

# Reference Chromatograms

## Abstract

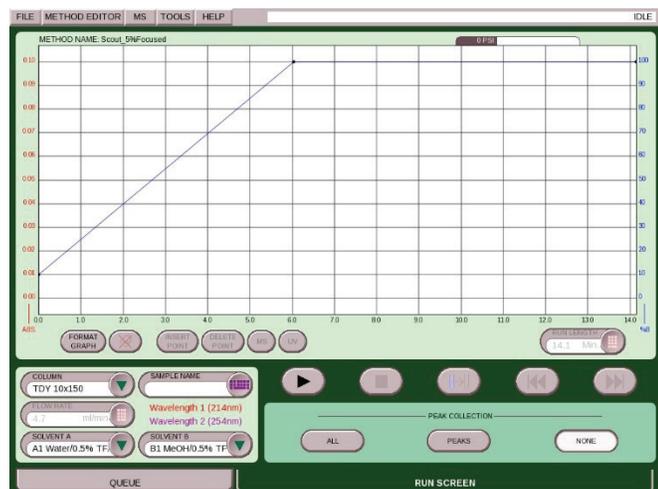
Reference chromatograms provide a convenient way to compare a currently running chromatogram to a previous purification. Uses include evaluating column deterioration, comparison of the purification of a new reaction mixture with an earlier batch, and providing visibility of progress towards a particular peak eluting (i.e. How soon before I see the peak I want?).

## Results and Discussion

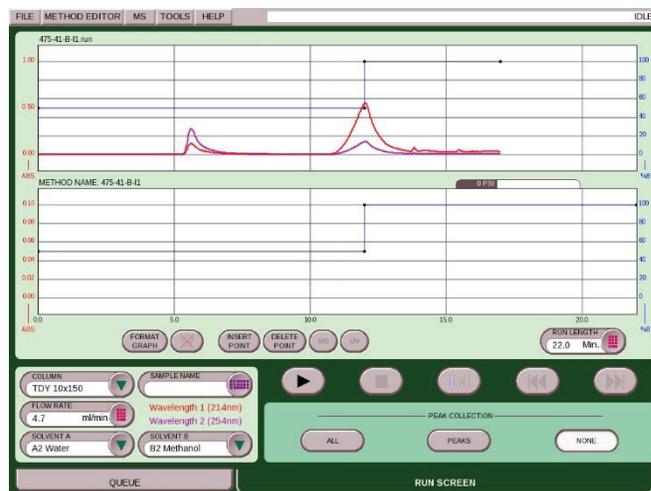
The reference chromatogram is accessed via the **FORMAT GRAPH** button under the chromatogram.

This feature can be accessed before or during a run. Removing the reference chromatogram is done in the same fashion except the button will change to read **REMOVE REFERENCE**.

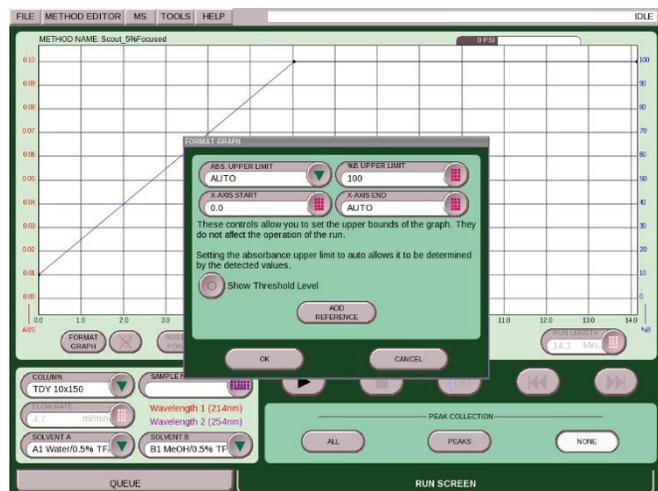
The reference chromatogram is displayed so that the time scale matches that of the running chromatogram. Zooming one chromatogram causes the other one to scale to the same zoomed area. If the reference chromatogram had a shorter run time than the current run, the reference will only fill the portion of the screen that matches the time period for the current run.



**Format graph**

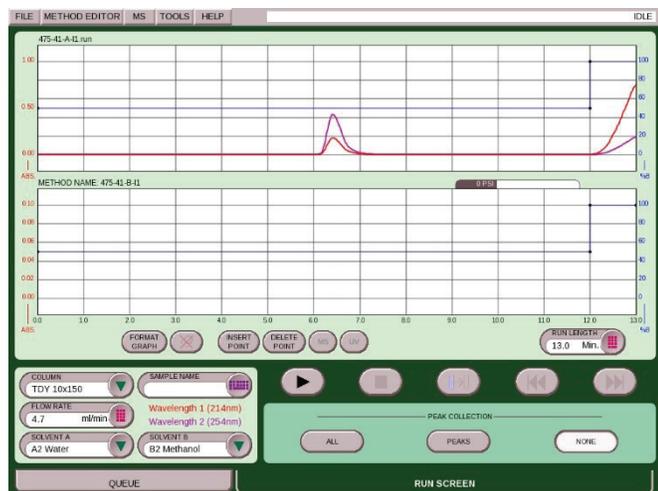


**Run longer than reference chromatogram – the reference only fills the time period during which it was run.**



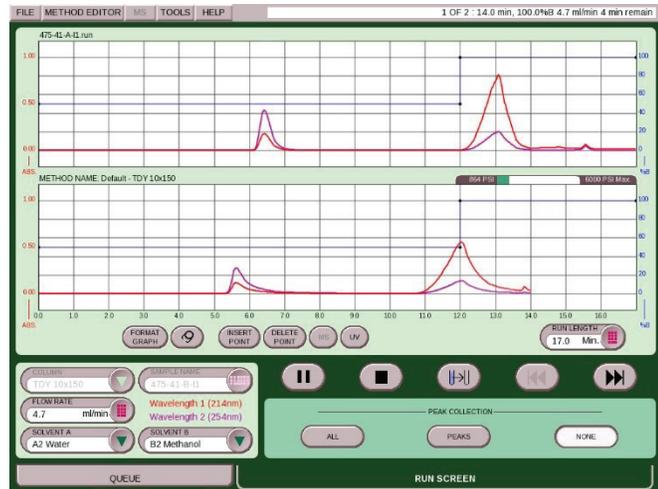
**Add reference**

If the reference chromatogram is longer than the method being run, the reference chromatogram is truncated so that the time in minutes match which allows easy comparison of the two chromatograms.



**A method shorter than the reference truncates the reference so that the times match.**

The alignment in time will always hold so that the elution time of peaks is easily observed. The reference chromatogram display ignores any gradients, so it is possible to observe the changes in chromatography as the gradient conditions are changed in the running method using the Scouting Pause feature.



**Comparison of a reference mixture on a column; the reference chromatogram was run when the column was first installed. The change in retention time for the compound eluting near 6 minutes and change in peak shape indicates that this column is due for replacement.**

## Conclusion

Reference chromatograms are useful to compare old data with a chromatogram as it is running. Uses include knowledge of when a peak should elute when running a sample again, determination of column wear, comparison of chromatography due to changes in the method, and comparisons of samples.

The reference chromatogram does not block the current run, as would happen if the file were simply opened. The time scale is matched for easy comparison, and both chromatograms are zoomed together if details of a peak need to be observed.

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