, designed for columns up to 3 cm

- A robust CO_2 pumping system is paired with an advanced mass-flow controller and automated back-pressure regulator to provide the flow control required by the dynamic nature of supercritical CO_2.
- Liquid co-solvent pump with standard 4-solvent selection valve capable of composition from 5 to 70%.
- Integrated make-up pump for high CO_2 composition.

Why a Mass-Flow Controller is Supercritical to your SFC Separation?

- Find yourself constantly adjusting fraction collection settings during your long SFC stacked injection sequences. Well, accurate measurement of the flow of your CO_2 is critical because of the dynamic properties of CO_2 as the temperature and pressure of your CO_2 supply fluctuates.
- The ACCQ*Prep* SFC automatically adjusts the speed of the pumps to maintain consistent CO_2 flow and composition, even as your CO_2 tank pressure drops, cools off, or switch to a new source.



Versatile and Robust Gas-Liquid Separator

- Patented internal GLS allows for either open container collection or open-bed fraction collection for maximum sample recovery.
- Eliminates carryover, resists clogging, and permits high cosolvent flow volumes appropriate for the column size being used.

Bulk Collection or Multi-Sample Collection in One Configuration

- Standard 8-port fractionation valve allows bulk fraction collection into containers of any size.
- Enjoy uninterrupted system operation with the ability to reset the status of your bottle collection on-the-fly.
- Simply add any SFC AutoSampler for open-bed fraction collection.
- Don't overfill tubes or bottles with accurate tracking of fill volume of bottles or test tubes.

Reproducible, Versatile Sample Introduction

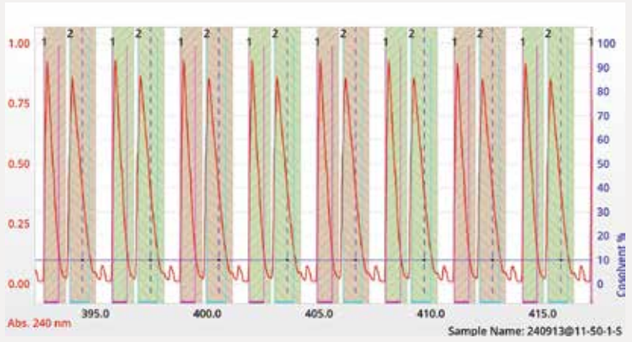
- AutoInjector allows for single, multiple, or stacked injections.
- Pair with SFC AutoSampler to add multisample capability with automated wash sequences and maximum sample injection precision and repeatability.

Stable Chromatography with Thermostatted Oven

- Capacity for 6 columns, up to 3 cm in diameter and 250 mm in length. Variable temperature control from +5 °C above ambient to 70 °C.
- Injection valve with 5-mL sample loop for modifier stream injections.
- Column selection valve allows switching between up to 6 different columns.

Reliable, Stable, and Reproducible SFC

- Stability is evident in the chromatogram of these 8 injections from the middle of an over 7 hour stacked injection sequence.
- No tweaking of fraction collection settings needed for this 145 injection sequence thanks to the ACCQPrep SFC's combination of an integrated mass-flow controller with stable, reliable, automated BPR and temperature control.



Small footprint, huge performace!

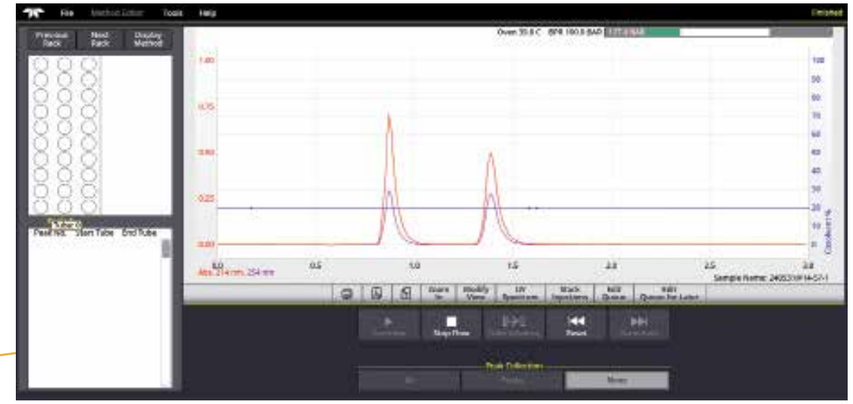
- Compact, space-saving design.
- Uses minimal bench space with built-in fractionation valve and integrated touchscreen.

Stacked Injections

Stacked injections increase throughput by performing additional injections, while compounds from previous injections elute. The PeakTrak® software's Stacked Injection Wizard intelligently determines cycle time and fraction collection settings, automatically suggesting "time windows" for collection of desired peaks, and injection simulation assists the user in visualizing changes to the stacked injection protocol.

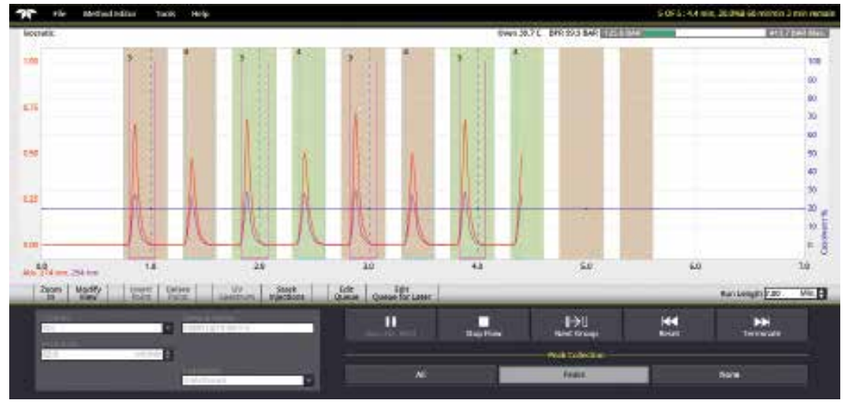
Hundreds of injections at the touch of a fingertip!

Easily make changes on the fly to adjust your stacked-injection sequence to changing chromatography conditions.



Open or run an Isocratic method with peak detection on and select STACK INJECTIONS

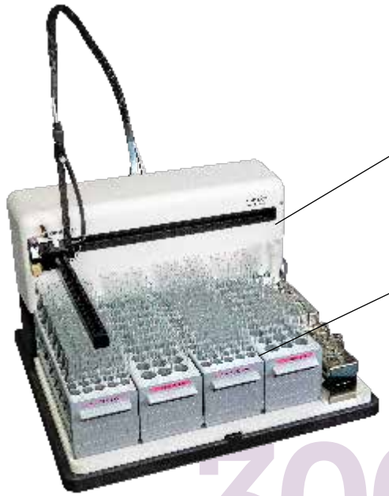
The STACKED INJECTION WIZARD automatically suggests a cycle time and time windows based on the isocratic run and simulates a series of stacked injections for the user to visualize. Simply enter your injection parameters and click OK.



Stacked injections quickly and reliably every time. Smart and efficient chromatography to maximize throughput and decrease purification time.

Open-bed fraction collection made easy with ACCQPrep SFC

Maximize the throughput and flexibility of your system by adding an AutoSampler for extended, unattended operation.



Unlimited, Open-bed Collection with AutoSamplers

- The two-rack SFC AS 2x2 and four-rack SFC AS 4x2 sampler options allow custom chromatographic conditions to be applied to a variety of different samples.
- With multiple rack positions, easily switch out full racks with empty racks without interruption for continuous operation.

Sample Purity

- Integrated, automated wash station and sophisticated robotic probe movement ensure sample purity and limits cross contamination.
- Quantitative sample transfer with elimination of carryover.

Rack Sensing

- The system reads the RFID rack and then sets the fill volume to avoid tube overfills and missed tubes.
- Supports a variety of collection rack sizes so that purified compounds can be collected in volumes appropriate for the column size being used.

300 TUBE CAPACITY WITH **SFC AS 4x2***

150 TUBE CAPACITY WITH **SFC AS 2x2*** *16 mm tubes

SFC AS 2x2 shown with optional enclosure to allow operation outside the hood freeing up valuable hood space.

(Connection to 4" exhaust duct needed to safely install outside the hood.)

Going green while saving time in the laboratory

An important principle towards greener chemistry and processes is to "Maximize Efficiency: Meet Need, Minimize Excess." Preparative SFC and the ACCQ*Prep* SFC specifically:

1. Offers a significant reduction in the use of organic solvents, as carbon dioxide replaces the weak solvent used in traditional normal phase chromatography.
2. Decreases the amount of solvent removed from your purified compounds as gaseous CO_2 is separated from the mixture in the patented GLS.
3. Enables reuse of captured carbon dioxide generated by other processes; giving it a second life.

Specifically, the ACCQ*Prep* SFC furthers the goals of green chemistry through its easy-to-use Focused Gradient Generator and Stacked Injection Wizard. Quickly develop efficient and reproducible purifications that minimize unneeded portions of the gradient profile and maximize sample loading to purify more, in less time.

The use of focused gradients eliminates the need for over 70 percent of the default gradient profile where the compound is not moving down the column or already eluted off. Optimized gradient methods maximize efficiency by allowing purification with larger sample loading, while simultaneously minimizing waste output and the amount of solvent used. All of these benefits and more, while still saving user time.

Reducing waste through innovative chromatography product design is just another way to retain productivity, while improving the quality of life on our planet.

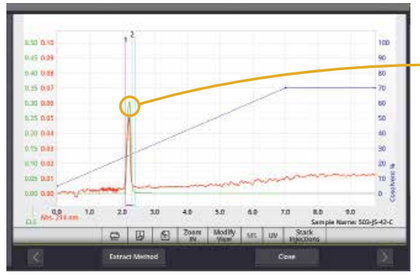
Up to **90%** Reduction in Solvent Waste

Less solvent use and solvent volume per fraction, saves valuable time and energy in the solvent removal process.

Focus Gradient Generator

Fast, optimized and efficient method development without hassle.

Designed to allow quick method optimization by chemists of all skill levels, to produce purified product. Run a single scouting run, then use our exclusive Focus Gradient Generator. By simply touching the peak, create an optimized gradient that maximizes efficiency and resolution around your target compound. The method is automatically scaled up to the column size (of matching media) of choice.



Scouting Run

Run a scouting run on the ACCQPrep SFC or from a calibrated analytical system and simply touch the peak of interest or enter its retention time for an optimized method for scale up.

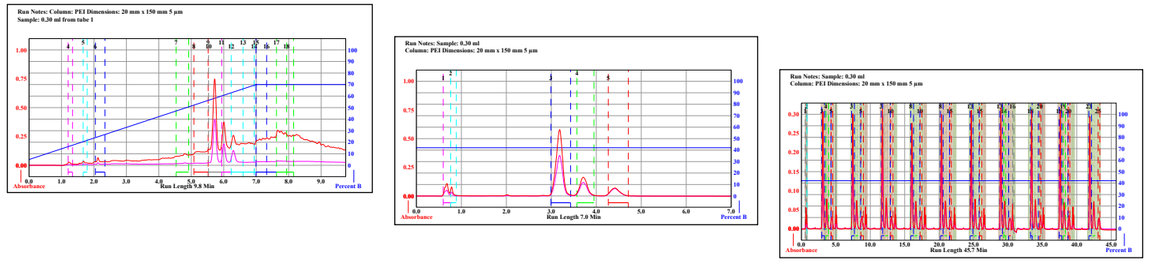
Focused Run

Observe the improved resolution allowing increased sample loading and increasing throughput with minimal method development time.

Focus Gradient Generator paired with the PurIon mass spectrometer

Easy to Use Method Optimization Right the First Time!

No more guessing which peak is your compound! Coupling a scouting run with MS data means you can now have confidence that the separation is optimized for your target compound. Getting things done right the first time, saves money, solvent and most importantly time.

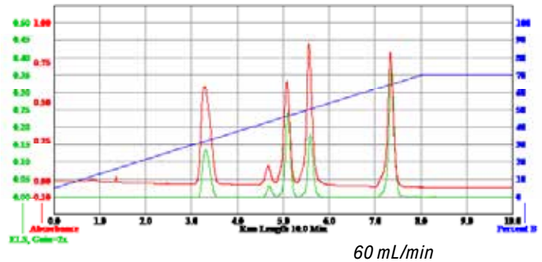


Focus Gradient Generator used to calculate an isocratic purification method of curcumin compounds which was used to create stacked injections to rapidly purify these compounds.

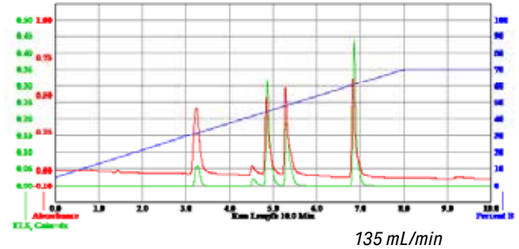
Integrated ELSD

Collect weak UV absorbing compounds with certainty.

- Fully integrated into the ACCQ*Prep* SFC with no additional bench space needed.
- Offers scalability and sensitivity for a wide range of sample loading with easy-to-change method parameters.
- Peak alignment automatically adjusted for varying co-solvent composition and different flow rates.
- Maximum sample recovery with automatic signal alignment from 50-200 mL/min with no user hardware changes.



60 mL/min



135 mL/min

No Chromophore? No Problem
with our **ELSD** and **MS modules!**

Mass-Directed Preparative SFC

Verify before you purify!

The PurIon mass spectrometer is fully integrated with PeakTrak® software. The ability to manually inject samples prior to purification and collecting based on mass(es) makes this mass-directed ACCQ*Prep* system ideal for many applications.

- Using the Method Development screen, easily adjust loading and ionization settings before committing your valuable sample for purification.
- Use IonFinder to easily pick out more abundant MS adducts or multiply charged species of your unique compounds.
- See past the noise and maximize MS sensitivity and sample recovery by using Single Ion Monitoring (SIM).
- Collect on up to 6 SIM masses or 5 SIM masses and a mass range.
- Get the whole picture with full MS spectral range traces throughout your chromatogram.
- Set asymmetric peak threshold to account for the MS sensitivity changes and tailing after target mass elution.

RediSep® Prep Columns

Maximize Your Preparative SFC Performance

When you need the highest purity compound, your first choice should be to equip your ACCQPrep SFC with RediSep Prep columns.

Teledyne LABS flash purification columns have a global reputation for quality and high performance. RediSep Prep columns are specifically designed for preparative HPLC or SFC purifications.

Features:

- Prep column diameters of 2 and 3 cm with length of 150 mm, all in 5 µm media.
- Available matching analytical (4.6 x 150 mm, 5 µm) columns for method development on analytical systems.
- Protect your column investment using our prep guard holders including replaceable guard cartridges with matching stationary phase.

RediSep Prep HPLC/SFC Columns

Diameter		10 mm		20 mm		30 mm		50 mm	
Media	Length	150 mm	250 mm	150 mm	250 mm	150 mm	250 mm	150 mm	250 mm
C18, 100Å, 5µ		69-2203-808	69-2203-809	69-2203-810	69-2203-811	69-2203-812	69-2203-813	69-2203-814	69-2203-815
C18Aq, 100Å, 5µ		69-2203-816	-	69-2203-818	-	69-2203-820	-	69-2203-822	69-2203-823
C18-WCX, 100Å, 5µ		-	-	69-2203-876	-	69-2203-877	-	-	-
C8, 200Å, 5µ		69-2203-857	-	69-2203-858	69-2203-859	69-2203-860	69-2203-861	69-2203-862	69-2203-863
Diamino, 100Å, 5µ		-	-	69-2203-881	-	69-2203-882	-	-	-
Diol, 100Å, 5µ		-	-	69-2203-885	-	69-2203-886	-	-	-
4-Ethyl Pyridine, 100Å, 5µ		-	-	69-2203-870	-	69-2203-871	-	-	-
PEI, 100Å, 5µ		-	-	69-2203-890	-	69-2203-891	-	-	-
Silica, 100Å, 5µ		69-2203-824	-	69-2203-826	69-2203-827	69-2203-828	69-2203-829	-	69-2203-831

RediSep Prep Guard Cartridges

Media	20 mm Catalog #	30 mm Catalog #
C18, 100Å, 10µ	69-2203-874	69-2203-946
C18Aq, 100Å, 10µ	69-2203-875	69-2203-947
C18-WCX, 100Å, 10µ	69-2203-879	-
C8, 200Å, 10µ	69-2203-880	69-2203-945
Diamino, 100Å, 10µ	69-2203-884	-
Diol, 100Å, 10µ	69-2203-888	-
4-Ethyl Pyridine, 100Å, 10µ	69-2203-873	-
PEI, 100Å, 10µ	69-2203-893	-
Silica, 100Å, 10µ	69-2203-894	69-2203-948

RediSep Prep Guard Hardware

Description	20 mm Catalog #	30 mm Catalog #
RediSep Prep Guard Cartridge Holder (20 or 30 mm) x 10 mm	69-2203-889	69-2203-943
O-ring, PTFE encapsulated for guard holder	69-2203-895	69-2203-944

Analytical HPLC/SFC Columns

Media	Catalog #
C18, 100Å, 5µ	69-2203-800
C18Aq, 100Å, 5µ	69-2203-801
C18-WCX, 100Å, 5µ	69-2203-878
C8, 200Å, 5µ	69-2203-856
Diamino, 100Å, 5µ	69-2203-883
Diol, 100Å, 5µ	69-2203-887
4-Ethyl Pyridine, 100Å, 5µ	69-2203-872
PEI, 100Å, 5µ	69-2203-892
Silica, 100Å, 5µ	69-2203-802