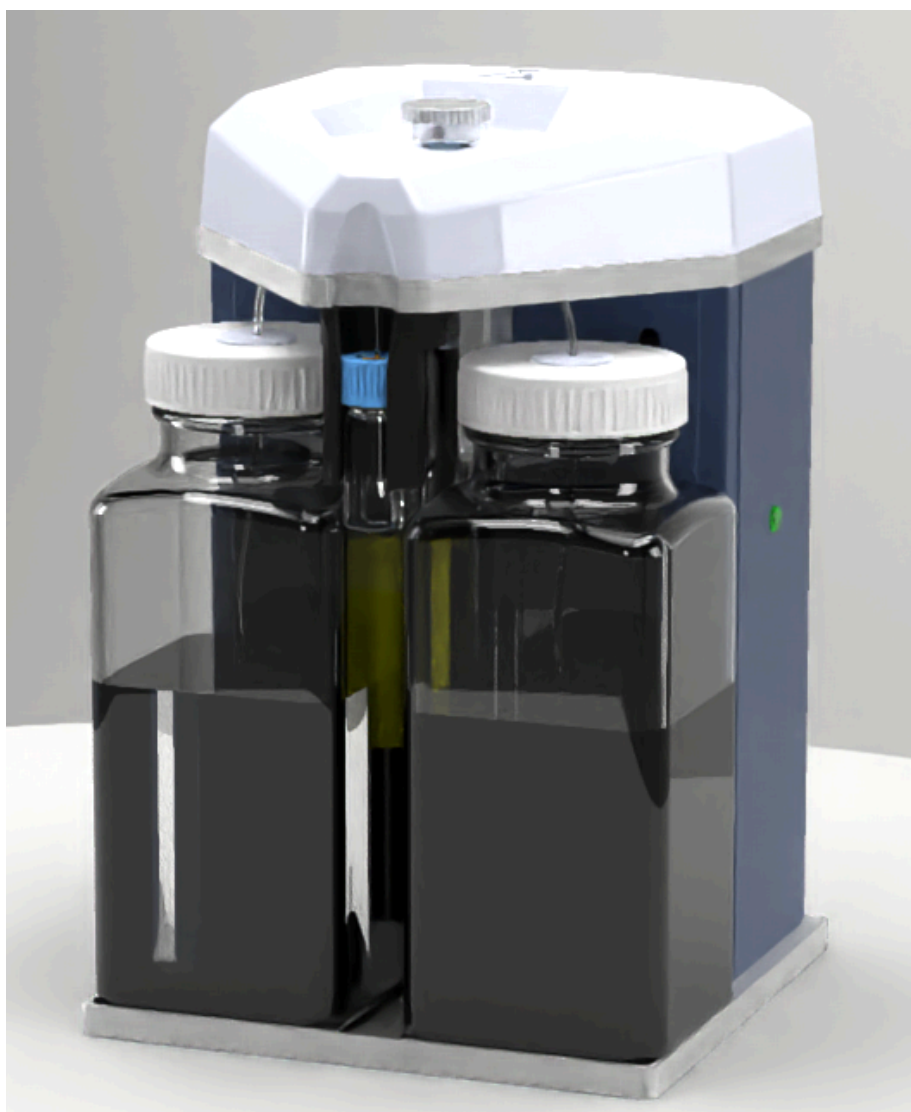


Cromite™ HPLC System

Instruction Manual

Ver 1.0



Contact Us

There are several ways to contact us:

Ordering Information

For ordering information or sales support for HPLC products, contact the SIELC Technologies sales organization. For contact information, go to Contact Information on [Contact Information](#) | [SIELC Technologies](#)

Technical Assistance

For technical support for HPLC products, contact the SIELC Technologies support organization. For contact information, go to Contact Information on <https://sielc.com/>

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Manufactured by SIELC Technologies, Inc.

804 Seton Court, Wheeling, IL USA 60090

E: mail@sielc.com

Phone. +1 (847) 229-2629

www.sielc.com

The information in the printed customer documentation was correct at the time of issue. SIELC Technologies continues to improve products and reserves the right to change specifications, equipment, and maintenance procedures at any time without notice.

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Safety

General Safety

Work in a well-ventilated area. An eyewash station and a sink should be easily accessible.

Always wear appropriate personal protective equipment (see “[Personal Protective Equipment](#)”).

Review the Safety Data Sheets (SDS) for all solvents and samples used with the system.

Chemical Safety

Store and handle flammable solvents (e.g., MeCN, EtOH) away from ignition sources.

Use only chemically compatible solvents and buffers. Avoid suspensions, particulates, or viscous materials that may block the flow path.

Dispose of waste according to your laboratory's safety procedures and local environmental regulations. Do not mix incompatible waste in the same container.

In case of a spill: stop the pump, disconnect power if necessary, contain the spill with absorbent material, clean the affected area, and ventilate the workspace.

Pressure & Flow Safety

The system operates at pressures up to 4000 psi. Before handling any solvent bottles, or columns ensure the pump is stopped and pressure is stable and reduced.

Do not exceed the maximum pressure rating of your column (see “[Technical Specifications](#)”).

Never run the pump dry — make sure the solvent inlet filter is fully submerged in the mobile phase.

After replacing a solvent, perform a purge (see “[Before Using the System](#)”).

Mechanical & Handling

Do not touch the needle or moving parts while the instrument is operating — risk of injury or contamination.

Do not use tools to tighten connections unless explicitly specified as required. Over-tightening may damage threads or seals.

When moving the instrument, hold the body with both hands. The system weight is approximately 1.45 kg.

Electrical & Connectivity

Power requirements: 100–240 V, 50–60 Hz. Use a properly grounded outlet and an intact power cable.

Do not open the instrument housing — there are no user-serviceable components inside. Servicing must be performed by SIELC Technologies or an authorized technician.

Follow the instructions in “[Connecting Devices to the Network](#)” for Ethernet, Wi-Fi, or LTE setup.

Do not insert or remove USB adapters or modems during firmware updates.

Environment & Location

Place the instrument on a stable, level surface, away from vibration, direct sunlight, or heat sources.

Operating temperature range: 0–40 °C (see Technical Specifications). Avoid condensation or high humidity.

Maintenance & Cleaning

Follow all procedures described in Maintenance and Care (“[Changing Mobile Phase](#)”, “[Emptying Waste](#)”, “[Cleaning the Needle](#)”).

Use soft, lint-free wipes. For external cleaning, use 70% isopropanol or a neutral laboratory cleaner.

Do not spray or pour liquids inside the housing.

Prohibited Uses

Do not operate the instrument in explosive (ATEX) environments, for unvalidated in-vitro clinical diagnostics, or with unknown or aggressive solvents without verified chemical compatibility.

Emergency Procedures

Immediately press Stop if you notice a leak, unusual noise, sudden pressure increase, solvent odor, or a red status indicator.

Disconnect power if short circuiting or solvent leakage inside the housing is suspected.

Contact SIELC Technologies support (see “[Contact Us](#)”).

Record the serial number, firmware version “[Devices](#)”, and the last user actions before the issue occurred.

Intended Use

The Cromite™ HPLC System, developed by SIELC Technologies, represents a new generation of compact, affordable, and easy-to-use chromatography instruments designed for schools, universities, and laboratories where simplicity, reliability, and clarity are essential.

Weighing only 1.45 kg and measuring 115 × 190 × 115 mm, the Cromite™ HPLC System is suitable for space-constrained laboratories, classrooms, and portable applications.

Despite its small size, it offers robust analytical capabilities — including single-vial injection, operation up to 4000 psi, UV/Vis detection, and customizable wavelengths starting from 235 nm.

The cloud-based software (HPLC.Cloud) allows users to control the instrument remotely, create methods in real time, and analyze data from any device — computer, tablet, or smartphone.

This connectivity supports collaborative research, distance learning, and flexible laboratory workflows.

The Cromite™ HPLC System is capable of analyzing a wide range of compounds, delivering reliable, accurate, and reproducible results.

- Single Stroke 5.8 mL High Pressure Pump
- UV/Vis Multi-Wavelength Detector
- Multi-Position Switching Valve
- Communication and Controller Electronic Module
- Single Port HPLC Column
- Connections for 2 x 250 mL Solvent Flasks
- Injection Port for Sample Introduction

Key Advantages:

- Portable and Compact Design – Lightweight (1.45 kg) and small footprint (115 × 190 × 115 mm) make the Cromite™ ideal for classrooms, mobile labs, and bench-top setups.
- High-Pressure Performance – Operates up to 4000 psi, ensuring effective separation of complex mixtures with excellent resolution.
- Advanced Detection – UV/Vis detector with customizable wavelengths starting from 235 nm enables high analytical precision.
- Cloud-Connected Software – Real-time control, data acquisition, and analysis via HPLC.Cloud accessible from any device.
- Single-Vial Injection – Simplifies operation and reduces sample handling errors.
- Educational and Research Versatility – Suitable for training and analytical tasks across pharmaceutical, food, and environmental fields.

- Reproducible Results – Ensures high accuracy and consistent performance across multiple analyses.

Personal Protective Equipment

Wear personal protective equipment and follow good laboratory practice to protect you from hazardous substances. The appropriate equipment depends on the hazard. For advice on the hazards and the equipment required for the substances you are using, refer to the material handling and safety data sheet provided by the vendor.

WARNING! An eyewash facility and a sink should be available nearby. If any substance contacts your skin or eyes, wash the affected area and seek medical attention.

Protective Clothing

To protect you from chemical splashes, harmful liquids, or other contamination, put on appropriate protective clothing, such as a lab coat.

Protective Eyewear

To prevent liquids from striking your eyes, put on appropriate protective eyewear, such as safety glasses with side shields. If there is a risk of splashing liquids, put on goggles.

Gloves

To protect you from harmful liquids and avoid personal injury during maintenance or service, put on appropriate protective gloves.

Installation

Unpacking

WARNING! Personal Injury

To prevent personal injury, do not insert fingers, tools, or other objects into the instrument's ports, valve area, or flow path while the system is connected to power or pressurized.

WARNING! Risk of Electrical Shock or Instrument Damage

A risk of electrical shock or permanent equipment damage may occur if the device is connected to a line voltage higher than specified.

After unboxing, place the Cromite™ on the bench.

1. Connect the power cable to the power connector at the rear of the analyzer.
2. Connect the Ethernet cable from the Cromite™ to the Ethernet port (RJ-45) on the PC or network router to establish communication with HPLC.Cloud.

NOTE: The Cromite™ Analyzer can also connect to HPLC.Cloud via a wireless network (Wi-Fi, 4G, or 5G). For more information, see [“Connecting Devices to the Network”](#).



Once powered on, the system will automatically initiate communication with the cloud server. The **status light** on the side panel indicates the current operational state:

- **Green (slow blinking):** System ready.
- **Yellow (slow blinking):** Software initializing.
- **Magenta (steady):** Analysis in progress.

- **Cyan (short blink):** Software update in progress.
- **Red (short blink):** Hardware, software, or communication error detected

For software setup and registration, see “[Software](#)” → “[Registration](#)”.

CAUTION! "Defective on Arrival" Problems

If there are any signs of damage, do not attempt to install or operate the module. Inspection by SIELC Technologies is required to determine whether the instrument is in good condition or damaged.

→ Notify your “[SIELC Technologies sales](#)” or service representative about the damage.

Tubing Connections

All tubing inside the Cromite™ Analyzer is pre-installed, pressure-tested, and fully ready for operation.

The user is not required to perform any additional connections or adjustments.

CAUTION! Do not attempt to disconnect, replace, or modify the internal tubing — this may compromise the system's integrity and void the warranty.

Set-Up

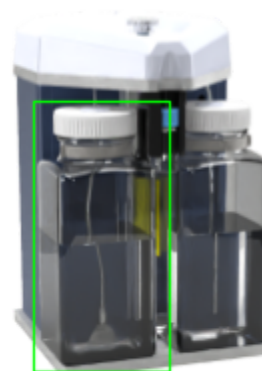
1. Install the Solvent Bottle

Attach the solvent bottle (indicated in green in the diagram) securely to the solvent inlet line. Ensure that the inlet tubing with the solvent filter (frit) is fully submerged in the solvent. The filter prevents particles from entering the pump and ensures stable flow.

Label the bottle clearly as Mobile Phase to avoid cross-contamination with waste.

For more information, see [“Changing Mobile Phase”](#).

NOTE: A standard **Cromite™** flask has a volume of 250 mL.



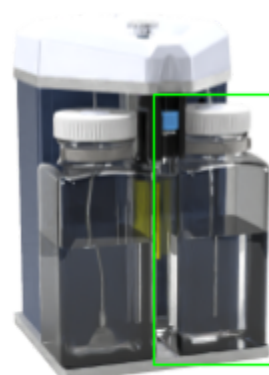
2. Install the Waste Bottle

Connect the waste outlet tubing to the waste bottle (indicated in green in the diagram).

Label the bottle clearly as Waste to avoid cross-contamination with solvents.

For more information, see [“Emptying Waste”](#).

NOTE: A standard **Cromite™** flask has a volume of 250 mL.



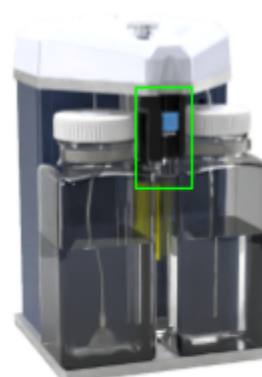
3. Load the Sample Vial

Insert a standard sample vial (shown in green) into the vial holder.

Ensure the vial is properly seated and free from leaks.

NOTE: Standard vial dimensions (e.g., 12 × 32 mm, 2 mL vials) are supported.

Use Screw Caps with Pre-Slit PTFE/Silicone Septa to ensure a secure and leak-free seal during sampling.



Column Installation

The HPLC column is one of the most critical components of the analytical system — it directly determines separation efficiency, retention time, and overall performance.

NOTE: The Cromite™ analyzer is shipped with a pre-installed column, tested and ready for operation.

Supported column dimensions and pressure limits are listed in the “[Technical Specifications](#)” section.

Preparation

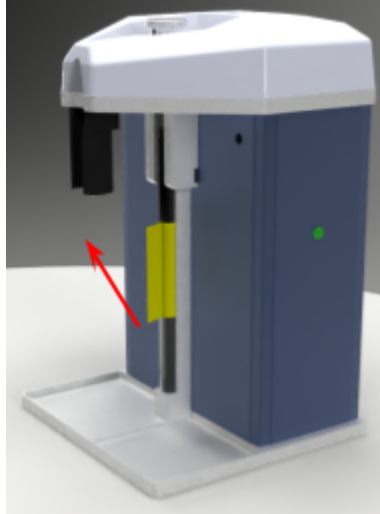
1. Stop all active runs and make sure the **Pump** is turned **off**.
2. If necessary, protect the workspace with an absorbent pad to catch any solvent drips.

Removing the Current Column

1. Carefully unscrew the coupling nut while holding the column with your hand for support. Turn the nut clockwise to disconnect the column.



2. Disconnect the removed column.



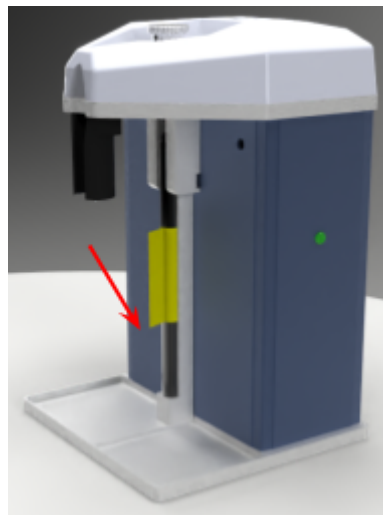
3. Inspect the connection port for any dirt or residue; gently wipe if needed.



Installing a New (or the Same) Column

Verify that the new column is **compatible in size and pressure rating** (see “[Technical Specifications](#)”) and matches the current mobile phase.

1. Install the column into the connection port. Ensure the flow-direction arrow on the column is pointing downward (toward the floor).



2. While supporting the column with one hand, carefully tighten the coupling nut counterclockwise until snug.

CAUTION! Do not overtighten.



3. Ensure the column is seated straight and without misalignment.

Flushing and Verification

1. In **HPLC.Cloud**, run a Single Injection sequence three times to flush the system and equilibrate the column.
For more information, see "[Devices](#)"
2. Check for leaks, verify stable pressure, and confirm a consistent baseline before proceeding with analysis.

CAUTION! Do not overtighten — hand-tightening until firm contact is sufficient.

CAUTION! Use only solvents and conditions (pH, temperature, pressure) compatible with the column.

CAUTION! Before analytical runs, allow the column to equilibrate under the method's operating conditions.

Before Using the System

When the solvents have been replaced or the pumping system has been turned off for an extended period (for example, overnight), priming of the pumping system is required before starting any analysis.

Priming ensures that all tubing and internal channels are completely filled with solvent and that no air remains in the flow path, which could otherwise cause unstable pressure, baseline noise, or irregular flow.

For more information about Purge, see "[Devices](#)"

CAUTION! Common Issues During Priming

- Air bubbles visible in the tubing — repeat priming until the flow is continuous.
- Pump not drawing solvent — confirm that the inlet lines are fully submerged in the solvent bottles.

Software

Software Overview

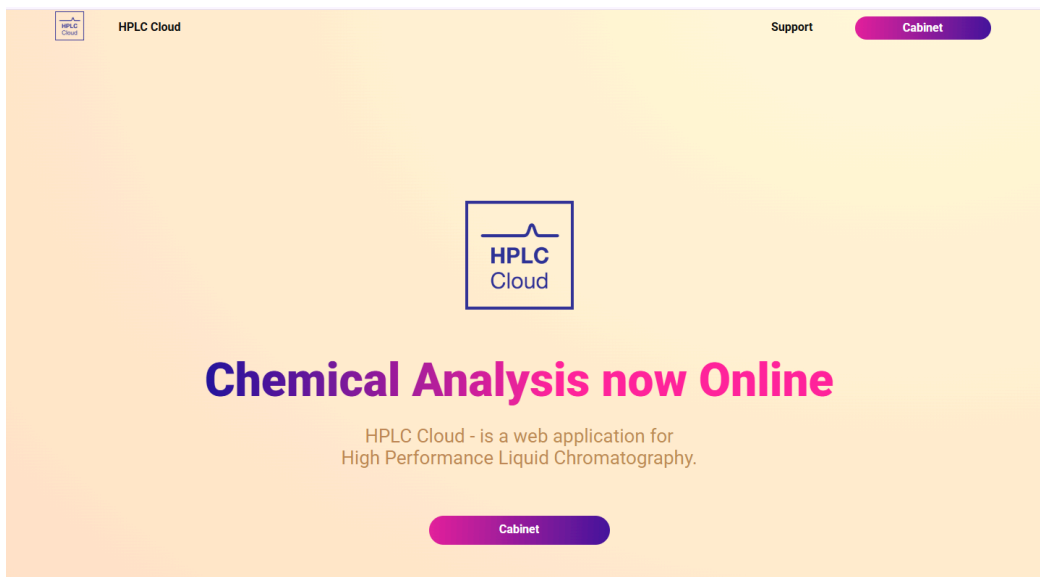
HPLC.Cloud introduces a modern approach to high-performance liquid chromatography (HPLC) by integrating cloud-based software with instrument control. Each Cromite™ unit connects securely to a cloud server via a local Ethernet line or wireless network, eliminating the need for complex software installations or ongoing support. As a web-based application, HPLC.Cloud requires only a username and password for access, making it easy to get started by signing up online.

IMPORTANT! This connectivity enables remote monitoring and operation of your laboratory from anywhere, using any internet-enabled device.

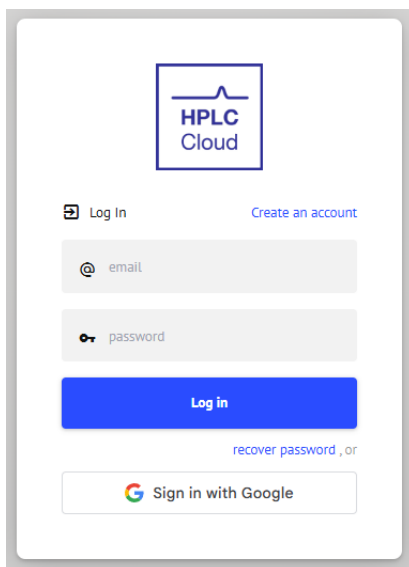
For device registration and connection, see “[Devices](#)”.

Registration

1. In order to set up and connect your devices to the cloud, start by creating an account on the website HPLC.Cloud. Click “**Cabinet**” as shown below:



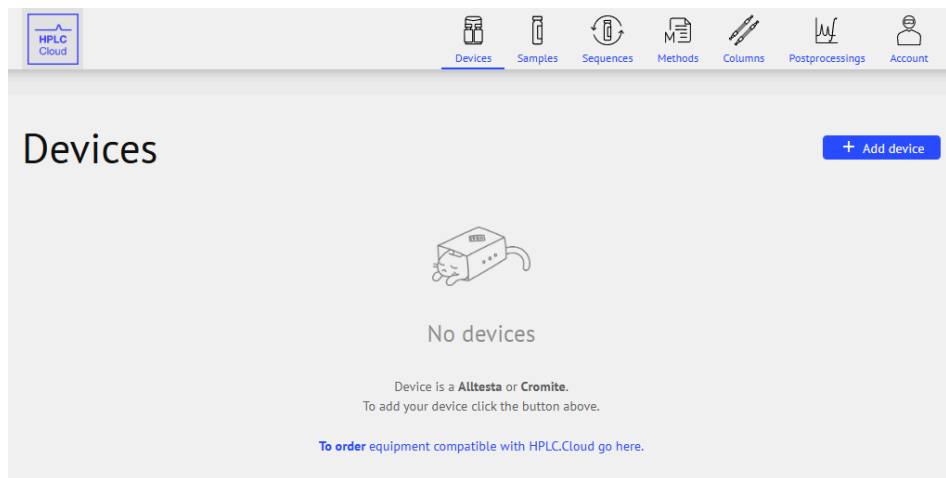
2. By clicking the **Sign Up** button you will be directed to the Sign-Up page:



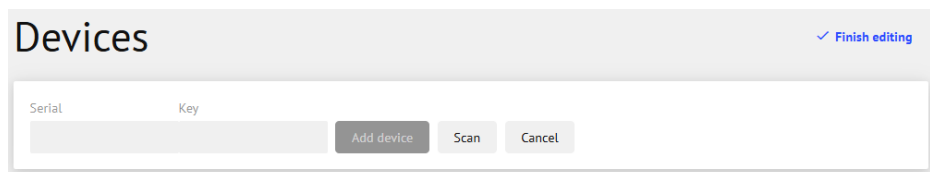
3. Enter in the required information, click **Sign Up** and your account set-up is complete.
4. You will receive an email shortly after confirming that your email has been registered with the software.
5. After that is complete, login to your account.

Devices

1. Click the Add Device button located at the top of the interface. Follow the on-screen instructions to complete the device registration process.



2. After clicking the Add Device button, the following screen will appear, requesting the serial number and key of the device. The Serial Number and Key can be found on the back of each Cromite™ HPLC.



NOTE: All units have been tested by SIELC. A message may appear stating that “these units belong to sales@sielc.com.” Simply confirm the request to delete them from that account and transfer them to the current account.

3. Repeat steps 1-2 for each Cromite™ HPLC to add them to the HPLC.Cloud account.
4. After adding each Cromite™ HPLC to your account, all devices can be viewed by clicking the Devices tab at the top of the screen.



5. To select the system you want to use, click on the **StreamLC**.
 - Devices can be renamed by clicking on the serial number once the specific device is open.
 - If the device is not plugged in, it will appear as **Offline**.
 - If the device is plugged in, it will appear as **Online**.

#7 Cromite™ Example

Cromite TPV9-3LK3   Ping fv2.59 Online

 Settings

6. When clicking on your device, the interface may appear.
 - First, check that your firmware is up to date by clicking on the text starting with **fv**.
 - If a new firmware version is available, click **Update Now**.
 - Alternatively, click **Remind me later** to set an update reminder.
7. When clicking on your device, the interface may appear.
 - Phase
 - Waste

#7 Cromite™ Example

Cromite TPV9-3LK3   Ping fv2.59 Online

 Settings

8. Input the volume for your **Mobile Phase (A)**, and **Waste Containers**. A standard **Cromite™** flask has a volume of 250 mL.

Settings

Phase

Volume of A container, mL

250

Add B container

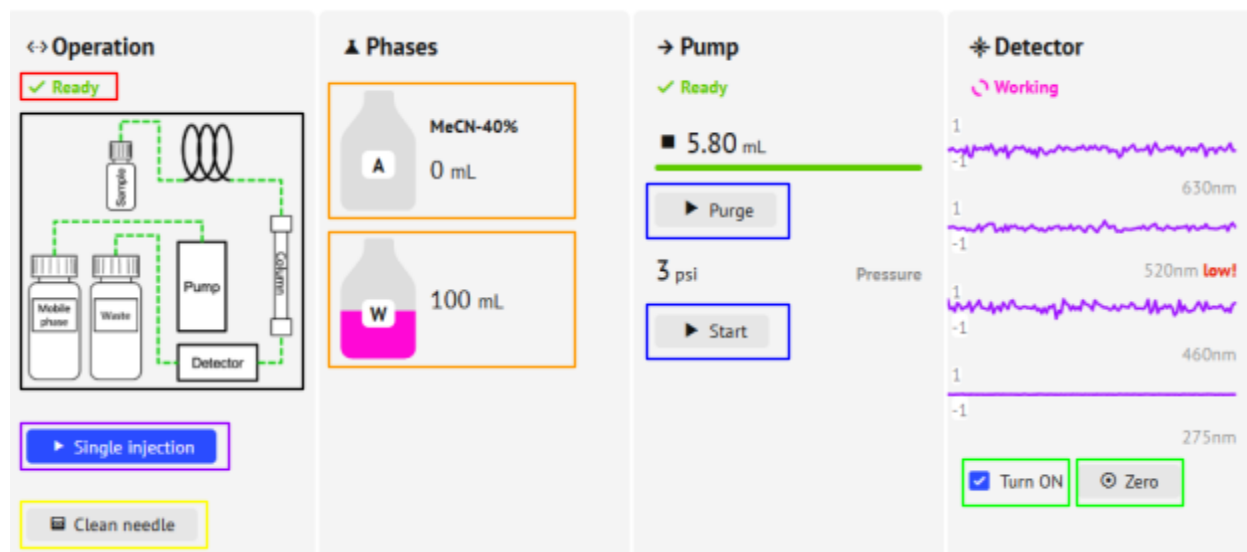
Waste

Volume of waste container, mL

250

Save

9. Once all component devices are added, associated with the respective Cromite will be visible and controllable.



10. Operation Panel

- Sample, Pump, Detector, Column, Mobile Phase, Waste (**black color frame**) — visual flow diagram of the mobile phase and sample path.
- Ready (**red color frame**) — the system is ready for operation.
- Single Injection (**purple color frame**) — launches a single analysis using the selected analytical method and column defined in the software. This mode performs one chromatographic run under the active method parameters. For more information, see “[Method](#)”, “[Column](#)”.
- Clean Needle (**yellow color frame**) — initiates the needle cleaning process after analysis to prevent cross-contamination. For more information, see “[Cleaning the Needle](#)”

WARNING! As soon as the cleaning begins, flow will start coming out of the needle, therefore a clean vial must be placed under the needle to collect the liquid coming out during the cleaning process. Do not leave a sample vial in place to avoid contamination.

11. Manual Control of Devices

- To control the **Detector** (**green color frame**) manually (without a test/sample), use the two buttons highlighted in green:
 - **Turn on LEDs:** This refers to the four different colored diodes in the detector. Each diode emits light with the maximum wavelength indicated. The image above shows a real-time plot of the signal for all four available wavelengths.
 - **Zero:** This allows you to manually "zero" all four signals at the same time.

NOTE: The system will always automatically zero the detector before an injection.
- To control the **Pump** manually (**blue color frame**), use the buttons highlighted in blue:

- **Start:** Runs the pump at the current set flow rate. This is useful for quickly replacing the mobile phase in the pump.
- **Purge:** Runs the pump at a 4.00 mL/min flow rate.

For details on replacing or preparing solvents, see “[Maintenance and Care](#) → [Changing Mobile Phase](#)”.

NOTE: The **Stop** button will replace the **Start** button once the pump starts.

- **Mobile Phase and Waste Containers**

The two bottles highlighted in orange correspond to the **Mobile Phase A** and **Waste Container** bottles. These will track and display the current volume in each bottle.

NOTE: The system will always automatically zero the detector before an injection.

NOTE: The standard volume of the flask supplied with the system is 250 mL.

Sample



The Samples tab provides an overview and management interface for all samples analyzed or prepared for analysis in your HPLC system.

It allows users to create new samples, view existing ones, and organize them by device, date, or sequence.

Samples

[View Compare](#) [View Archive](#) [+ New](#)

Keywords Any device Any time

Main Features

- **New** — create a new sample record.
- **View Compare** — compare multiple samples and their results.
- **View Archive** — access previously archived samples.
- **Search / Filter** — use keywords, device filters, or time filters to quickly locate a specific sample.

Create Sample Window

When the New button is clicked, the Create Sample window appears.

This window allows the user to define and register a new sample before performing injections or analyses.

Name

Description, optional

Device, optional Online

Use Ctrl+Enter to create

Fields:

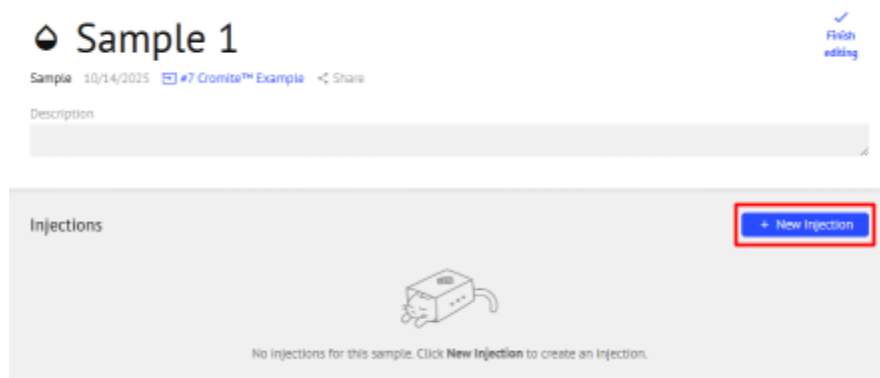
- **Name** — user-defined sample name (required).
- **Description (optional)** — notes or additional information about the sample.

- **Device (required)** — select the connected device (e.g., #7 Cromite™ Example) to assign the sample to a specific HPLC system.
 - When a device is online, its status is indicated in green (Online).

Sample View

After creation, the system automatically opens the Sample View page.

This page displays all information and actions related to the selected sample.



Displayed Elements

- **Sample name** — displayed at the top of the page.
- **Date** — creation or last modification date.
- **Device** — connected HPLC system associated with this sample.
- **Description** — editable notes for sample details or preparation method.

Below the description area is the Injections section, which lists all injections associated with this sample.

If no injections exist yet, the message “No injections for this sample. Click New Injection to create an injection.” is displayed. To add a new run, click New Injection.

This window appears when you click New Injection inside a selected sample.

It allows you to set up a new injection, link it to a specific device, select a method, assign a column, and configure detection parameters.

Device and Configuration

This section defines which instrument and method will be used.

- Device** — the connected instrument used for injection (e.g., #7 *Cromite™ Example*).
 The green **Online** indicator confirms that the device is active and ready.
 For more information, see “[Methods](#)”
- Method** — the analytical method applied for the injection (e.g., *MeCN – 40%, 0.1 H₂SO₄*).
 You can **Edit** the current method or click **Add** to select another one from the database.
 For more information, see “[Methods](#)”
- Column** — the chromatographic column used for this analysis (e.g., *Primesep B*).
 For more information, see “[Column](#)”.
- D4 – 275 nm** — selected detection channel.
NOTE: “The selected method supports only one channel. Choose a different one to add multiple postprocessings” informs that this method allows only one detection wavelength.
 For more information, see “[Postprocessing](#)”.

For running analytical injections, see ‘[Injection](#)’.

For organizing multiple injections, see “[Sequence](#)”.

Injection

The Injection section allows the user to configure and start a chromatographic run for a selected sample.

It defines the instrument, method, column, and detection channels used during the analysis.



Overview

When a new sample is created, the Injections area initially displays an empty state. Click New Injection to begin setting up a new analytical run.

Setup New Injection

This form defines the analytical configuration for the sample.

Description

An optional field for notes about the run (e.g., dilution, concentration, batch ID, or purpose).

Device and Configuration

- **Device** — the connected HPLC instrument performing the analysis (e.g., #7 *Cromite™ Example*).
The green **Online** indicator confirms the system is ready.
- **Method** — the analytical method applied for the injection (e.g., *EtOH – 10%, 0.5 H₃PO₄*).
You can **Edit** the current method or click **Add** to select another one from the database.
For more information, see “[Method](#)”
Click **Edit** to modify or **Add** to select another stored method.

- **Column** — chromatographic column used for the run (e.g., *Newcrom R1*).

Postprocessings

This section defines which detector channels will be recorded during the run.

Each wavelength corresponds to one detector channel (e.g., *D1* – 630 nm, *D2* – 520 nm, *D3* – 460 nm, *D4* – 275 nm).

The user may add or remove channels depending on the selected method and detector configuration.

For more information, see “[Postprocessing](#)”

Start Injection

Click **Start** to initiate the injection and begin data collection.

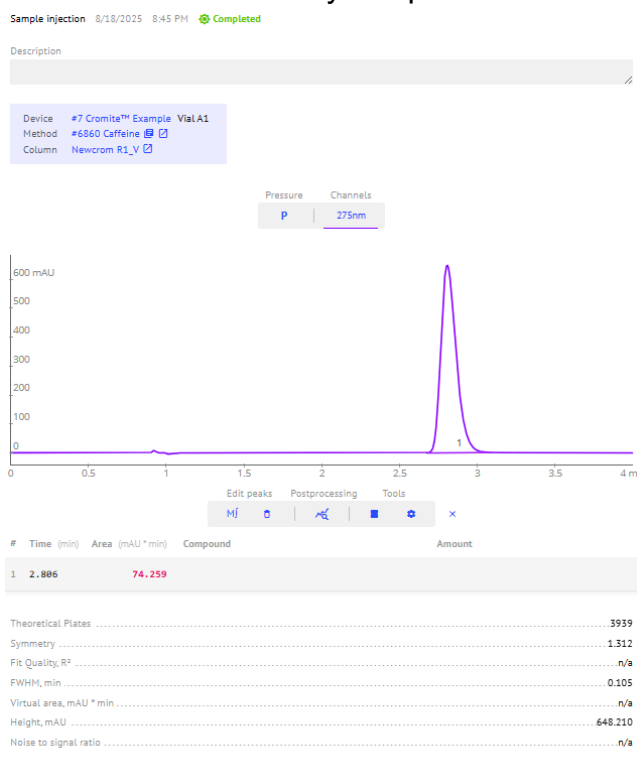
Once started, the chromatographic data from the selected detector channels will be recorded in real time.

NOTES:

- Each injection is automatically linked to the sample and stored in its history.
- The selected method, column, and detector channels define the conditions under which the analysis is performed.
- If multiple injections are created for one sample, each will be saved as a separate entry.

Injection Results

After the chromatographic run is completed, the system automatically displays the recorded chromatogram and calculated analytical parameters.



Chromatogram Display

The main graph shows the detector signal over time (mAU vs. minutes).

Each detected peak is automatically labeled and integrated according to the selected postprocessing parameters.

- **Channels** — selected wavelength for the detector signal (e.g., 275 nm).
- **Pressure (P)** — displays the recorded system pressure during the run.

Toolbar Functions

You can perform manual integration by selecting the peak region yourself, or configure postprocessing parameters for automatic peak detection and integration.



Manual Integration Peak — allows you to manually select and integrate a peak by highlighting its region on the chromatogram.



Remove Integration Peak — deletes the selected integrated peak from the chromatogram.



Postprocessing — postprocessing parameters for automatic peak detection and integration

For more information, see [“Postprocessing”](#)



Add to Compare — adds the current chromatogram to the comparison view, allowing you to overlay multiple chromatograms for visual analysis.



Edit Chromatogram Appearance — opens a window where you can adjust how the chromatogram is displayed.

Available options:

- **Show grid lines** — displays grid lines on the graph for easier visual alignment.
- **Show coordinates on hover** — shows X/Y coordinate values when you hover over the chromatogram.

After selecting the desired options, click **Save** to apply the changes.

Peak Table

After integration, below the chromatogram, all detected peaks are summarized in a table with their analytical characteristics.

Parameter	Description
Time (min)	Retention time of the peak.
Area (mAU·min)	Integrated peak area proportional to compound concentration.
Compound	Assigned compound name (if available).

Amount Calculated concentration (if calibration is applied).
For more information, see “[Calibration Sequence](#)”

Calculated Parameters

For each detected peak, the following chromatographic performance metrics are calculated automatically:

Для каждого обнаруженного пика система автоматически вычисляет следующие параметры хроматографического качества:

- **Theoretical Plates** — indicates column efficiency
- **Symmetry** — measures the peak shape
- **Fit Quality (R^2)** — evaluates how well the integration model fits the actual peak shape
- **FWHM (min)** — Full Width at Half Maximum, characterizes peak sharpness
- **Height (mAU)** — maximum peak height above the baseline
- **Signal-to-Noise** — indicator of baseline stability

Result Status

At the top of the page, the injection status is indicated:

- **Completed** — analysis finished successfully.
- **Failed** — indicates an error during the run.
- **Running** — analysis currently in progress.

Sequence

The Sequences tab allows users to create and manage analytical sequences — sets of samples that will be analyzed automatically according to predefined methods and device configurations.

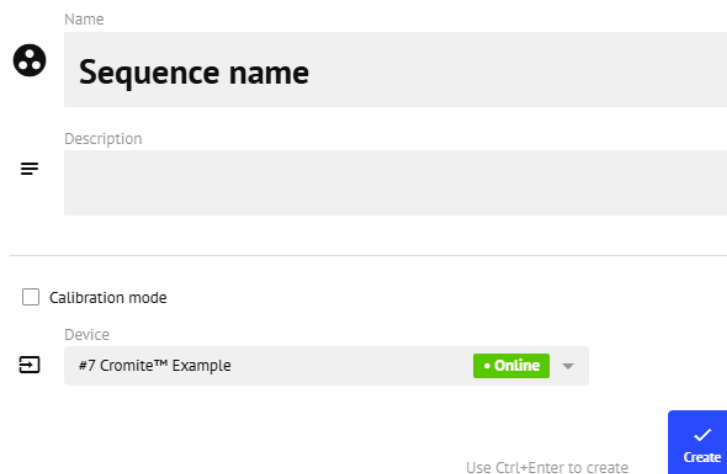
Each sequence is strictly linked to a specific analyzer (device) to ensure traceability and consistency of analytical results.



Creating a Sequence

When you click New, the Create Sequence window appears.

Two types of sequences are available: standard and calibration.



Name

Sequence name

Description

☐ Calibration mode

Device

#7 Cromite™ Example • Online

Use Ctrl+Enter to create

Create

Standard Sequence

To create a standard sequence, do not check the Calibration mode box.

Enter the sequence name, select the connected analyzer, and click Create.

After creation, a sequence table appears where you can add one or more samples.

Only after adding samples to the sequence will the method selection, repeat count, and other analytical parameters become available for configuration.



Standard Sequence

Sequence 10/14/2025 [#7 Cromite™ Example](#)  New

Sequence Table 

Samples

[+ Add sample](#)

Key fields:

- **Sample name** — name of each sample in the sequence.
- **Method** — analytical method applied for this sample.
For more information, see “[Methods](#)”
- **Repeat** — number of repetitions for the sample.
- **Run** — enable or disable this sample in the sequence.

Once all samples are configured, click Start to begin automatic sequence execution.

Calibration Sequence

When the Calibration mode checkbox is selected, additional configuration options appear.

This type of sequence is designed for automated calibration using known standards.

Name



Sequence with Calibration

Description

☒ Calibration mode

Calibration Mode Sequence Restrictions:

- Define a single method, column, and post-processing template for the entire sequence.
- Use only one detector channel in the specified method.
- This setting applies to all injections in the sequence.
- Only automated peak identification is available.
- Each vial can only be used for one sample or standard.
- Download a detailed report after the sequence is finished. You have selected the calibration mode, which helps automate the experiment by using standards.

Device



#7 Cromite™ Example

• Online

Method



MeCN - 40%, 0.1 H2SO4

#6948

Edit

Add

Column



Primesep 100

 Device column is different

^ use device column

Postprocessings



D4 - 275nm +

You must configure a postprocessing

Use Ctrl+Enter to create

Create

Calibration Mode Parameters:

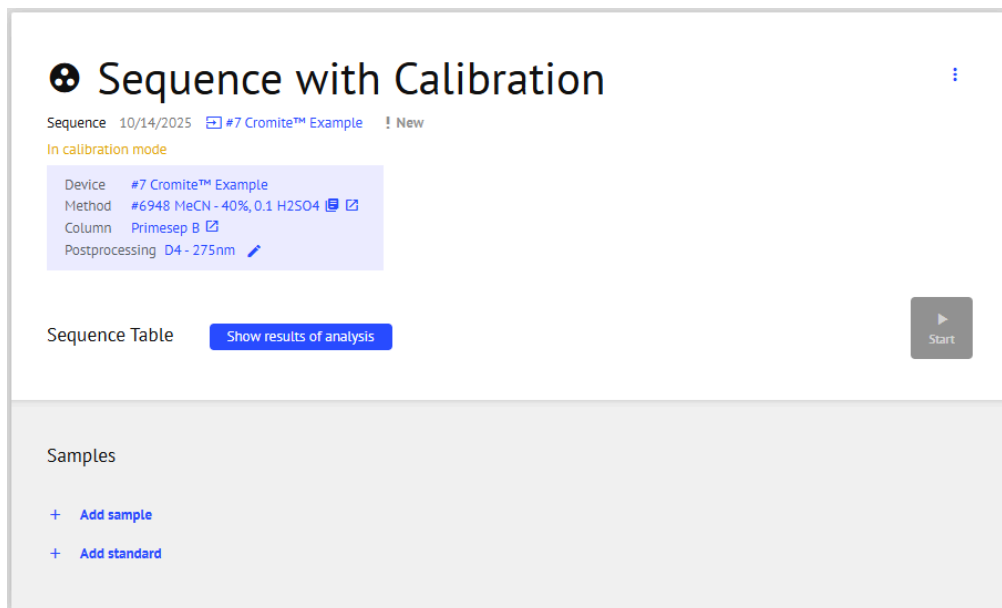
- Device** — connected analyzer for all injections within the sequence.
- Method** — single analytical method applied to all injections within the sequence.
For more information, see [“Methods”](#)
- Column** — chromatographic column used for all injections within the sequence.
For more information, see [“Columns”](#)
- Postprocessing** — data processing parameters such as wavelength, integration algorithm, and peak detection settings.
For more information, see [“Postprocessing”](#)

After configuration, click Save to confirm.

Each calibration sequence must have a defined device, method, column, and postprocessing template before it can be executed.

Running Calibration Sequence

Once the calibration sequence is fully configured, the system displays the active device, method, column, and postprocessing.



You can then add entries to the Samples section using Add sample and Add standard. Calibration standards are treated as individual injections and processed according to the selected method.

Samples and Standards for Calibration Sequence

After the calibration sequence is configured, you can add entries to the Samples section using Add sample and Add standard.

Standards are used to build calibration curves and must be assigned known concentrations.

Sequence with Calibration

In calibration mode

Device #7 Cromite™ Example
Method #6948 MeCN - 40%, 0.1 H2SO4
Column Primesep B
Postprocessing D4 - 275nm

[Show results of analysis](#)

Samples

[+ Add sample](#)

Compound

Standard concentration [+ Standard](#) [×](#)

Start of peak search time, min

End of peak search time, min

- **Compound** — select the compound being calibrated.
- **Standard concentration (mg/mL)** — enter the known concentration of the standard.
- **Start of peak search time (min)** — set the expected start of the target peak.
- **End of peak search time (min)** — set the expected end of the target peak.

Creating a Sample

Sequence with Calibration

In calibration mode

Device #7 Cromite™ Example
Method #6948 MeCN - 40%, 0.1 H2SO4
Column PrimeSep B
Postprocessing D4 - 275nm

[Show results of analysis](#)

Samples

Sample name

+ Sample

×

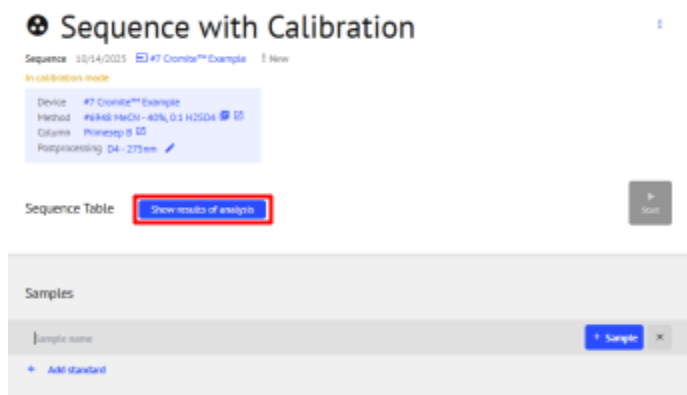
+ Add standard

Each sample is analyzed under the same method, column, and postprocessing parameters defined for the sequence.

Running Calibration Sequence

After all standards and samples are added, click **Start** to run the calibration sequence. Once complete, a detailed calibration report becomes available.

Calibration Report



To view the results of calibration, click Show results of analysis in the calibration sequence window.

After the calibration sequence is completed, the software automatically generates a preliminary calibration report.

It displays the analytical summary for each calibrated compound and allows exporting a detailed report.

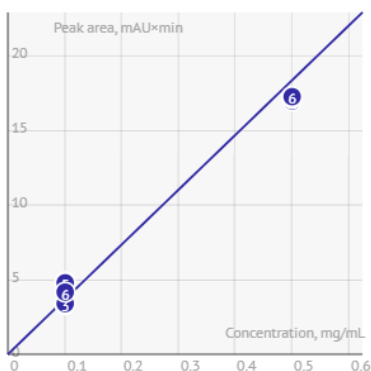
Report Contents

Summary for Caffeine

Response factor 1 mAU×min → 0.027280

R-Squared 0.997550

Retention time 2.630 min



- **Summary for [Compound name]** — title of the section containing calibration data for compound.
- **Response factor** — indicates the calibration slope that relates the detector signal (mAU×min) to concentration (mg/mL).

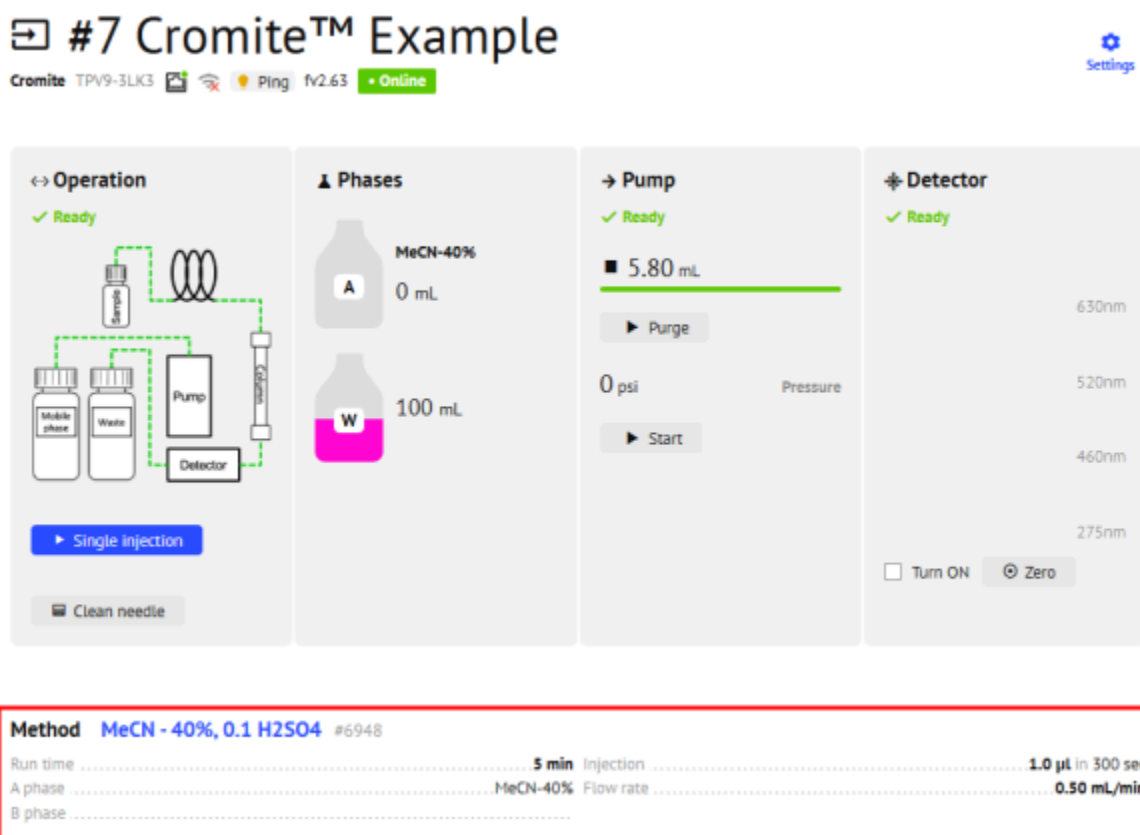
- **R-Squared (R^2)** — coefficient of determination representing the linearity of the calibration curve.
- **Retention time** — means retention time of the calibrated compound.
- **Calibration curve** — a plotted graph of detector response (Y-axis) versus concentration (X-axis).
Each calibration point corresponds to an injected standard with a known concentration.

If no compounds were identified during the sequence, a message appears indicating that no calibration data are available yet.

Report Options

Get a detailed report — download a full calibration report containing all numerical data, linear regression parameters, peak areas, and statistical results.

Method

The screenshot displays the SIELC Cromite™ software interface for the #7 Cromite™ Example method. The interface is divided into several sections:
1. **Header**: Shows the device name 'Cromite TPV9-3LK3', status 'fv2.63', and 'Online' indicator. A 'Settings' gear icon is in the top right.
2. **Operation Panel**: Includes a schematic diagram of the HPLC system (Mobile phase, Waste, Pump, Detector) and buttons for 'Single injection' and 'Clean needle'.
3. **Phases Panel**: Shows two phases: 'A' (MeCN-40%, 0 mL) and 'W' (100 mL, highlighted in pink).
4. **Pump Panel**: Displays '5.80 mL' with a progress bar, '0 psi' pressure, and buttons for 'Purge' and 'Start'.
5. **Detector Panel**: Shows 'Ready' status and wavelength settings (630nm, 520nm, 460nm, 275nm) with 'Turn ON' and 'Zero' buttons.
6. **Method Summary Panel (highlighted with a red border)**:
 - Method: MeCN - 40%, 0.1 H2SO4 #6948
 - Run time: 5 min
 - Injection: 1.0 µl in 300 sec
 - A phase: MeCN-40%
 - Flow rate: 0.50 mL/min
 - B phase: (blank)

The **Methods** section displays all analytical methods available for the selected HPLC device.

Each method defines how the instrument performs an analysis — including pump parameters, flow rate, pressure limits, injection volume, and detector settings.

Hovering the mouse over a method allows you to either **Edit** or **Add** it:

- **Edit** — opens the existing method for review or modification.
- **Add** — creates a new method based on the current device configuration.

When you click **Add**, the *Create Method* window opens.

Method Configuration Parameters

Create method

Q Select method as preset

Method name

- General
- Pump
- Detector
- Injection
- Valve

General

Description

Run time, min

→ Pump

A phase

Flow rate, mL/min

Refill flow rate, mL/min

Pressure min, psi

100

✱ Detector

Channel mode

All

Calibration delay, s

0

⊕ Injection

Sample amount, µl

Injection delay, s

0

⊞ Valve

Initial valve position

Do not change

☐ Change position during injection

Revert

Create

General

- **Description** — a short note describing the purpose or conditions of the method (e.g., sample type, solvent composition, or analysis goal). This helps to identify the method in the list.
- **Run time, min** — total duration of the method in minutes. After this time elapses, the instrument automatically stops the run.

Pump

- **A phase** — the solvent or mobile phase composition used for the method (e.g., “MeCN-40%, 0.1 H₂SO₄”).
This field identifies which solvent is connected to the A inlet of the pump.
- **Flow rate, mL/min** — the flow rate of the mobile phase through the system.
Example: 0.50 mL/min is typical for analytical columns with 3.2 mm internal diameter.

- I
- **Refill flow rate, mL/min** — defines the refill rate of the pump during its refill cycle.
Setting it too low can cause pressure instability; too high may introduce bubbles into the flow path.
Maximum: 8 mL/min
 - **Pressure min, psi** — the minimum pressure allowed during operation.
If the pressure drops below this limit (for example, due to solvent depletion or a loose fitting), the method will automatically stop and an error will be displayed.

Detector

- **Channel mode** — selects which detector channels are active during the run:
 - **All** — all available wavelengths are monitored (e.g., 275 nm, 460 nm, 520 nm, 630 nm).
NOTES: Standard detector wavelengths are 275 nm, 460 nm, 520 nm, and 630 nm. Custom wavelength configurations are available upon request, starting from **235 nm**.
- **Calibration delay, s** — sets the delay time in seconds before signal acquisition starts.
This parameter compensates for flow delay between the pump, column, and detector.

Injection

- **Sample amount, µL** — the injection volume (range 1-75 µL)
- **Injection delay, s** — time delay between the sample injection and the start of pump operation or signal recording.
This allows pressure and flow stabilization before data acquisition begins.

Valve

- **Initial valve position** — defines the valve position before the run starts.
 - **Do not change** — keep the valve in its current position.
 - Other positions may be selected for complex flow paths (e.g., switching between column and bypass).
- **Change position during injection** — when enabled, the valve automatically switches position during the injection.
This option is typically used in multi-step methods (e.g., connecting a guard column, sample cleanup, or column switching procedures).

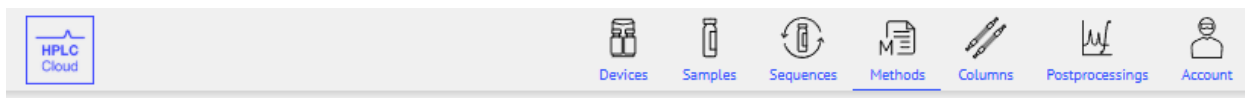
These parameters fully define how the HPLC system operates during a method — including solvent delivery, sample injection, detection, and valve control. Once all settings are configured, click **Create** to save the method to the database. Saved methods can then be used for Samples, Single Injections, Standard Sequences, or Calibration Sequences.

Method Management



The Methods tab provides an overview and management interface for all chromatographic methods available in the system.

Each method defines analytical parameters for an HPLC run — such as solvent composition, gradient profile, flow rate, and injection setup.



Methods

[View archived](#)
[Show favorites](#)

ID	Name	Run time	Injection	Flow rate	A phase	B phase
----	------	----------	-----------	-----------	---------	---------

Main Features

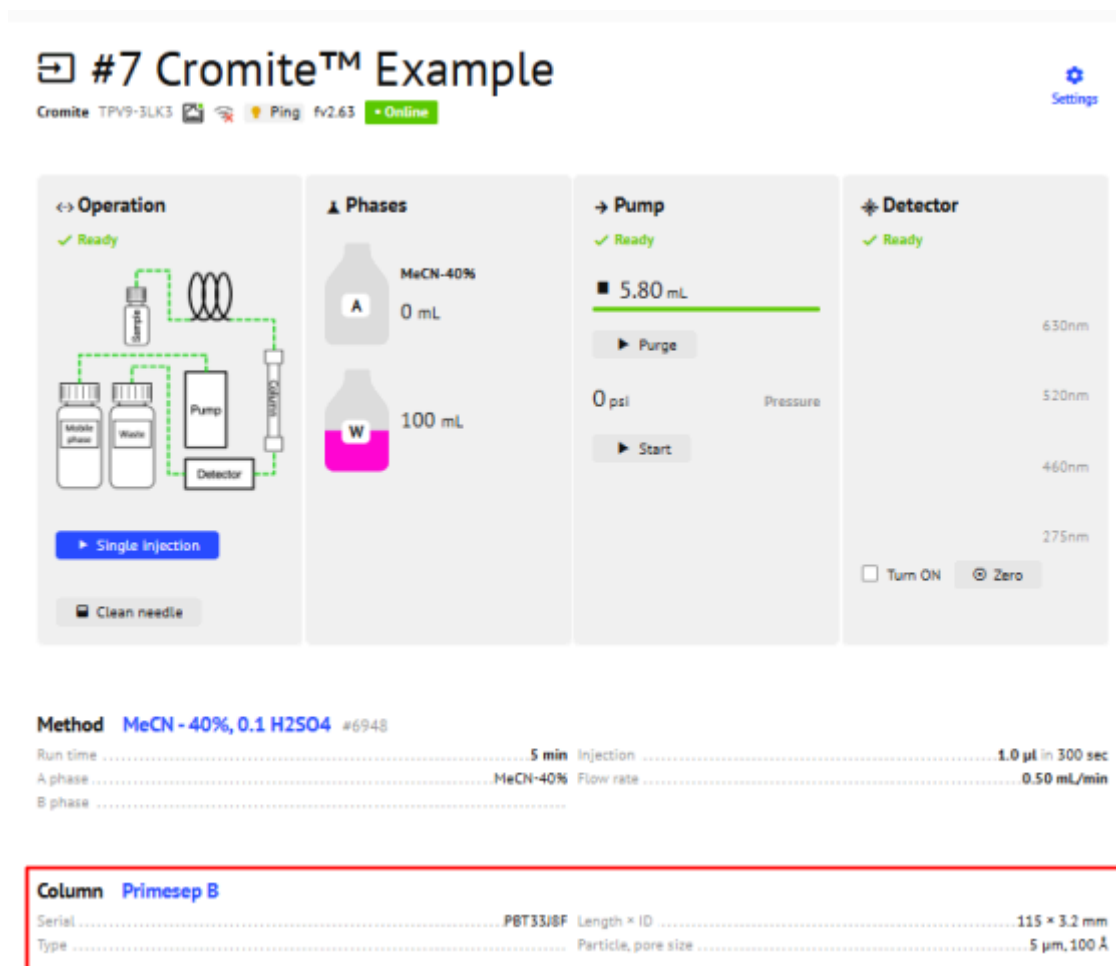
- Search — find a method by name or ID.
- View archived — open previously saved or inactive methods.
- Show favorites — display methods marked as favorites for quick access.

Displayed Parameters

- ID — unique identifier of the method.
- Name — user-assigned method name.
- Run time — total analysis duration.
- Injection — sample injection settings.
- Flow rate — solvent flow rate through the column (mL/min).
- A phase — mobile phases A, used for isocratic elution.

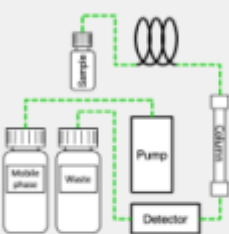
Column

Column Configuration Parameters



#7 Cromite™ Example

Cromite TPV9-3LK3   Ping: fv2.63  Online 

Operation 
✓ Ready
▶ Single Injection
Clean needle

Phases
A: MeCN-40% 0 mL
W: 100 mL

Pump
✓ Ready
5.80 mL
▶ Purge
0 psi Pressure
▶ Start

Detector
✓ Ready
630nm
520nm
460nm
275nm
☐ Turn ON ☒ Zero

Method MeCN - 40%, 0.1 H2SO4 #6948
Run time 5 min Injection 1.0 µL in 300 sec
A phase MeCN-40% Flow rate 0.50 mL/min
B phase

Column Primesep B
Serial PBT33J8F Length x ID 115 x 3.2 mm
Type Particle, pore size 5 µm, 100 Å

The Columns tab provides access to all chromatographic columns registered in the system.

Each column entry contains detailed information such as type, dimensions, serial number, and maximum operating pressure. Hovering over a column record displays quick access options for **New** and **Edit**.

- **New** — opens the column creation window (see image below), where a new column can be registered in the database.
- **Edit** — allows modifying the parameters of an existing column (e.g., updating serial number, dimensions, or pressure limit).

Create Column Window

This window allows the user to register a new chromatographic column in the HPLC software database.

Each parameter helps ensure accurate tracking of column performance, history, and compatibility with specific methods.

Create Column

Column name

Column

Type	Length, mm
Serial	Internal diameter, mm
Lot	Particle size, μm
Max pressure, psi	Pore size, $\text{\AA}$

Create

Fields:

- ❖ **Column name** — user-defined name of the column.
- ❖ **Type** — stationary phase or column model (e.g., Primesep™, Newcrom™, Cromni™).
- ❖ **Serial** — unique serial number of the column; a camera icon allows scanning or capturing the serial number directly.
 - **Autofill via Serial:** Enter the serial number, then click the arrow or press **Enter** to automatically populate all column information.
 - **Autofill via QR Code:** If a camera is connected, click the camera icon to scan the QR code on the column label or packaging.
- ❖ **Lot** — manufacturing batch number.
- ❖ **Length, mm** — physical column length in millimeters.
- ❖ **Internal diameter, mm** — column inner diameter.
- ❖ **Particle size, μm** — particle size of the stationary phase.
- ❖ **Pore size, $\text{\AA}$** — pore size of the stationary phase.
- ❖ **Max pressure, psi** — maximum allowable operating pressure.

Once all required fields are filled, click Create to add the column to the system's database.

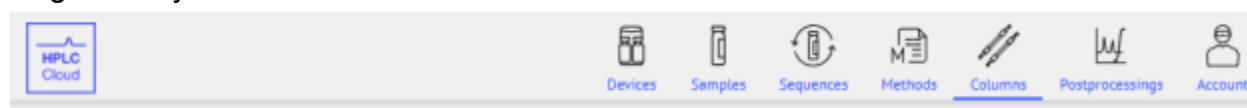
NOTE: Ensure that the maximum pressure limit is set to **3000 psi**

Column Management



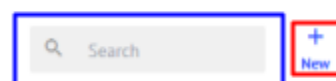
The **Columns** tab provides an overview and management interface for all chromatographic columns connected to your HPLC system.

It allows users to register, view, and track each column's operational parameters and usage history.

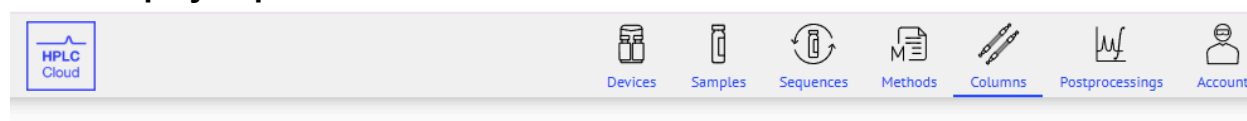


Columns

[View archived](#)

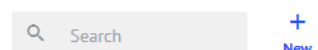


- **Main features:**
 - **New (red color)** — add a new column to the system's database.
 - **Search (blue color)** — quickly find a column by name, serial number, or type.
 - **View archived (green color)** — display previously used or archived columns.
- **Create Column Window**
For more information, see [“Create Column Window”](#)
- **Displayed parameters:**



Columns

[View archived](#)



Name	Serial	Type	Lot	Pressure	Length × ID	Particle	Pore
------	--------	------	-----	----------	-------------	----------	------

- **Name** — column name assigned by the user.
- **Serial** — unique serial number of the column.
- **Type** — stationary phase or model (e.g., Primesep, Newcrom, Chromni).
- **Lot** — manufacturing batch number.
- **Pressure** — current or last recorded operating pressure.
- **Length × ID** — physical dimensions of the column (length and internal diameter).
- **Particle** — particle size of the stationary phase (µm).
- **Pore** — pore size of the stationary phase (Å).

Postprocessing Templates

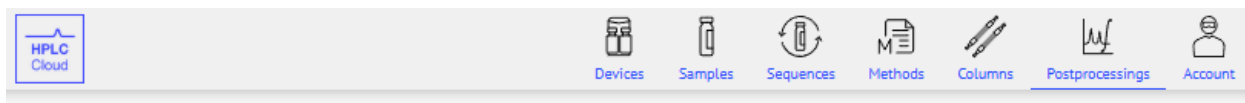


The **Postprocessing** tab allows you to create, edit, and manage data processing templates used for analyzing chromatographic results.

Each template defines how raw chromatographic data is interpreted — including peak detection, integration, baseline correction, and noise reduction.

These templates can be reused across different methods, samples, and calibration sequences.

Main Features



Postprocessing Templates

[View archived](#)[Show favorites](#)[+](#)
New

- **New** — create a new postprocessing template.
- **Search** — find a template by name or ID.
- **View archived** — view previously saved templates.
- **Show favorites** — filter templates marked as favorites for quick access.

Create Postprocessing Template

Each template contains the following configurable sections:

Create postprocessing template

Select postprocessing template as preset

Postprocessing template name

Detection time

Detection time start, min

Detection time end, min

Peak detection

Peak detection algorithm

Default

Min Prominence (relative height), mAU

Custom mAU

Custom min prominence, mAU

5

Min height, mAU

Min Width, sec

5

Min Distance between peaks, min

Peak integration

Peak integration algorithm

1st derivative

Value at start

0.01

Value at end

0.01

Baseline correction

Baseline correction algorithm

None

Blank injection

Blank injection algorithm

None

Noise reduction

Noise reduction algorithm

Wavelet v1

Revert

Create

Postprocessing Template Name

Defines the name of the template.

Detection Time

This section allows you to define the time window for analysis.

- **Detection time start, min** — time (in minutes) at which data analysis begins. Signals before this point are ignored.
- **Detection time end, min** — time (in minutes) at which analysis stops. Signals after this point are excluded.

Peak Detection

Automatically detects chromatographic peaks based on signal characteristics.

- **Peak Detection Algorithm: Default**
- **Min Prominence (relative height), mAU** — defines how much a peak must stand out from the baseline to be recognized.
 - *10 × Noise level* — automatically sets the minimum prominence to ten times the estimated noise level in your data (adaptive option).
 - *Custom mAU* — allows manual control by specifying a fixed prominence threshold.
- **Min prominence, mAU** — This parameter determines how much a peak must "stick out" from the baseline to be recognized as a peak. You have two options:
 - **10 * Noise level:** This option automatically sets the minimum prominence to be 10 times the estimated noise level in your measurement. This is a good starting point as it adapts to the noise in your data.
 - **Custom mAU:** This option allows you to specify a fixed minimum prominence value in milli-Absorbance Units (mAU). Use this if you have a good understanding of your signal levels and want more control over peak detection sensitivity.
- **Custom min prominence, mAU:** If you selected "Custom mAU" for "Min Prominence (relative height)", you set the desired minimum prominence value here.

Example: Setting this to **100 mAU** means that only peaks that rise at least 100 mAU above the baseline will be detected.
- **Min height, mAU** — The minimum absolute height a peak must reach to be detected. Peaks below this height are ignored.

Example: If you set this to **50 mAU**, any signal that doesn't reach at least 50 mAU will not be considered a peak, even if it has sufficient prominence. This helps to filter out very small noise fluctuations.
- **Min width, sec** — The minimum width (in seconds) a peak must have to be detected. This helps to ignore very sharp, narrow spikes that are likely noise and not real chromatographic peaks.

Example: Setting this to **5 sec** means that any signal that is narrower than 5 seconds will not be detected as a peak.

- **Min distance between peaks, min** — The minimum time distance (in minutes) required between two detected peaks. This is crucial for separating closely eluting peaks and preventing the algorithm from detecting multiple peaks for a single compound (e.g., shoulder peaks).
Example: If you set this to **0.5 min**, two peaks must be at least 30 seconds apart to be recognized as separate peaks.

Peak Integration

Calculates the area under each detected peak, which is directly proportional to analyte concentration.

Algorithms:

- **None:** Skips peak integration. Only peak detection will be performed.
- **Peak Fitting v1:** This algorithm fits a mathematical model (specifically, a skewed Gaussian curve) to each detected peak. This method is more sophisticated and can provide more accurate peak areas, especially for peaks that are not perfectly symmetrical or are partially overlapping.
 - **Parameters (for Peak Fitting v1 Algorithm):**
 - **Quality threshold:** This parameter, ranging from 0 to 1, sets the minimum acceptable quality of the curve fitting. It indicates how well the fitted curve matches the actual peak shape.
 - **Higher values (e.g., 0.95):** Require a very good fit. This ensures more accurate integration results but might reject some peaks if the fitting is not perfect (e.g., for noisy or poorly shaped peaks).
 - **Lower values (e.g., 0.9):** Accept lower quality fits. This will integrate more peaks, but some integrations might be less accurate, especially for complex chromatograms.
- **Peak Fitting v1:** This algorithm fits a mathematical model (specifically, a skewed Gaussian curve) to each detected peak. This method is more sophisticated and can provide more accurate peak areas, especially for peaks that are not perfectly symmetrical or are partially overlapping.
- **1st Derivative** — integrates peaks based on the first derivative of the chromatographic signal.

The algorithm identifies the start and end of each peak at points where the derivative crosses zero, then calculates the area under the curve between these boundaries.

This method provides robust integration for symmetrical peaks and good performance for general-purpose analyses.

 - ❖ **Value at start** — defines the baseline threshold for the start of integration (e.g., 0.01).

- ❖ **Value at end** — defines the threshold for the end of integration (e.g., 0.01).

Lower thresholds capture smaller peaks but may increase noise; higher thresholds improve selectivity.

Baseline correction

Baseline correction removes slow signal drift and stabilizes the baseline before integration.

It ensures that each peak is measured from a consistent zero level, improving accuracy and reproducibility.

Algorithms:

- **None** — no baseline correction is applied.
- **Manual** — allows you to manually draw the baseline by selecting points directly on the chromatogram.

This method is suitable for complex or irregular baselines that automatic algorithms cannot handle correctly.

- This is an interactive tool that appears when you select "Manual" baseline correction. It allows you to click on the chromatogram to define points that form your desired baseline. The software then interpolates between these points to create the baseline.
- **Horizontal correction** — automatically adjusts the baseline to a flat, horizontal level throughout the selected time window.

It estimates a constant baseline value and subtracts it from the entire signal.

- **Anchor point:** Determines how the horizontal baseline level is estimated.
 - **Start:** Sets the baseline level to the signal level at the beginning of the detection time window.
 - **Finish:** Sets the baseline level to the signal level at the end of the detection time window.
 - **Median:** Sets the baseline level to the median signal level within the detection time window. This can be more robust to spikes or outliers compared to start or finish points.
- **Diagonal correction** — draws a straight baseline between the signal values at the start and end of the detection window.

It is suitable for linear baseline drift (e.g., when the baseline slowly rises or falls).

Blank Injection

Blank injection subtraction removes background signals unrelated to your analyte by comparing your sample chromatogram with a blank run (typically solvent only).

This improves accuracy by eliminating ghost peaks, system contamination, or column bleed artifacts.

Algorithms:

- **None** — no subtraction is performed; chromatogram remains unmodified.
- **Simple subtraction** — subtracts the chromatogram of a selected blank injection from the active measurement.

The resulting chromatogram retains only true sample peaks.

Parameters:

- **Select measurement** — choose the blank run to subtract from your data.

Noise Reduction

Noise reduction algorithms filter out random fluctuations in the chromatogram to improve signal quality and enhance small peak detection.

They are especially useful for noisy detectors or low-concentration samples, but excessive filtering may distort peak shapes.

Algorithms:

- **None** — no noise filtering is applied.
- **Wavelet v1** — Uses wavelet transform, a sophisticated mathematical technique, to separate the signal from noise. Wavelet methods are generally good at reducing noise while preserving the sharp features of peaks, which is important in chromatography.

Report and Data Management

~ 50



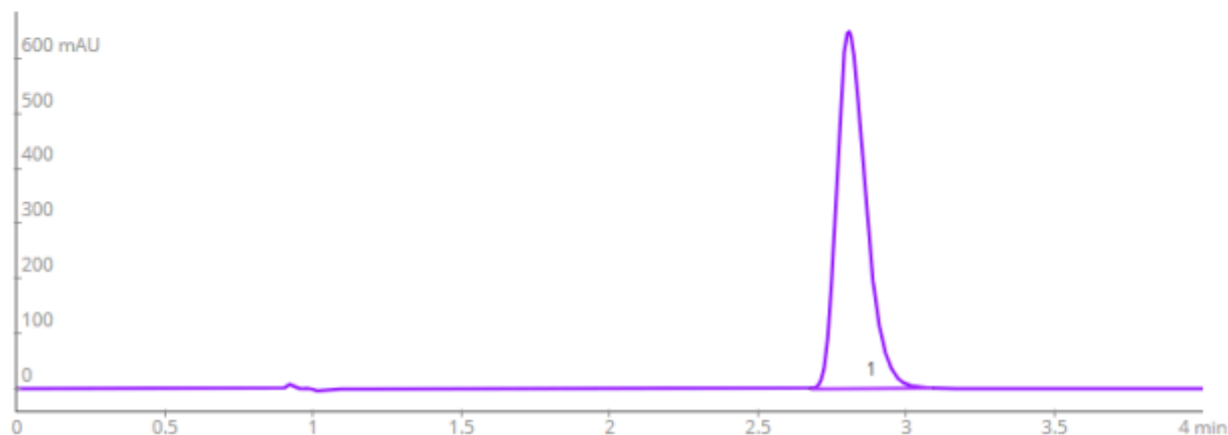
Sample injection 8/18/2025 8:45 PM Completed

Description

Device	#7 Cromite™ Example Vial A1
Method	#6860 Caffeine
Column	Newcrom R1_V

Pressure Channels

P | 275nm



When you click on the **three-dot menu** (⋮) in the upper-right corner of an injection page, three options appear:

- **Report** — generate and download a report for the current injection.
- **Archive** — move the injection to the archive to keep the workspace organized.
- **Log** — view the detailed activity log related to the injection (e.g., time of start, completion, or errors).

Report

Selecting **Report** opens the *Injection Report* window.

Here you can generate a report in either **PDF** or **CSV** format and choose the type of data to include:

- **Print raw data** — exports the unprocessed chromatographic signal (raw mAU vs. time data).
- **Print processed data** — exports the processed chromatogram after postprocessing (baseline correction, integration, and peak detection).

- **Print all data** — combines both raw and processed data into a single document for full traceability.

You can also add recipients under **Contacts**, allowing reports to be automatically shared with selected users.

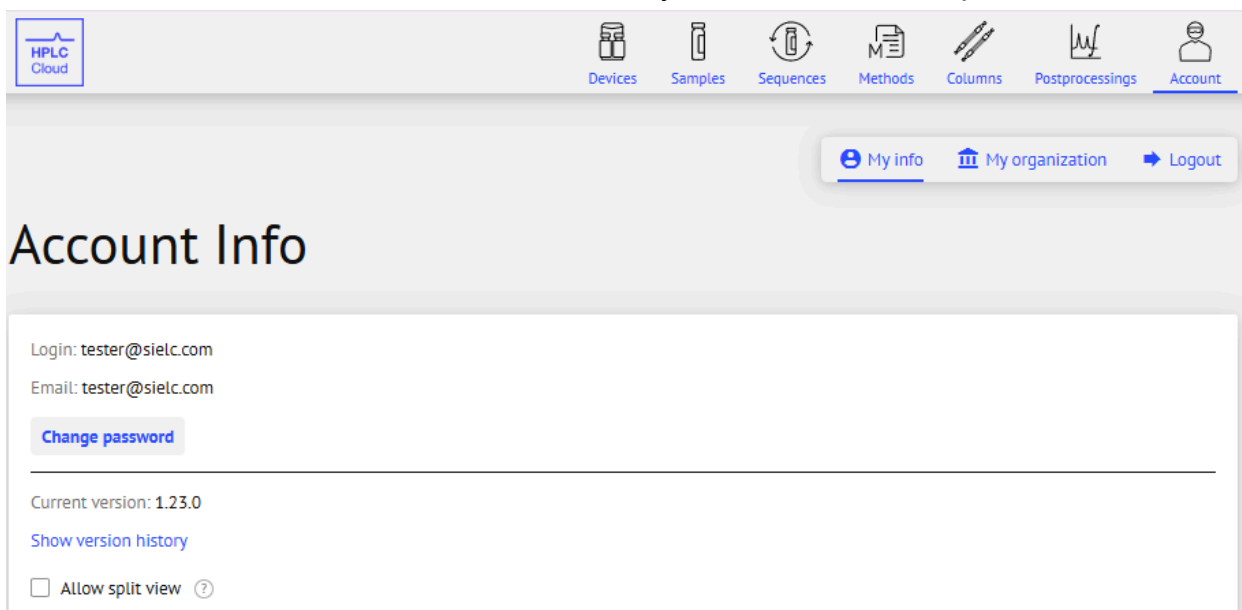
After choosing the desired options, click **Download** to generate and save your report.

Account



The Account tab provides access to user profile information and system management options.

From this page, you can view account details, change your password, check the current software version, and review the version history of the HPLC Cloud platform.



My Info

Displays personal account details:

- **Login** — registered user login (e.g., *tester@sielc.com*).
- **Email** — email address associated with the account.
- **Change password** — opens a secure dialog to update your login password.

System Information

- **Current version** — shows the currently installed version of the HPLC Cloud software (e.g., *1.23.0*).
- **Show version history** — displays a changelog of past software updates and improvements.

Display Options

- **Allow split view** — enables simultaneous viewing of multiple panels or modules side by side.
Useful for comparing results, sequences, or chromatograms.

My Organization

Opens organization-level account settings (if available for your user role), such as linked devices, user permissions, and shared data access.

NOTE: To view and edit the Organization Info window, you must be the owner of the organization.

Each new user automatically becomes the owner of their own default organization, which is created upon registration.

An owner can either invite other users via an invitation link or join another organization. When a user joins another organization, their personal organization is automatically removed.

Roles and Permissions

There are two roles available in the organization: Administrator and Assistant.

- The owner/administrator can invite and remove users, assign roles, and manage permissions.
- The assistant has full visibility of data and results but cannot create new methods or columns.

All roles can view data, sequences, and reports.

To invite new members:



Open **My Organization** → **Get invitation link**.

Send the generated link to the person you want to invite.

Once the invitation is accepted, the new user will appear in the member list with the assigned role.

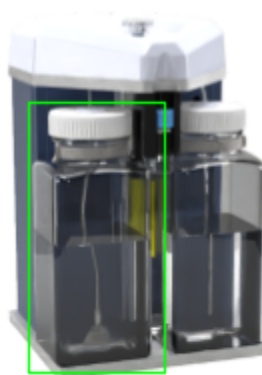
NOTE: After a user is added to an organization, they must log out and log back in for the updated access permissions to take effect.

Logout

Logs the user out of the current session securely.

Maintenance and Care

Changing Mobile Phase



Preparing a New Mobile Phase

1. Ensure the new mobile phase is properly prepared in accordance with standard laboratory procedures.
2. Clearly label the bottle with the solvent composition and preparation date.

Removing the Current Solvent Bottle

1. Stop all active runs and make sure the **Pump** is turned **off**.
2. Carefully unscrew the cap of the **A** solvent bottle.
3. If a spare bottle is not available, discard the old solvent and rinse the bottle with a small amount of **distilled water**, followed by a small amount of the **new mobile phase**.

Installing the New Solvent Bottle

1. Fill the clean bottle with the new mobile phase and insert the tubing with the inlet filter.
2. Secure the cap tightly to ensure a leak-free connection.
3. Place the bottle back on the platform.

Updating Solvent Information in the Software

1. Update the solvent volume in **HPLC.Cloud** to reflect the new mobile phase level. For more information, see “[Devices](#)”.
2. If the mobile phase composition has changed, make sure to update the **A phase** field in the corresponding **Method** within **HPLC.Cloud**.
This ensures that the parameters stored in the database accurately represent the

solvent currently in use.
For more information, see “[Methods](#)”.

Priming the System

1. In **HPLC.Cloud**, turn on the **Pump** and allow it to complete **two full purge or refill cycles**.
This replaces the old mobile phase with the new solvent inside the pump head.
2. Then, run the pump for **one additional full cycle** to completely replace the solvent in the connecting lines and the column.
For more information, see “[Devices](#)”.

WARNING! Do not allow the pump to run dry.

Always ensure that the solvent inlet tubing is fully submerged in the mobile phase to prevent air from entering the system.

Running the pump without solvent can cause severe damage to the pump heads and seals.

CAUTION!

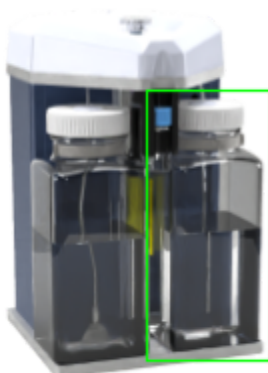
Use only solvent compositions compatible with the system materials (e.g., seals, valves, and tubing).

Incompatible solvents may cause premature wear or failure of components.

CAUTION!

Perform all operations involving solvents in a well-ventilated area and follow your laboratory's chemical safety and waste-disposal procedures.

Emptying Waste



Regular disposal of waste ensures safe and reliable operation of the HPLC system. The waste bottle (indicated in green) collects solvent and sample residues during analysis. It must be emptied before reaching its maximum capacity.

Procedure

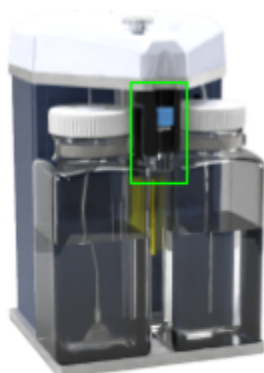
1. Stop all active runs and ensure that the Pump is turned off.
2. Carefully unscrew the cap of the Waste bottle.
3. Remove the bottle from the platform and dispose of its contents according to your laboratory's waste management and environmental safety procedures.
4. Rinse the bottle with distilled water if necessary, then place the empty bottle back on the platform.
5. Secure the cap tightly to maintain a sealed connection.
6. Update the waste information in the system to ensure accurate monitoring of solvent use and disposal records.

For more information, see "[Devices](#)".

CAUTION! Always handle and dispose of waste solvents in accordance with your laboratory's chemical safety and environmental policies.

CAUTION! Ensure that the waste bottle is correctly reconnected before resuming operation to prevent leaks or spills.

Cleaning the Needle



Proper cleaning of the injector needle prevents carryover, contamination, and flow obstructions.

The needle is responsible for aspirating and dispensing the sample through the injection system, and its cleanliness directly affects injection accuracy and reproducibility.

Procedure

1. Prepare a cleaning vial

- Place a clean, empty vial in the sample tray position assigned for cleaning.
- The vial must be dry and free of any residues, as the mobile phase used for cleaning will be dispensed into it during the procedure.

2. Internal cleaning

- In **HPLC.Cloud**, initiate the **Needle Cleaning** procedure. For more information, see “[Devices](#)”.
- The system will automatically flush the needle with the current mobile phase, drawing solvent through the internal channel and discharging it into the empty vial.
- This process effectively removes any residual contaminants from inside the needle.

3. External cleaning

- Gently wipe the **outer surface of the needle** using a lint-free **microfiber cloth** lightly moistened with **isopropyl alcohol (IPA)** or another suitable solvent.
- Avoid applying excessive force or bending the needle.
- Ensure no fibers or particles remain on the needle surface before the next injection.

CAUTION! Always use solvents compatible with the system materials and the current mobile phase.

CAUTION! Do not immerse the entire needle assembly in liquid — clean only the metal part that comes into contact with samples.

CAUTION! Perform needle cleaning regularly, especially after injecting viscous or particulate samples.

Connecting Devices to the Network

Reliable network connectivity is required for data transfer, remote control, and synchronization with HPLC.Cloud.

The analyzer supports several connection methods depending on your laboratory setup and available infrastructure.

Connecting Devices to Wi-Fi Using a USB Flash Drive

IMPORTANT! Before using this connection method, the device must already be connected to the internet via Ethernet or LTE. This initial connection is required so that the device can communicate with HPLC.cloud and appear in your account. If the device is offline, Wi-Fi setup through your account will not be possible.

1. Create a Credentials File:

- Insert the USB flash drive into your computer.
- Navigate to the root directory of the USB flash drive.
- Create a new text file named `credentials.txt`.

2. Add Wi-Fi Network Details:

- Open the `credentials.txt` file.
- Enter your Wi-Fi network details in the following format:

None

```
ssid=Your_SSID  
password=Your_Password
```

- [credentials.txt](#)
- Replace `Your_SSID` with the name of your Wi-Fi network and `Your_Password` with your Wi-Fi password.
- Save and close the file.

3. Insert the USB Flash Drive into the Device:

- Insert the USB flash drive into the USB port of the device you want to connect to Wi-Fi.
- Wait for the device to automatically read the credentials and connect to the Wi-Fi network.

4. Verify the Connection:

- Check the device to ensure it has successfully connected to the Wi-Fi network.
- Once confirmed, you can safely remove the USB flash drive from the device.

*** Updating Wi-Fi Credentials**:

- If you need to change the Wi-Fi password or connect to a different network, update the `credentials.txt` file with the new details.
- Save the changes and start again from step 1.

IMPORTANT!

- Ensure that the `credentials.txt` file is in the root directory of the USB flash drive and not within any subfolders.

Connecting Devices to Wi-Fi Through Your Personal Account

IMPORTANT! Before using this connection method, the device must already be connected to the internet via Ethernet or LTE. This initial connection is required so that the device can communicate with HPLC.cloud and appear in your account. If the device is offline, Wi-Fi setup through your account will not be possible.

1. Access the Device Page

- Access your personal account by entering your login credentials.
- Go to the "Devices" tab and select the device you want to connect from the list. If the device is not listed, you need to add it first.

2. Verify the Presence of a Wi-Fi Adapter

- On the device's page, ensure that a Wi-Fi adapter is present and supports wireless connections by checking the corresponding icon.
- If the device is inactive, ensure that the Wi-Fi adapter is correctly installed in the device's USB port. To confirm the Wi-Fi adapter is installed in the correct device, use the Ping button on the device page. Upon clicking, the device will blink blue for 5 seconds.

3. Connect to the Wi-Fi Network

- Click on the Wi-Fi icon and select the desired network from the list.
- **For Open Networks:**
 - If the network does not require a password, wait for the connection to be established. The Wi-Fi icon will indicate a successful connection.
- **For Secured Networks:**
 - If a password is required, enter it and wait for the confirmation, shown by a change in the Wi-Fi icon.
- **Manually Add a Wi-Fi Network**
 - If needed, manually add a Wi-Fi network profile by navigating to the settings. Enter the network's details, including the SSID and password, and connect to the network. Wait for confirmation on the Wi-Fi icon.

1. Verify the Connection

- If the connection is successful, the Wi-Fi icon will show an active status. Clicking on it will indicate the successful connection to the selected network.
- In case of an error, you will receive a notification with the issue's cause. After resolving the problem, you can attempt to connect again.
- You can choose a different network and connect to it by following step 3. The previous connection will be automatically disconnected.

Connecting Devices to LTE

1. Install the LTE Modem

- Insert the LTE modem into the USB port of the device. To confirm the LTE adapter is installed in the correct device, use the Ping button on the device page. Upon clicking, the device will blink blue for 5 seconds.

2. Verify the Connection

- The Ethernet icon will display an active status if the connection is established.
- Clicking on the Ethernet icon will provide additional details, confirming the successful connection to the LTE network.
- Add model *

Troubleshooting

This section provides guidance on identifying and resolving common issues with the system. Below are the primary categories of problems and their potential causes.

Peak Shape

The appearance of tailing or broadening of peaks in a chromatogram can adversely affect both the resolution and the shape of the peaks, compromising the accuracy and precision of the analysis.

Possible Causes and Corrective Actions:

- **Column Condition:** Examine the column for any signs of irregular packing, overloading, or degradation. These factors can disrupt proper chromatographic separation. If necessary, replace or repack the column to restore its functional integrity.
- **Injection Volume:** Ensure that the injected sample volume is within the recommended limits. Exceeding the optimal volume can lead to column overloading, resulting in peak broadening and a decrease in resolution. For software setup and registration, see “[Method](#)” → “[Injection](#)”.
- **Mobile Phase Compatibility:** Assess the compatibility of the mobile phase with both the sample and the stationary phase. Incompatibilities may lead to peak distortion, which can negatively impact the separation process and the accuracy of the chromatographic data.
- **Sample Loop Clogged:** A clogged sample loop can impede proper injection and lead to poor chromatographic performance, including peak broadening or incomplete peak elution. Regularly inspect the sample loop for any blockages, which can result from sample viscosity or particulate contamination. If a clog is detected, clean the sample loop according to the manufacturer's recommendations to restore proper function and ensure consistent injection volumes.

Noise or Spikes

Random spikes or fluctuations in the chromatogram can interfere with peak identification and hinder accurate data analysis.

Possible Causes and Corrective Actions:

- **Sample Contamination:** Contaminants in the sample can introduce additional noise or cause random spikes in the chromatogram. It is essential to ensure the use of high-purity solvents and samples free from particulate matter or impurities that could compromise the signal integrity. Filtering samples before injection may help minimize contamination.
For more information, see "[Maintenance and Care](#)" → "[Changing Mobile Phase](#)", "[Cleaning the Needle](#)".
- **Leak:** Check system for loose fittings.
For more information, see "[Set-Up](#)" → "[Column installation](#)".
- **Detector instability:** Electronic noise or failing lamp/electronics.
For more information, see "[Device](#)" → "[Detector](#)".
- **Bubbles in the system:** Air bubbles entering the detector causing momentary signal disruptions.
For more information, see "[Device](#)" → "[Purge](#)".

Peak Area Precision

Variations in peak areas, leading to poor reproducibility.

Possible Causes and Solutions:

- **Sample Instability:** If only certain peaks show variations, the sample may be unstable. Test with a stable mixture to check consistency.
- **Sampler Issues:** If variations are observed across all peaks, the issue may be related to the sampler. Perform multiple injections to verify the problem. For more information, see “[Maintenance and Care](#)” → “[Cleaning the Needle](#)”.
- **System Pressure or Flow Instability:** Pressure fluctuations or unstable flow can affect peak precision. Check system pressure and flow stability. For more information, see “[Device](#)” → “[Purge](#)”.
- **Injector Draws Air from the Vial:** Ensure that the sample filling height and the sampling height of the injector needle are correct to prevent air from being drawn into the system.
- **Wrong Detection Wavelength(s):** Measuring in a UV/fluorescence spectrum flank can compromise the precision. Choose a detection wavelength or excitation/emission wavelength pair near the apex of the spectrum.
- **Column memory effect:** Run blank sample (no sample) after sample. If a peak is detected, then a column memory effect is present. Flush column with strong eluting eluent. Reverse column (if allowed) and flush column again. Replace column. For more information, see “[Set-Up](#)” → “[Column installation](#)”.

Pressure

Pressure fluctuations or high system pressure.

Possible Causes and Solutions:

- **Degradation of Stationary Phase:** If pressure increases, the column may be degraded. Replace the column and check the pH requirements, typically pH 2–8 for silica-based reverse phase columns.
For replacement procedure, see “[Column Installation](#).”
- **Increase Flow Rate:** Check the flow rate setting to verify flow rate precision. A miscalculated flow rate can lead to inconsistent results.
For more information, see “[Method](#)”
- **Mobile Phase Composition:**
 1. Ensure that the mobile phase is homogeneous by checking that it is well-mixed.
 2. If high-pressure proportioning is used, check for leaks or air bubbles in the aqueous eluent. For low-pressure proportioning, check or adjust the proportioning valve.

Refer to “[Changing Mobile Phase](#)” for solvent preparation and handling.

Flow rate

Irregular or unstable flow rate during operation.

Possible Causes and Solutions:

- **Leak in System:** Inspect the system for leaks in all connections, fittings, and seals. Resolve the issue by tightening connections or replacing damaged components.
See "[Tubing Connections](#)" and "[Set-Up](#)" for correct installation procedures.
- **Pump Inlet Path Clogged:** Examine the solvent inlet lines, solvent line filters, and proportioning valve for blockages. Clean or replace these components if necessary.
Refer to "[Changing Mobile Phase](#)" for guidance on handling solvent lines and filters.
- **Check for column blockages:** Inspect the guard column and column for contamination, consider backflushing or replacing the column if necessary.
See "[Column Installation](#)" for instructions on safe column removal and replacement.
- **Clogged or Damaged Capillaries:** Systematically check all capillaries from the detector to the pump for clogs or damage caused by bending. Replace capillaries showing signs of wear or obstruction.
For component access and safety precautions, see "[Maintenance and Care](#)."
- **Contamination in the System:** Flush the system thoroughly with a suitable solvent to remove any contaminants or residue that may impede flow.
Refer to "[Priming the System](#)" for solvent flushing procedures.
- **Mobile phase inconsistency:** Verify that the mobile phase composition is stable and not changing due to mixing issues.
See "[Changing Mobile Phase](#)" for preparation and labeling instructions.

Retention Time Variation

Inconsistent retention times during operation.

Possible Causes and Solutions:

- **Improper Mobile Phase Composition:** Verify the composition of the premixed mobile phase. Inspect the solvent selector or proportioning valve for potential defects.
- **Contamination:** Check for column contamination from previous samples or improper cleaning.
Refer to “[Column Installation](#)” and “Cleaning the Needle” for column handling and contamination prevention.
- **Column Wear:** Inspect the column for signs of physical damage or degradation due to prolonged use.
If degradation is suspected, replace the column following the steps in “[Column Installation](#).”
- **Sample Consistency:** Ensure consistent sample preparation, including proper dilution and filtration.
- **Decreasing Flow Rate:** Check for leaks in capillary connections and confirm that the flow rate settings are correctly configured.
For replacement procedure, see “[Column Installation](#).”

Baseline

Unstable or fluctuating baseline.

Possible Causes and Solutions:

- **System Not Sufficiently Equilibrated:** Flush the system thoroughly to achieve proper equilibration. Typically, flushing 5–10 times the column volume should suffice.
- **Contaminated Flow Cell:** Clean the flow cell thoroughly to remove any residue or buildup.
Refer to “[Maintenance and Care](#)” for proper cleaning recommendations and safety precautions.
- **UV/Vis Lamp Not Stable:** Allow the lamp and optics to warm up for at least 60 minutes. Replace the lamp if it is near the end of its lifespan or shows instability. See also “[Devices](#) → Detector Manual Control” for checking signal stability and zeroing the detector.
- **Air Trapped in the System:** Purge the system to remove air bubbles.
Refer to “[Before Using the System](#)” and “[Devices](#) → Pump” for purge instructions.

Technical Specifications

Parameters	Cromite™ HPLC System
Dimensions (WHL)	115 x 190 x 115 mm / 4.5 x 7.5 x 4.5 in
Weight	1.45 kg / 3.15 lb
Injection	Automatic, 1 Vial
Pump	Syringe, Isocratic
Flow rate	0.1 - 4.0 mL/min
Pressure	up to 4000 psi
Noise Level	< 0.05 mAU
Detection Rate	20 Hz
Wavelengths, standard	275, 460, 520, 630 nm
Wavelengths, custom	Any four starting from 235 nm
Supported columns	3.2 and 2.1 mm ID
Column Length	115 mm or smaller
Connectivity	Wi-Fi, Ethernet, Mobile cell network
Power Supply	100-240V, 50-60Hz
Operating Temperature	0 to 40° C

Glossary