

# **Od výzkumu k výrobě – Agile Workflow pro farmaceutický průmysl**



**Altium**

# (U)HPLC Agilent **Infinity III** - klíč k vyšší produktivitě a kvalitě ve farmaceutické laboratoři

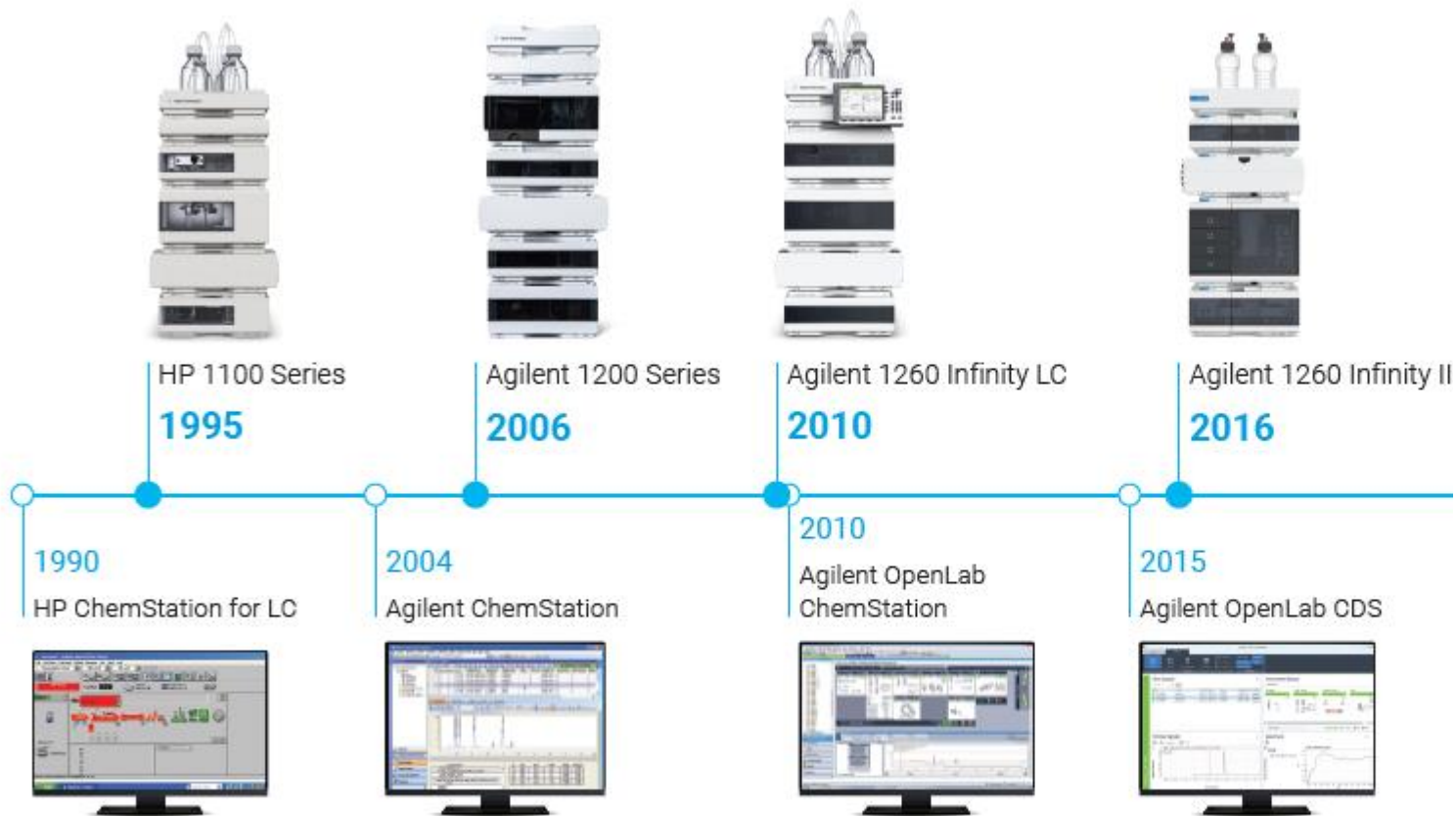
Od výzkumu k výrobě – Agilent Workflow pro farmaceutický průmysl



# Altium

Jan Kovář

Produktový specialista



# 329



600  
BAR

800  
BAR

1300  
BAR

BIO

BIO  
INERT

# Klíčové Inovace nové Agilent Infinity III

Solvent Level Sensing



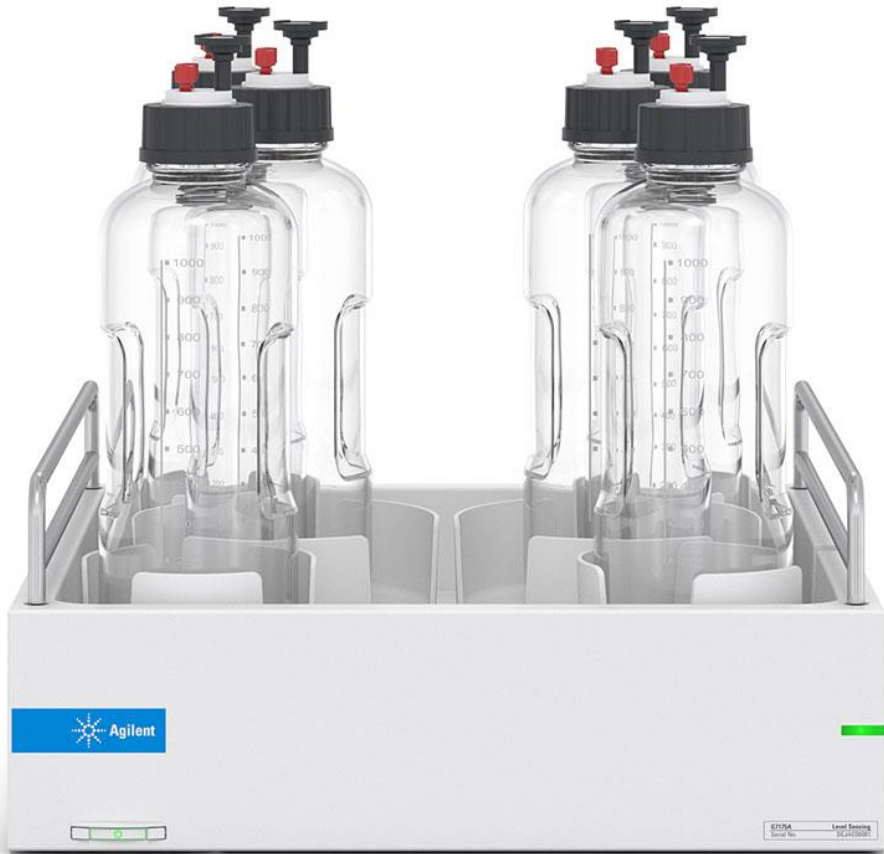
InfinityLab Assist



Sample ID Reader



# Modul pro hlídání hladiny mobilní fáze



- ❖ gravimetrický princip
- ❖ kapacita **šest lahví MF**: 4x 1L lahev a 2x 2,5L lahev.
- ❖ **Mobilní fázi stačí pouze doplnit – bez nutnosti „tárování“ lahví.**
- ❖ Minimální manuální interakce **a maximální efektivita**

# Integrace v OpenLab CDS

LC - Acquisition

File Home Control

Take Release Status Method Single Sample Sequence Ad Hoc Mode Copy Delete Run Queue Activity Log Instrument Status Online Signals Solvent Monitor Spectrum Sequence Creation Template Status Windows

Sequence - Sequence1.sqx

General Properties Run Options Injections Table

| # | Action                                     | Sample type |
|---|--------------------------------------------|-------------|
| 1 | <input checked="" type="checkbox"/> Inject | Blank       |
| 2 | <input checked="" type="checkbox"/> Inject | Cal. Std.   |
| 3 | <input checked="" type="checkbox"/> Inject | Cal. Std.   |
| 4 | <input checked="" type="checkbox"/> Inject | Sample      |
| 5 | <input checked="" type="checkbox"/> Inject | Sample      |
| 6 | <input checked="" type="checkbox"/> Inject | Sample      |
| 7 | <input checked="" type="checkbox"/> Inject | Sample      |
| 8 | <input checked="" type="checkbox"/> Inject | Sample      |

Sample custom parameters Compound

\* Indicates Mandatory Entry

| Parameter | Value |
|-----------|-------|
|           |       |

Compartment 1

**1.00 L**  
Actual Volume

Purging bottle

Consumption (est.): 0.00 L  
Leftover volume (est.): 1.00 L

**No Bottle**  
Actual Volume

Consumption (est.): 0.00 L  
Leftover volume (est.): 0.00 L

**No Bottle**  
Actual Volume

Consumption (est.): 0.00 L  
Leftover volume (est.): 0.00 L

**No Bottle**  
Actual Volume

Consumption (est.): 0.00 L  
Leftover volume (est.): 0.00 L

**0.15 L**  
Actual Volume

Acetonitrile

Consumption (est.): 0.00 L  
Leftover volume (est.): 0.15 L

**1.00 L**  
Actual Volume

Water

Consumption (est.): 0.00 L  
Leftover volume (est.): 1.00 L

Result path: C:\CDSP\Projects\SLS\Results  
Result name:   
Save result as: One result set

Validate Run

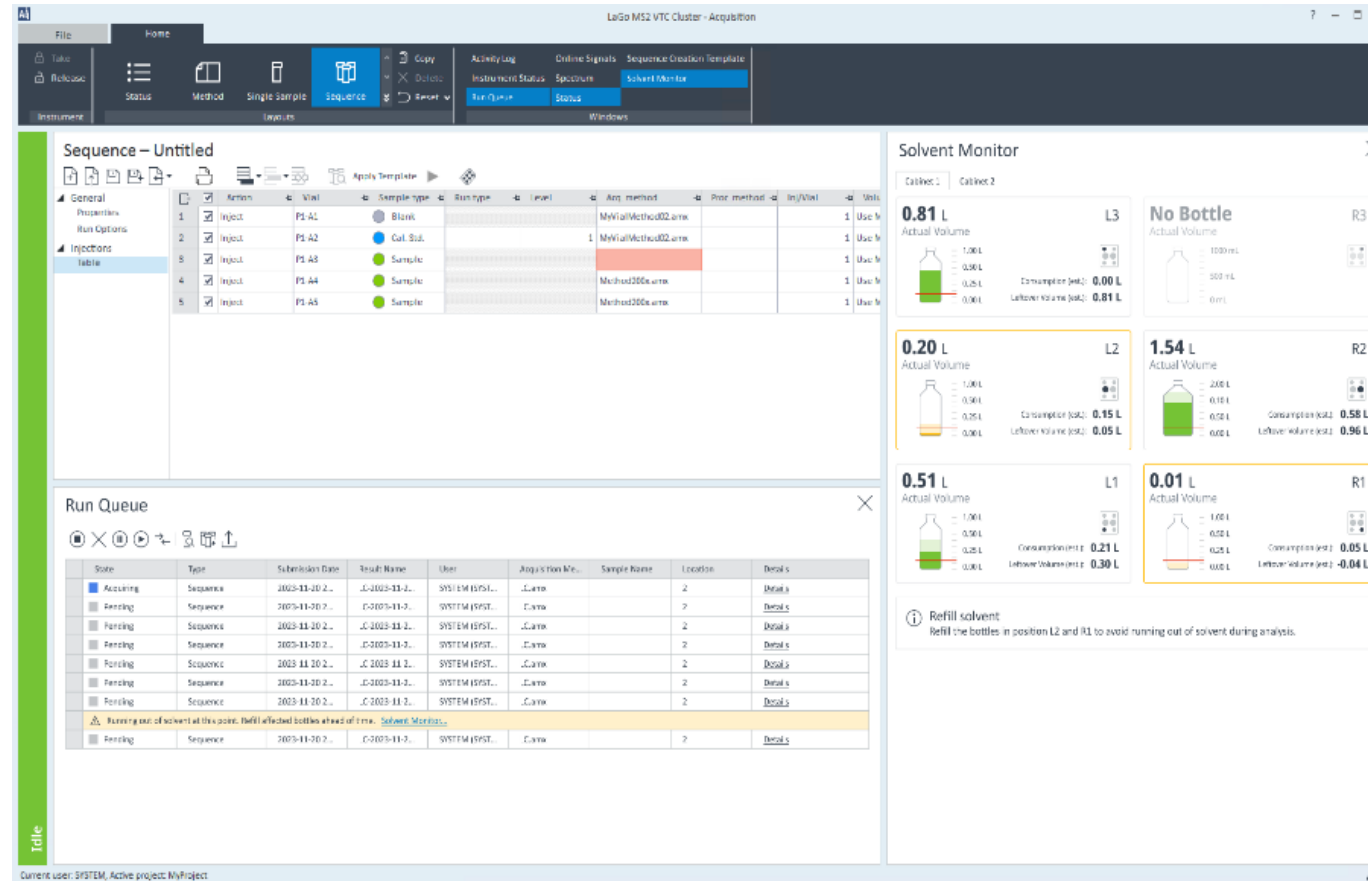
Current user: SYSTEM (SYSTEM), Active project: SLS

**0.15 L**  
Actual Volume

Acetonitrile

Consumption (est.): 0.00 L  
Leftover volume (est.): 0.15 L

# Integrace v OpenLab CDS – odhad spotřeby



# Nové rozhraní pro řízení Vašeho (U)HPLC



## InfinityLab Assist Tasks



**Automatizujte** programujte a plánujte úlohy spouštění a vypínání systému, které můžete **ovládat i na dálku**.

## InfinityLab Assist Smart Purge

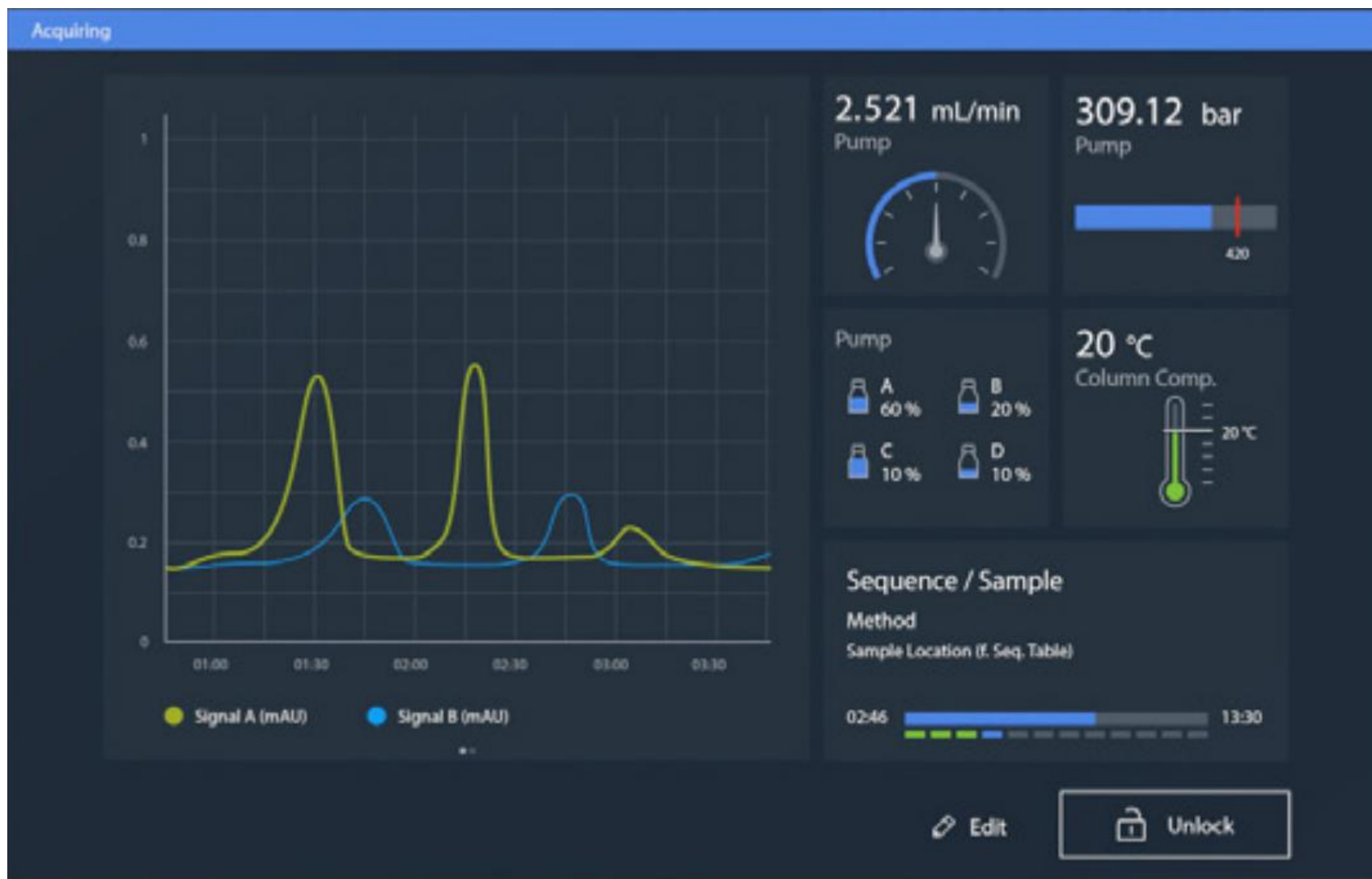


**Automatizujte proplachování čerpadla a autosampleru** a minimalizujte čas strávený u systému

## InfinityLab Assist Troubleshooting



Využijte integrované **průvodce, krok-za-krok** k identifikaci a odstranění příčin problémů a ke spuštění zkušebních/testovacího postupů.



**Standby**

# Instrument Status

Quat. Pump → **Standby**

Switch On Set Flow Set Composition Purge Seal Wash Prime

A 1.0 % B 99.0 % Flow 0.000 mL/min

C 0.0 % D 0.0 % Pressure [Limit 400] 0.11 bar

Sampler → **Idle**

Switch to Bypass Needle Wash Thermostat Reset Injector Home Arm

Injection Volume 10.00 µL Temperature 27 °C [---]

Sample Location ---

Column Oven → **Idle**

Thermostat Identify Device

Temperature 25.61 °C [25.0 °C] Column Info Eclipse Plus C18 4.6x250mm, 5µm

VWD → **Idle**

Lamp Off Balance Identify Device

Wavelength A 254 nm UV Lamp On Absorbance A 104 mAU





Error

←

Assisted Troubleshooting: Select Cause

Most probable cause

Clogged needle or needle seat

Other causes

Clogged column

Misconfigured method parameters

Clogged heat exchanger

Clogged capillary

Cancel

Notifications

?

×

Binary Pump G7132A:LPBBV00014

less than a minute ago

^

▲

✖

Pressure above high pressure limit (600 bar)

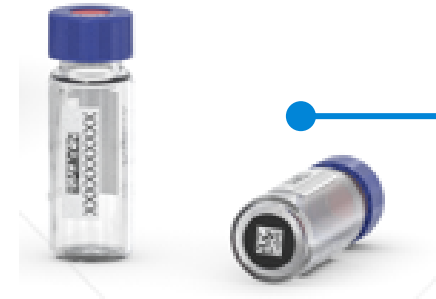
Clear

Troubleshooting

Details

# Čtečka QR kódů vialek v Multisampleru

- ❖ Šetřete čas tím, že nebudete zadávat pozice vialek v sekvenci vzorků.  
Multisampler si najde vialku sám podle kódu.
- ❖ Stačí vložit vialku do **volné pozice** v Multisampleru



InfinityLab Certified ID Vials



Sample Linking Station  
with Sample Linking Software



InfinityLab Sample ID Reader



# Nová generace směšovacího ventilu



Analyzing Iohexol by Compendial Method Produces Excellent Precision with Shallow Gradients Using an Agilent 1260 Infinity III LC



**Abstract**  
The separation of Iohexol and its impurities is a common problem for the analysis of pharmaceuticals. Several methods have been reported for the separation of Iohexol and its impurities, but the results are often inconsistent. This paper describes a new method for the separation of Iohexol and its impurities using a compendial method. The method involves the use of a shallow gradient and a compendial method to achieve excellent precision and resolution. The results show that the method is robust and can be used for the separation of Iohexol and its impurities in a wide range of samples.

|          |           |       |
|----------|-----------|-------|
| Gradient | 0 min     | 1% B  |
|          | 60 min    | 13% B |
|          | 60.01 min | 99% B |

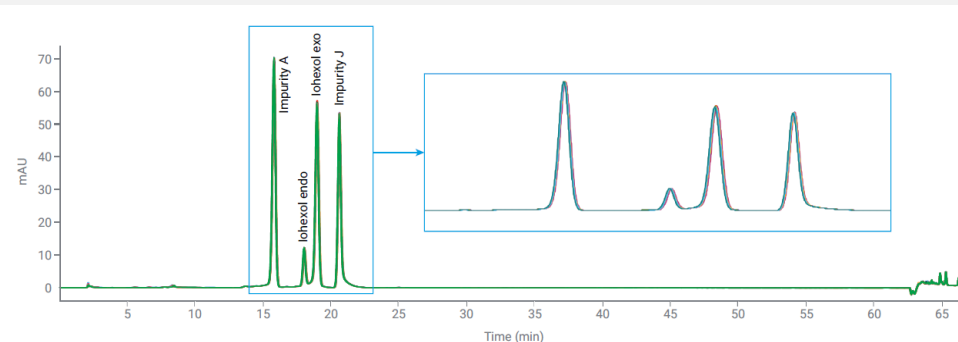


Figure 2. Chromatogram overlay (N = 8) of the separation using the compendial method.

S novou **kvartérní LC pumpou 1260 Infinity III** si užijete vyšší přesnost a vyšší robustnost metod - a to vše s plnou zpětnou kompatibilitou metod

| Compound     | RT (min) | Relative RT | Resolution (EP) | RT RSD (%) |
|--------------|----------|-------------|-----------------|------------|
| Impurity A   | 15.865   | 0.83        | —               | 0.069      |
| Iohexol Endo | 18.096   | 0.95        | 5.5             | 0.083      |
| Iohexol Exo  | 19.041   | 1.00        | 2.2             | 0.078      |
| Impurity J   | 20.685   | 1.09        | 3.8             | 0.059      |

# Možnost upgradu / zpětná kompatibilita

InfinityLab Assist



Sample ID Reader



Solvent Level Sensing



New Gradient Valve





# Altium

Děkuji za pozornost.