Isolera™ Spektra

The Most Advanced Flash Purification Software

Isolera™ Spektra is a software upgrade package available for Isolera One, Four and LS, with advanced features that are only found on the world's most expensive high-end chromatography systems. Paired with Isolera Dalton, Isolera Spektra opens up new dimensions in automated flash systems.

Gradient Prediction

Time for purification is reduced by 20 to 50% with Isolera™ Spektra TLC-to-Step gradient function that uses in TLC data and calculates an optimal elution method. The resultant simulation can be edited on the touch screen to target a specific peak (Figure 1), shortening the purification.

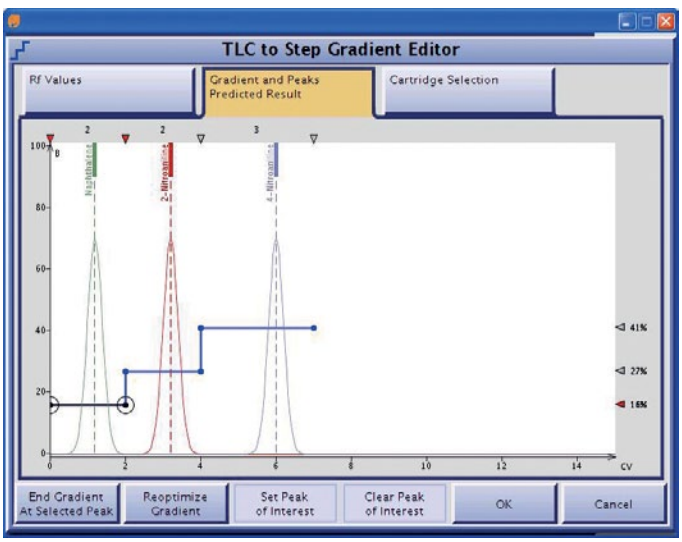

Figure 5. The Isolera Spektra estimates the first compound will elute between 1 and 2 column volumes (CV), the second between 3 and 4 CV, and the third around 6 CV with a total run time of 8 minutes and 45 seconds.

Recommends the Optimal Flash Cartridge

Once the gradient is established, the system will suggest the cartridge that best fits the conditions and sample size, considering purification speed and estimated solvent volumes.

Advanced λ-All Detection

Many compounds being purified have an unknown absorbance. The Isolera™ Spektra λ-All function (Figure 6) records all available wavelengths for compound detection and sums the responses to maximize sensitivity and minimize sample loss.

Baseline Correction

Many chromatographic solvents absorb UV light. Isolera Spektra uses advanced real gradient zeroing for baseline correction to eliminate background shifts (Figure 8). Using all wavelengths for detection with a gradient can lead to a rising baseline which will interfere with compound detection and cause inaccurate fraction collection

Digging Deeper With PDA Spectral Analysis

Biotage Isolera Spektra systems brings Photodiode Array (PDA) detection to flash chromatography for the first time. The full spectrum for each compound can be seen as it elutes from the cartridge – in real-time. This information can be used to confirm purity and compound identity.

All spectra are stored and can be reviewed in 2D to verify fraction purity. Post fraction thin layer chromatography (TLC) to determine which fractions contain pure compound can be eliminated.

3D Graphics Complete the Picture

Identify impurities by taking advantage of the PDA 3D chromatogram display (Figure 7). Chemists can view the chromatogram in terms of both elution volume and UV absorbance which provides even more purity confirmation.

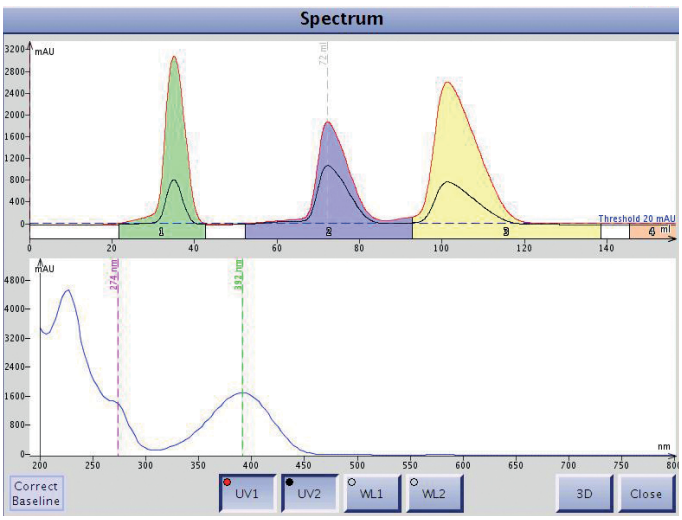

Figure 6. Peak UV maxima and purity can be verified just by moving a cursor over the peak. If the spectrum below remains consistent, the fraction is pure. This eliminates TLC to determine purity, which can save up to 1.5 hours a day.

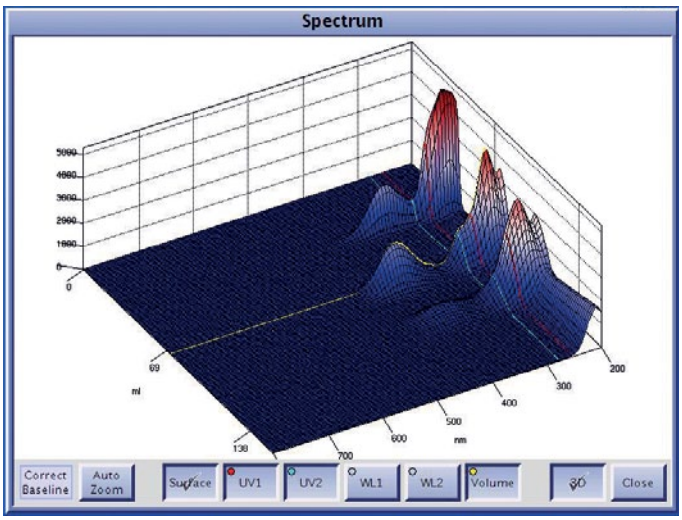

Figure 7. With Spektra, chemists can view the chromatogram in 3D, showing the UV spectra at each point during a run lined up after each other. The graph can be rotated and viewed from all angles.

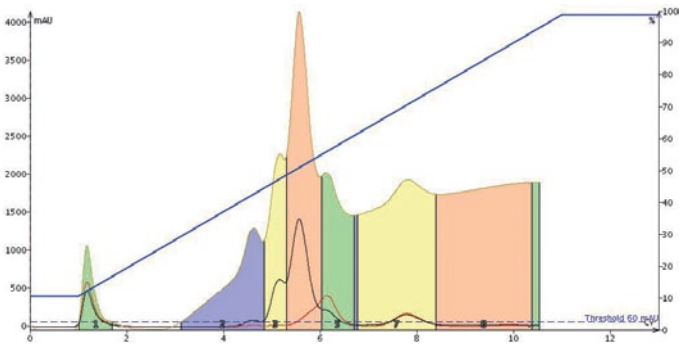

Figure 8 a). A spinach extract purified with heptane/ethyl acetate using λ-All without baseline correction. The rising baseline causes more solvent to be collected, diluting collected fractions.

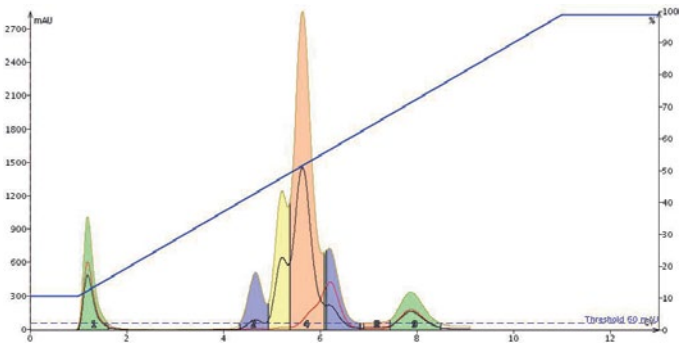

Figure 8 b). The same spinach extract using λ-All with baseline correction provides maximum concentration fractions and uses fewer test tubes.