Agilent

Agilent 1260 Infinity II Prime Workflows

Technical Note

This note guides you through the main differences in instrument operation while upgrading from 1260 Infinity II Quaternary (G7111B) to 1260 Infinity II Prime (G7104C) LC.

Summary and Benefits of Prime Workflows

Table 1 Summary and benefits of prime workflows

Workflow	Definition of Workflow	Why is the Prime Workflow Different?	Benefits of 1260 Infinity II Prime
Priming	Priming is done upon installation of the system or when the system has no solvent present and has become dry (empty bottle heads)	With the Multipurpose Valve, the system can automatically purge the lines without the user's presence at the instrument	Automatic Multipurpose Valve for remote control
Preparing for Analysis	Purging and then equilibrating the system for analysis.	The typical piston movement of the 1260 Infinity II Prime Pump is optimized to deliver flow more accurately and precisely. This method, however, is not as efficient at dissolving micro air bubbles in the flow path. The conditioning function moves the pistons in a way to dissolve micro air bubbles	Prime Pump piston movements results in more accurate and precise flow
Setting up a Method	Writing a method in the Chromatography Data System (CDS)	The 1260 Infinity II Prime Pump uses solvent compressibility tables to actively optimize the compressibility value needed for the compression of solvent to the system pressure	Prime Pumps have the optimized compression step automatically based on the system pressure and composition
Diagnostic Signals	Monitoring the health of the system	The Prime Pump essentially has no ripple because of the optimized piston movements. Therefore, the active tuning monitors the health of the system	Prime Pumps have essentially no ripple and actively tunes for optimized pump performance

Summary and Benefits of Prime Workflows

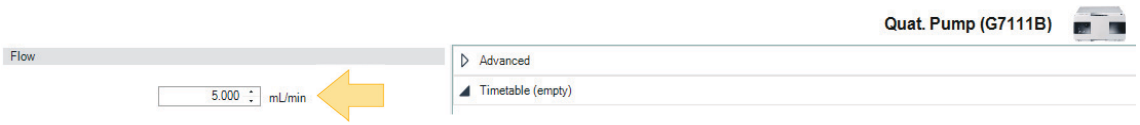
Priming

Priming Workflow for 1260 Infinity II (G7111B) Using Isopropanol

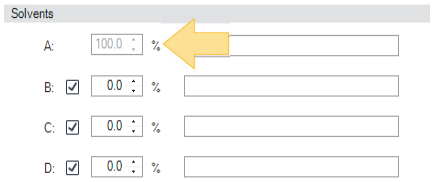
1 Open the purge valve of your pump by turning it counterclockwise.

2 Open the **Method** dialog box via right-click the pump dashboard then select **Method**.

3 Set the flow rate to 5 mL/min.



4 Select 100 % for solvent channel A.



5 Turn on the flow.

6 Observe if the solvent in the tubing of channel A is advancing towards the pump. If not, follow the substeps:

   a Disconnect the solvent tubing from the MCGV.

   b Attach a syringe with a syringe adapter and pull the liquid through the degasser.

   c Re-attach the tubing to the MCGV.

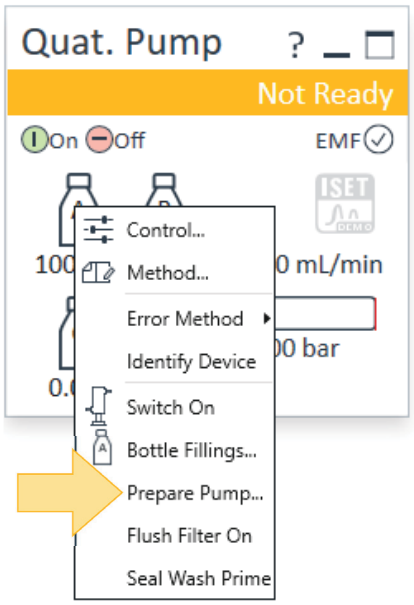
7 Pump 30 mL isopropanol to remove residual air bubbles.

8 Switch to the next solvent channel and repeat the two preceding steps until all channels have been purged.

9 Turn off the flow and close the purge valve.

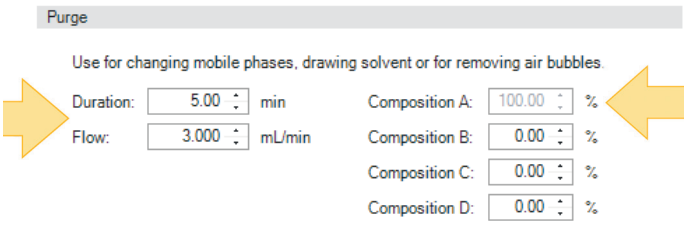
Priming Workflow for 1260 Infinity II Prime (G7104C) Using Isopropanol

1 Right-click the pump dashboard and select **Prepare Pump**.



2 Select **Purge** and set the parameters:

- Duration: 5 min
- Flow: 3 mL/min
- Composition: 100 % A



3 Click **Start**.

4 Observe if the solvent in the tubing of channel A is advancing towards the pump. If not, follow the substeps:

a Disconnect the solvent tubing from the MCGV.

b Attach a syringe with a syringe adapter and pull the liquid through the degasser.

c Re-attach the tubing to the MCGV.

5 Wait for the pump to automatically stop purging after 5 min.

6 Switch to the next solvent channel and repeat the preceding steps until all channels have been purged.

Preparing for Analysis

Preparing for Analysis Workflow for 1260 Infinity II (G7111B)

1 Open the purge valve of your pump by turning it counterclockwise.

2 Open the **Method** dialog box via right-click the pump dashboard then select **Method**.

3 Set the flow rate to 5 mL/min.

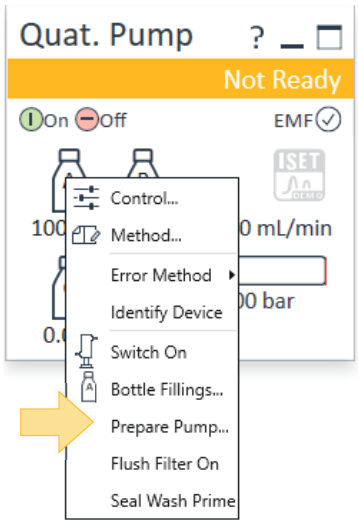
4 Flush the vacuum degasser and all tubes with at least 10 mL of solvent.

5 Set the required composition and flow rate for your application and close the purge valve.

6 Pump for approximately 10 min before starting your application.

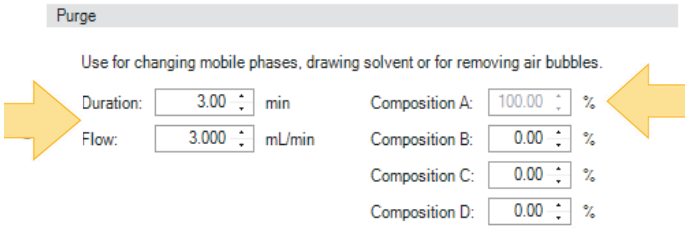
Preparing for Analysis Workflow for 1260 Infinity II Prime (G7104C)

1 Right-click the pump dashboard and select **Prepare pump...**.



2 Select **Purge** and set the parameters:

- Duration: 5 min
- Flow: 3 mL/min
- Composition: 100 %



3 Click **Start**.

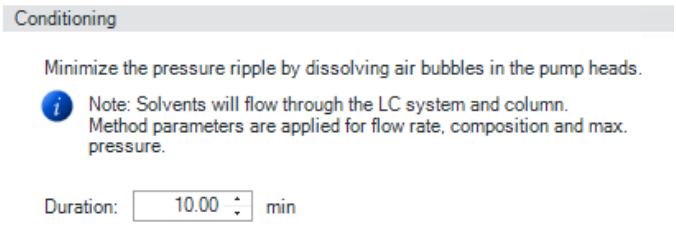
4 The pump will automatically stop purging after 3 min.

5 Switch to the next solvent channel and repeat the preceding steps, if necessary.

6 Turn on the pump with your method loaded.

7 Right-click the pump dashboard and select **Prepare pump...**.

8 Select **Conditioning**.



9 Set the **Duration** to 10 min.

The pump will condition the system (pumping through the column). After 10 min, it begins pumping using the standard piston movement onto the column.

10 Pump for approximately 5 min after conditioning, then start your application.

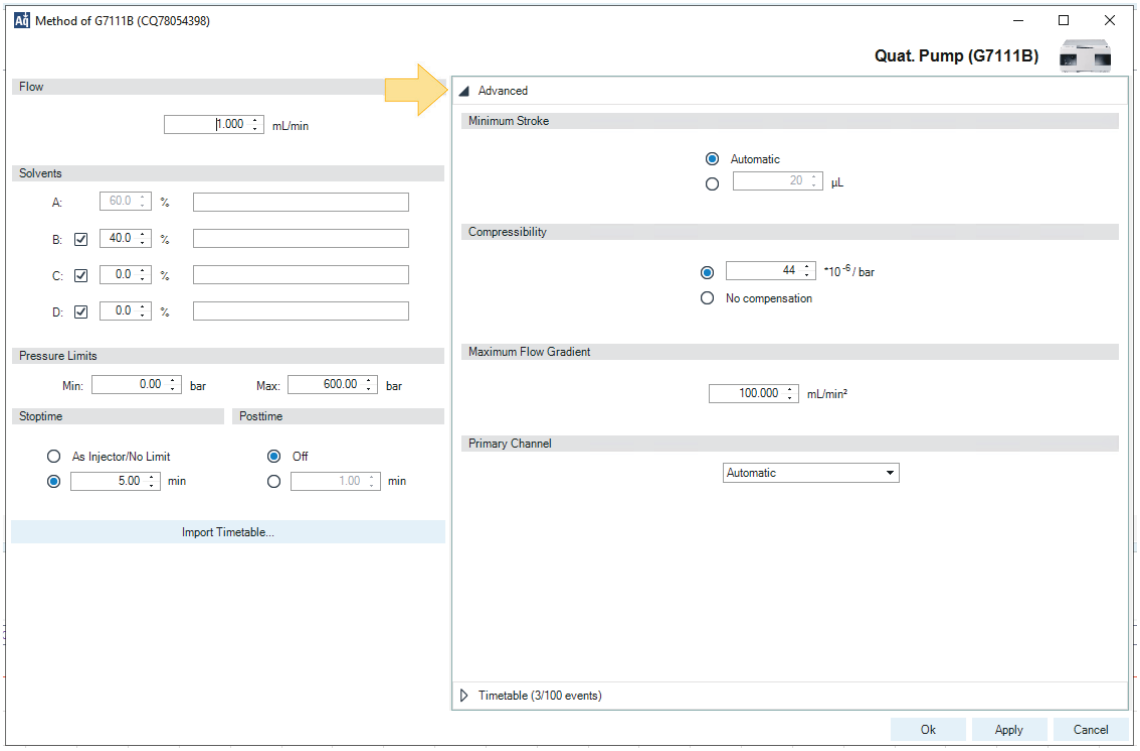
Setting up a Method

Setting up 1260 Infinity II Method (G7111B)

HINT

To access the Online help for additional information, click into the dashboard and press F1.

1. Open the **Method** dialog box via right-click the pump dashboard then select **Method**.
2. Set **Flow**, the starting composition in the **Solvents** section, **Pressure limits**, **Stoptime**, and **Posttime**.
3. Create gradients via the **Timetable**.
4. To set **Compressibility** correctly for most stable flow, expand the advanced tab for further method parameters.



Setting up 1260 Infinity II Prime Method (G7104C)

1 Right-click the pump dashboard and select **Method**.

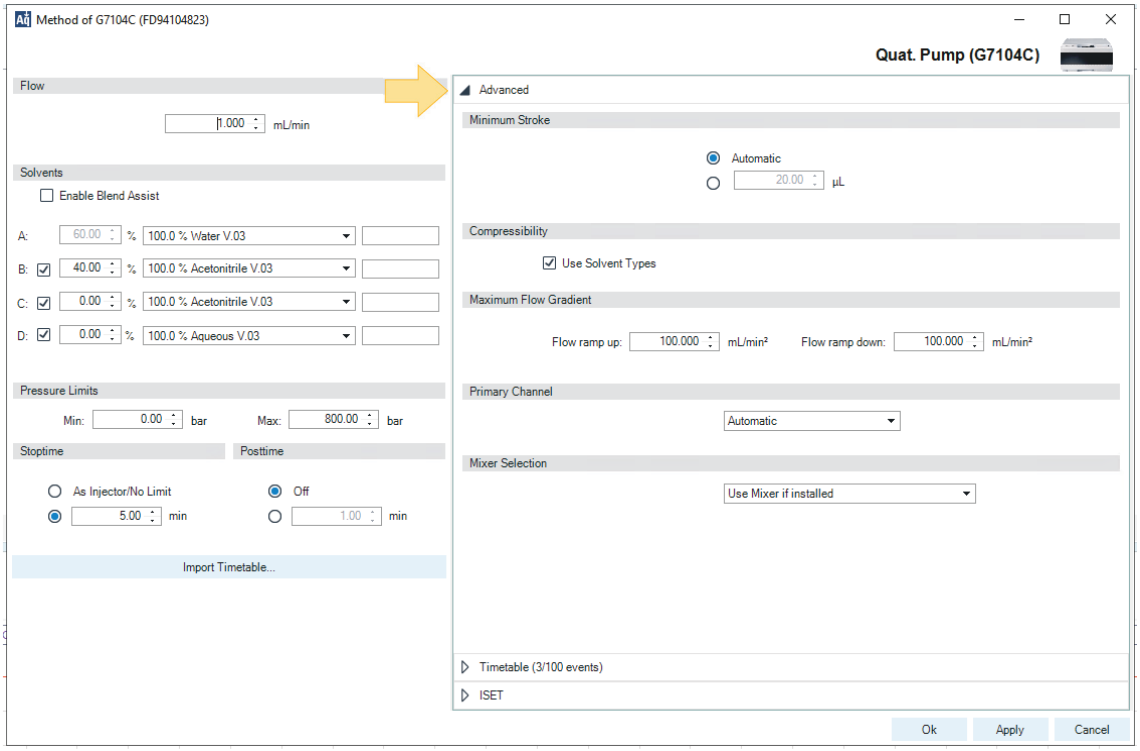
2 Set **Flow**, the starting composition in the **Solvents** section, **Pressure limits**, **Stoptime**, and **Posttime**.

3 In the **Solvents** section, select the solvents you are using or solvents similar to what you are using.

This automatically sets the **Compressibility** to ensure flow accuracy and precision.

4 Create gradients via the **Timetable**.

5 Expand the advanced tab for more method parameters.



NOTE

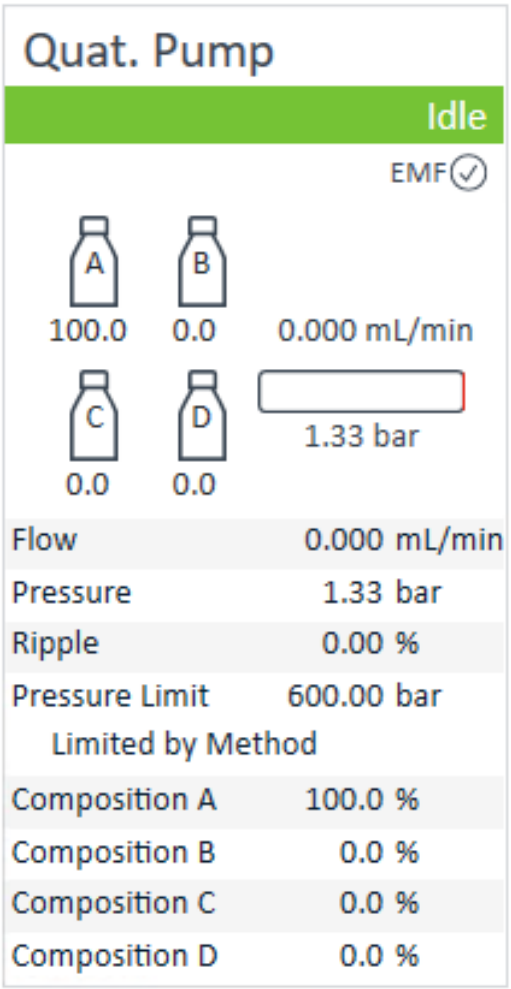
To use BlendAssist or ISET, see the "Appendix" on page 12.

Diagnostic Signals

Visible with 1260 Infinity II (G7111B)

Ripple Percentage

- Usually less than 2 % when the system is equilibrated. Results are often better.
- Excessive Ripple is indicative of a problem.
  - Problems with solvent compressibility settings
  - Stroke volume
  - Leaks in the system
  - Air in the system
  - Immiscible solvents



Visible with 1260 Infinity II Prime (G7104C)

Tuning

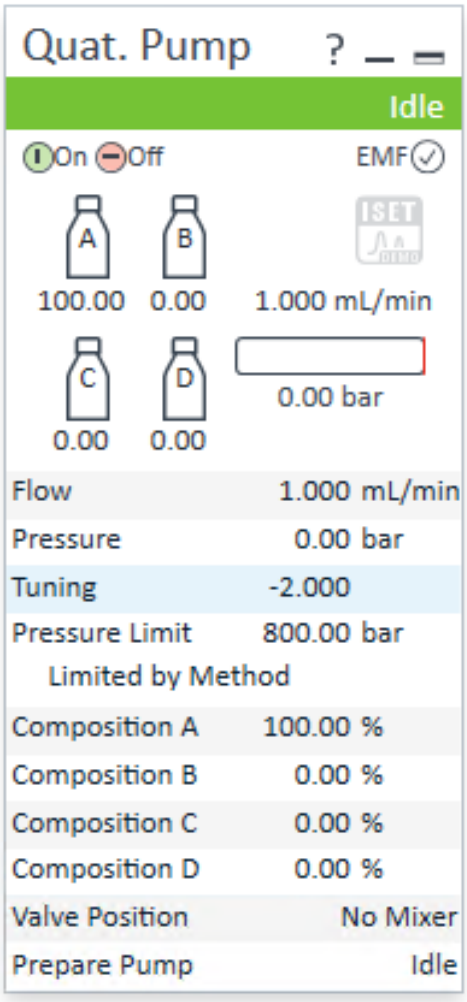
For pumps operating as expected, the signal should stay in a range of -1 to +1 within the full scale of -2 to +2. Ideal performance is at 0.

Change in behavior could be caused by:

- gas bubbles in primary chamber
- suboptimal compressibility settings
- major leaks in seals or fittings
- problems with the valves
- blockage of filters or capillaries

NOTE

The tuning value does not change during the functions **Prime** or **Conditioning**



Appendix

Intelligent System Emulation Technology for Prime

- Emulate other (U)HPLC instruments with a click
- Run existing (U)HPLC methods without modifying the method or system
- Deliver equivalent retention times and peak resolution for better method transfer

Watch a video

Read ISET manual

BlendAssist for Prime

Interested in method development? Analyzing analytes using similar buffer concentrations? Then BlendAssist could be a solution for you.

Watch a video

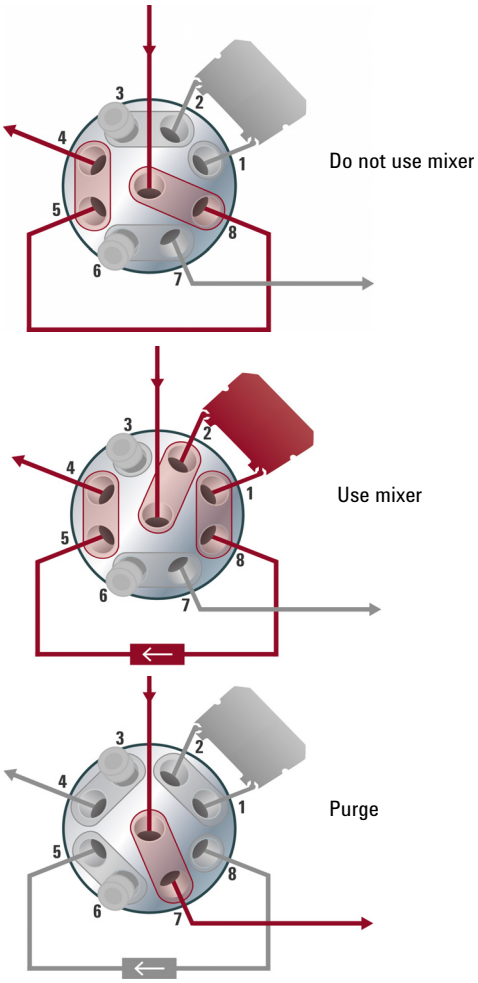
Read technical overview

Benefits of Jet Weaver for Prime

The Jet Weaver is a mixing device designed to offer highest mixing efficiency at lowest delay volume. The optionally available V380 µL Jet Weaver is optimized for demanding applications, for example using TFA as a modifier. The Multipurpose Valve allows automatically including or removing the Jet Weaver from the flow path. This Jet Weaver adds 150 µL delay volume which sums up to less than 500 µL total pump delay volume.

- G4204-68035 Jet Weaver Mixer Kit V35 Quat/Flex
- G4204-68100 Jet Weaver Mixer Kit V100 Quat/Flex
- G4204-68380 Jet Weaver Mixer Kit V380 Quat/Flex

Positions of the Multipurpose Valve



www.agilent.com

Edition: 03/2023

Document No: D0027844 Rev. A