

# Obtaining Post-Analysis Results Using Salsa Software Retroactive Analysis

Method ID: N/A

Category: Environmental

Technique: ICP-OES

## Retroactive Analysis Overview

Teledyne Leeman Labs ICP users frequently ask if it is possible to obtain concentration data for elements that have not been calibrated in the method, after sample analysis. This Tech Note explains the simple procedure to perform “retroactive analysis” using the ICP-OES Salsa software.

The potential for retroactive analysis is enabled by adding the element wavelengths to the method as “inactive” prior to analysis (for future use). Designating an element wavelength as “inactive” instructs the software to not display, nor report, concentration data. Once results for an “inactive” element wavelength is required, it is then designated as “active” and results are recalculated using the sample’s stored emission intensity data using a new calibration (and standard containing the element).

## Retroactive Analysis Procedure

To use retroactive analysis to determine element wavelength concentration after analysis, perform the following steps.

Note: Wavelength alignment should be performed for the element wavelengths designated as “inactive”.

1. Change the desired “inactive” element wavelength(s) to “active”.
2. Add a new calibration standard containing the desired element(s) or turn “On” the element wavelength(s) in an existing calibration standard containing the element(s). Enter the standard concentration.
3. Run the standard(s) and accept the calibration(s) to recalibrate the method.
4. Recalculate the samples using the new calibration(s).

## Retroactive Analysis Salsa Software Demonstration

The following steps and software screen captures demonstrate the use of retroactive analysis.

1. Figure 1 shows the method’s elements in the Analysis Tree to the left. All the elements below Ti337, with the exception of “Y” (internal standard), have been designated as “inactive” by deselecting the “Active” Check Box on the element wavelength’s General Tab.

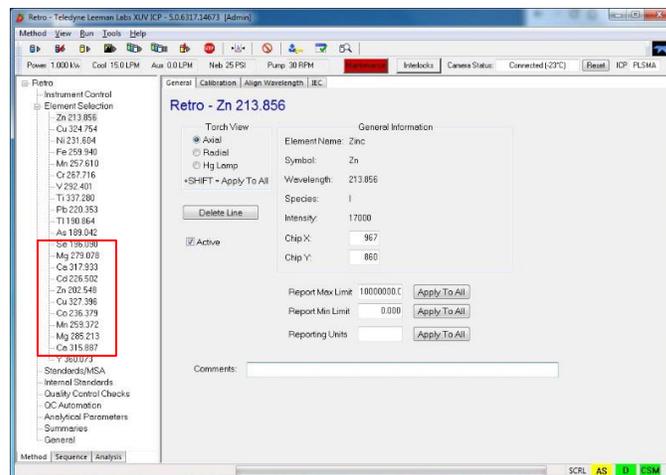


Figure 1 Analysis Tree Showing Element Wavelengths

2. Figure 2 shows the post-analysis Results Tab displaying ONLY the elements designated as “active”. Results for elements that are “inactive” are not displayed in any reports or printouts.

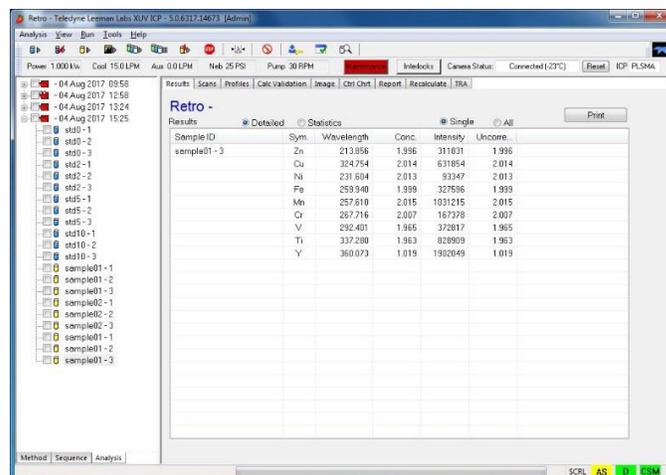


Figure 2 Results Tab Showing Only “Active” Elements

3. When concentrations of “inactive” element wavelengths are needed, make them “active” by selecting the Method Application Tab, highlighting the element wavelength in the Navigation Panel, and selecting the “Active” Check Box on the General Tab as shown in Figure 3.

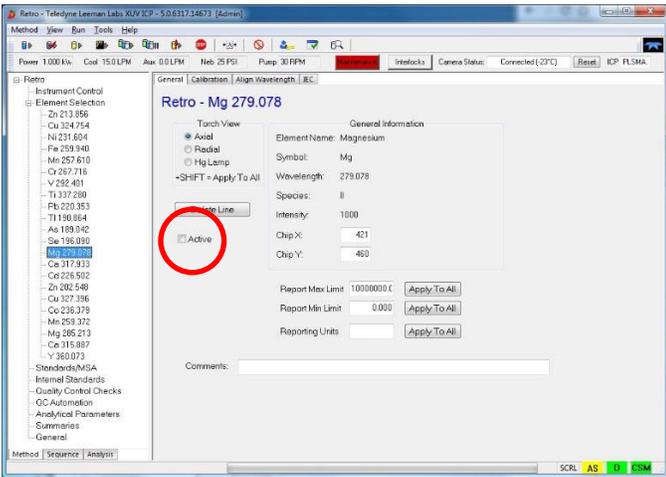


Figure 3 Element Wavelength General Tab - Active Check Box

4. Recalibrate the ICP for the retroactive analysis element wavelength(s). Select Standards/MSA in the Navigation Panel and turn "On" the desired element wavelength(s) in existing calibration standard(s) or add the required standard(s) with the element wavelength(s) turned "On" as shown in Figure 4. Enter standard concentration(s), if necessary, and run the calibration standard(s).

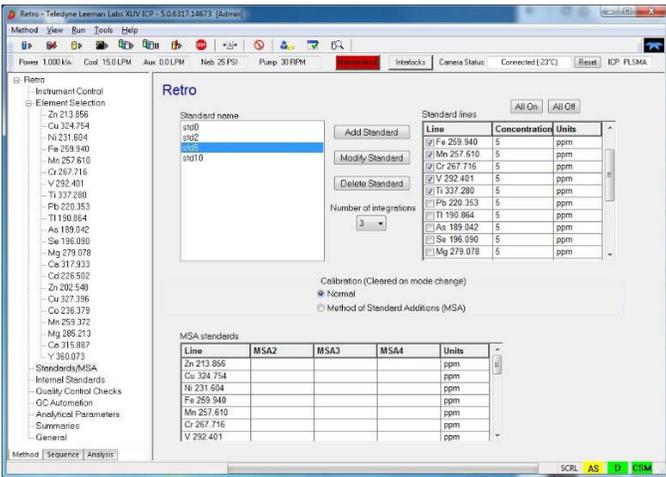


Figure 4 Standards/MSA Screen

5. After running the calibration standard(s) and accepting the calibration(s), previously acquired "inactive" sample element wavelength intensity results (now designated as "active") can be recalculated. Select the Analysis Application Tab, then the "Recalculate" Tab. Select the sample(s) to be recalculated, then the "Recalculate" Button.

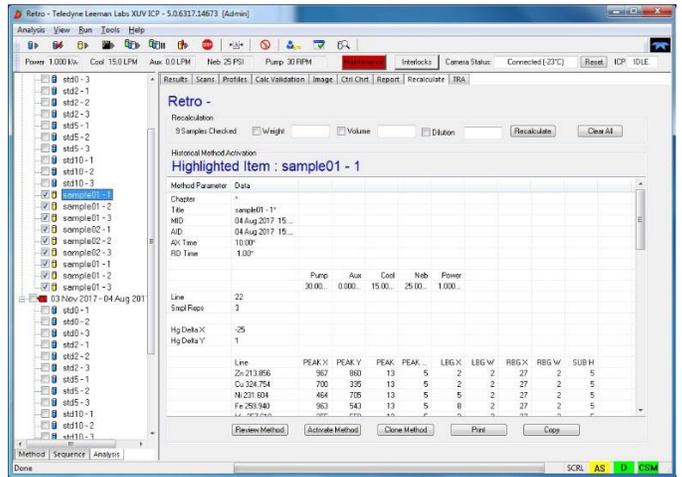


Figure 5 Analysis - Recalculate Tab

6. To view the retroactive analysis results, select the Results Application Tab, then highlight the element wavelength(s) in the Navigation Panel. The results generated using retroactive analysis can now be included in reports generated from the Reports Tab.

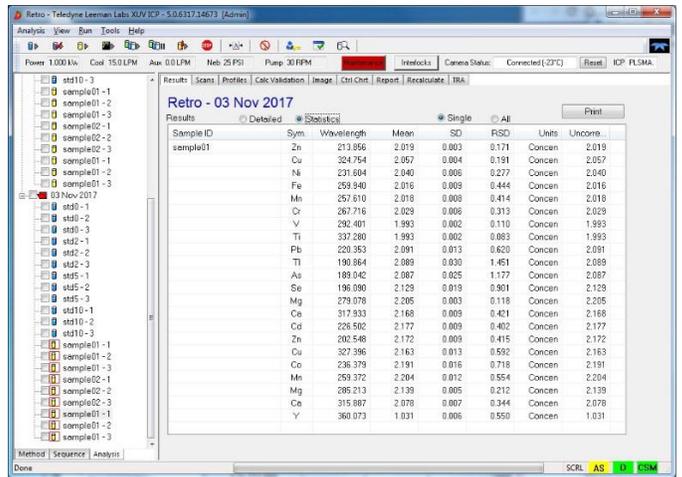


Figure 6 Recalculated Results

Note: Retroactive analysis can also be employed for recalculating using internal standards and even inter-element correction (IEC), provided a line with the interfering element was previously added to the method and designated "inactive".