

# Recommended Workflow for Quantitative Analysis

## Introduction

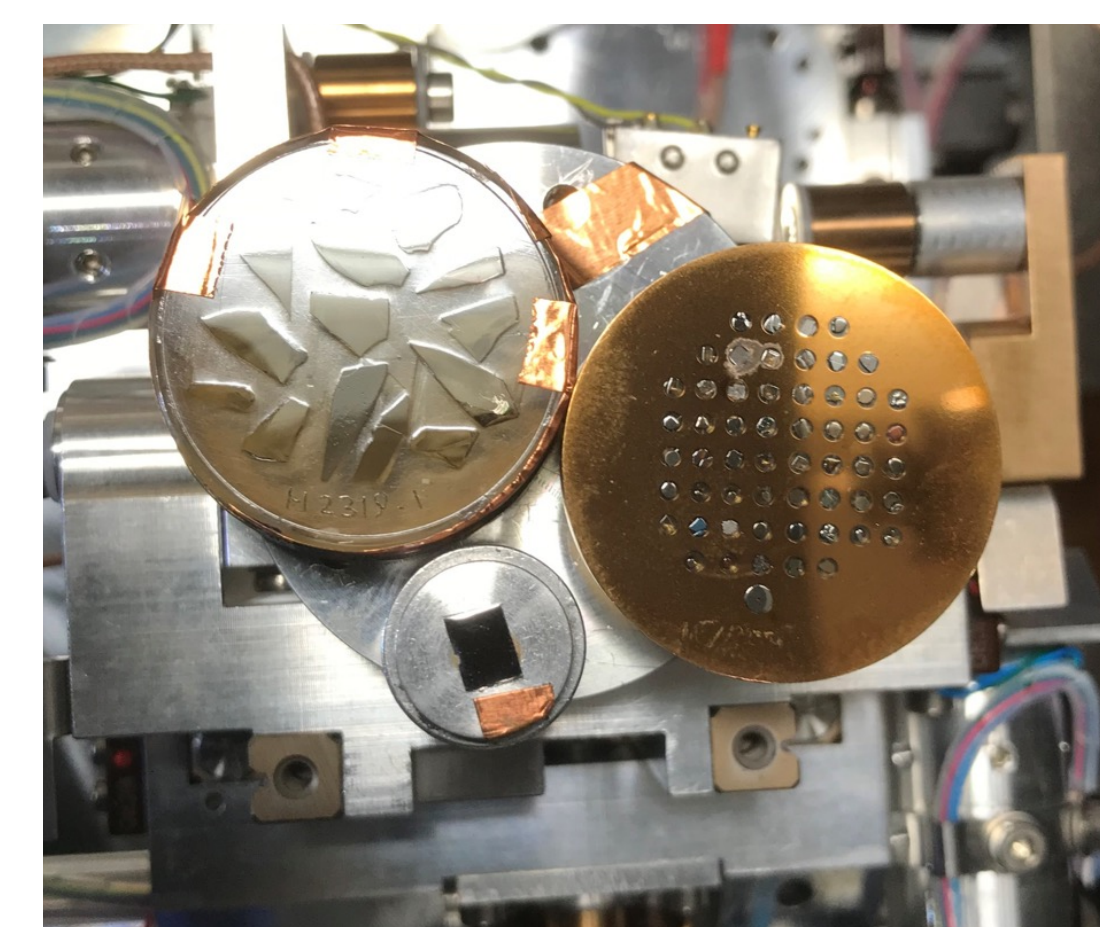
- » Within AZtec "standardless" method is the default method for quantitative analysis, and if used in conjunction with the Oxford Instruments Recommended Workflow, it will give fast, accurate results for all but the most challenging and complex samples.
- » This recommended workflow describes several considerations that are important for ensuring that quantitative analysis gives the correct results.

Contact us:



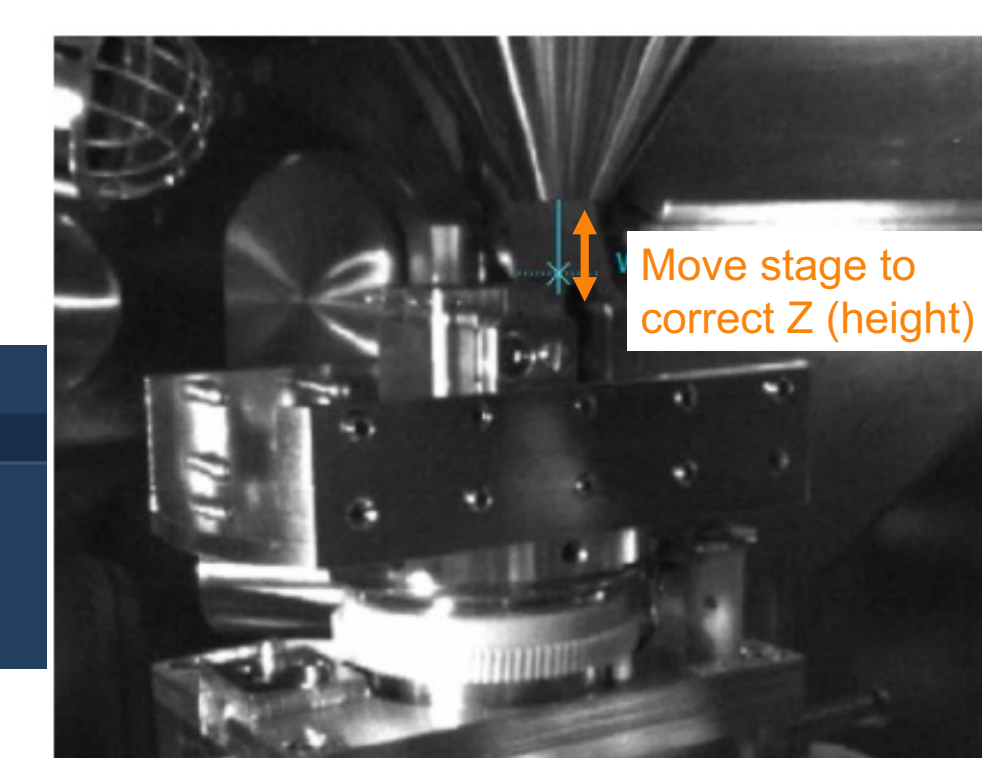
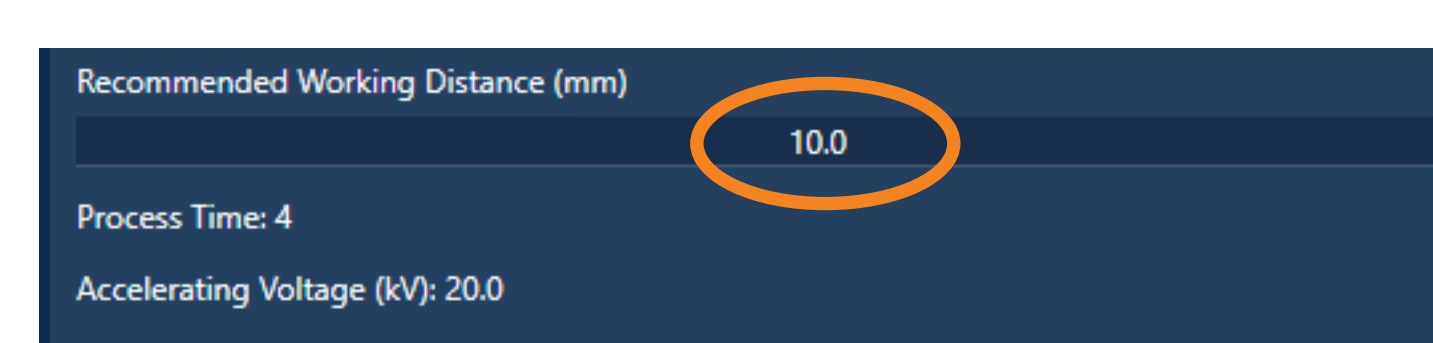
### Sample preparation and stage setup

- Align any samples/standards so that they are at the same height on the stage
- Samples should be: flat, polished, conductive (e.g. C coating)
- Load a pure metal (e.g. Cu, Co, Mn, Si) for beam measurements



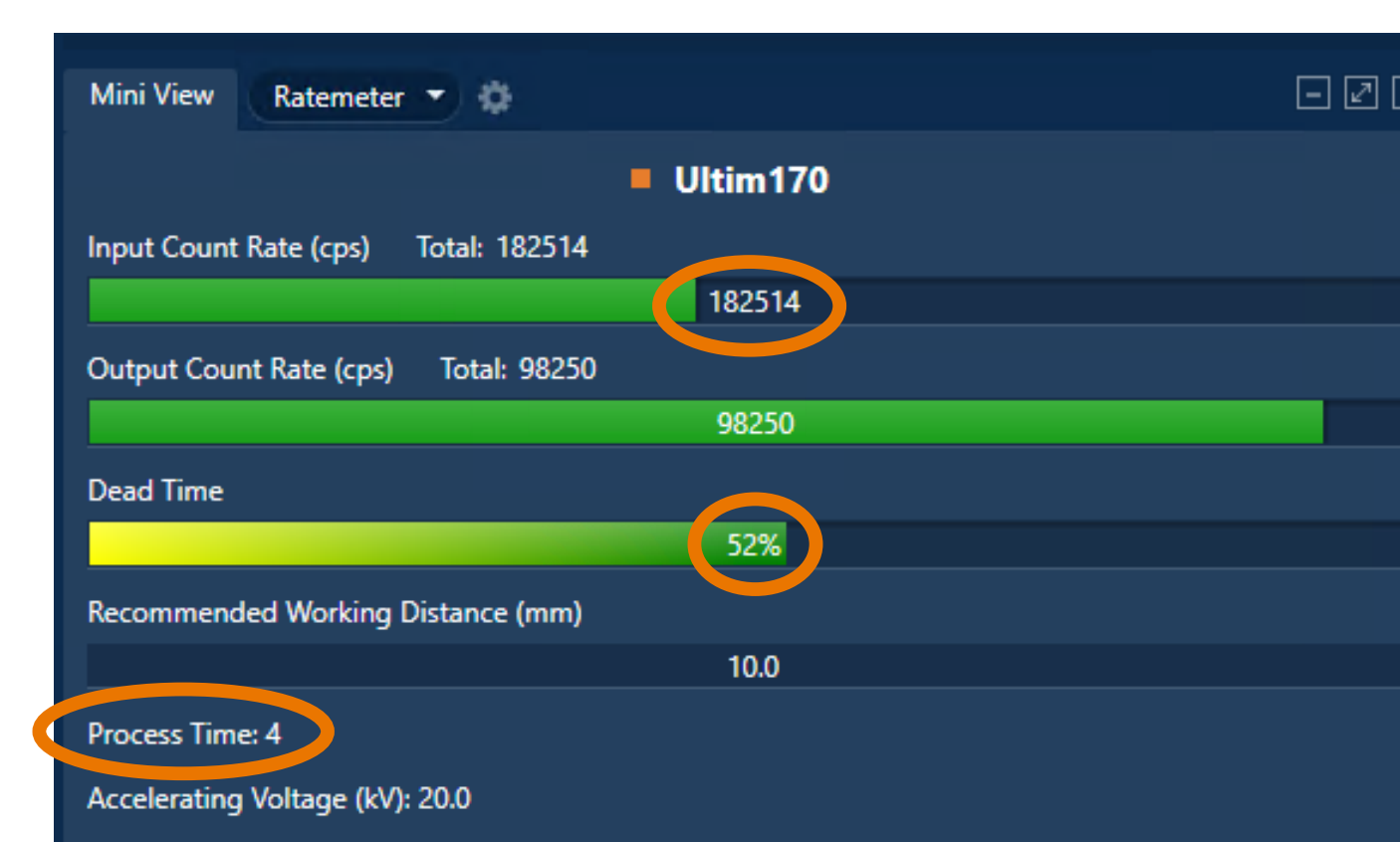
### SEM and EDS setup

- Check and set the recommended WD for your system
- Set the accelerating voltage (20 kV recommended for standardless microanalysis)
- Remove lens hysteresis
- Use the stage Z position to bring the sample into focus



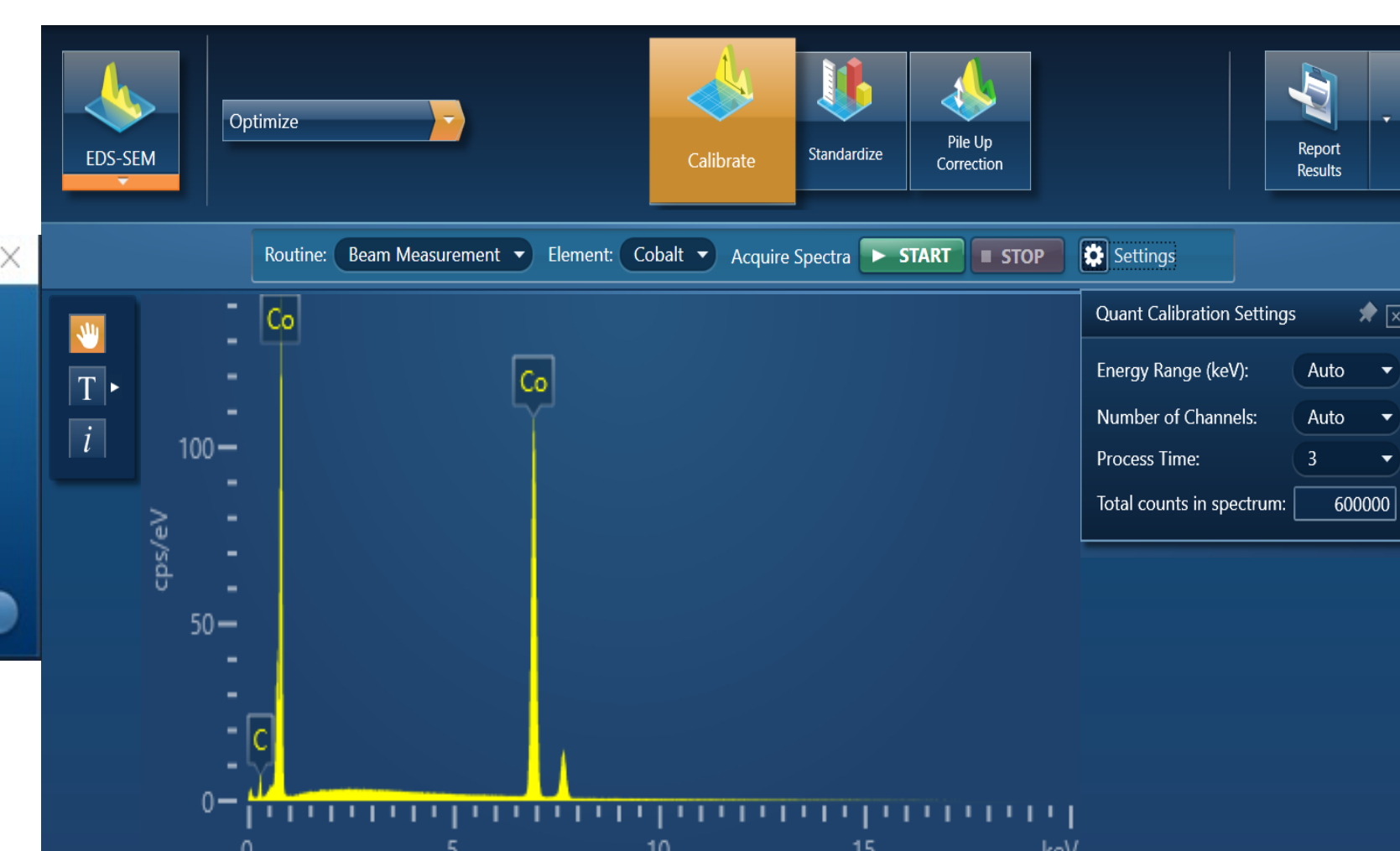
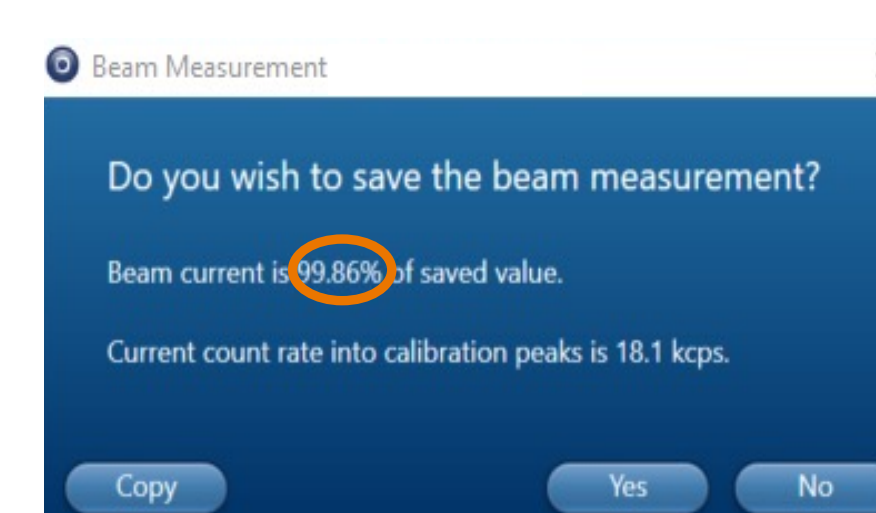
### SEM analytical conditions

- Adjust beam current to achieve:
  - » Input count rate between 50 and 200 kcps
  - » Set process time (PT) to between 3-6 and ensure dead time is ~50% or below



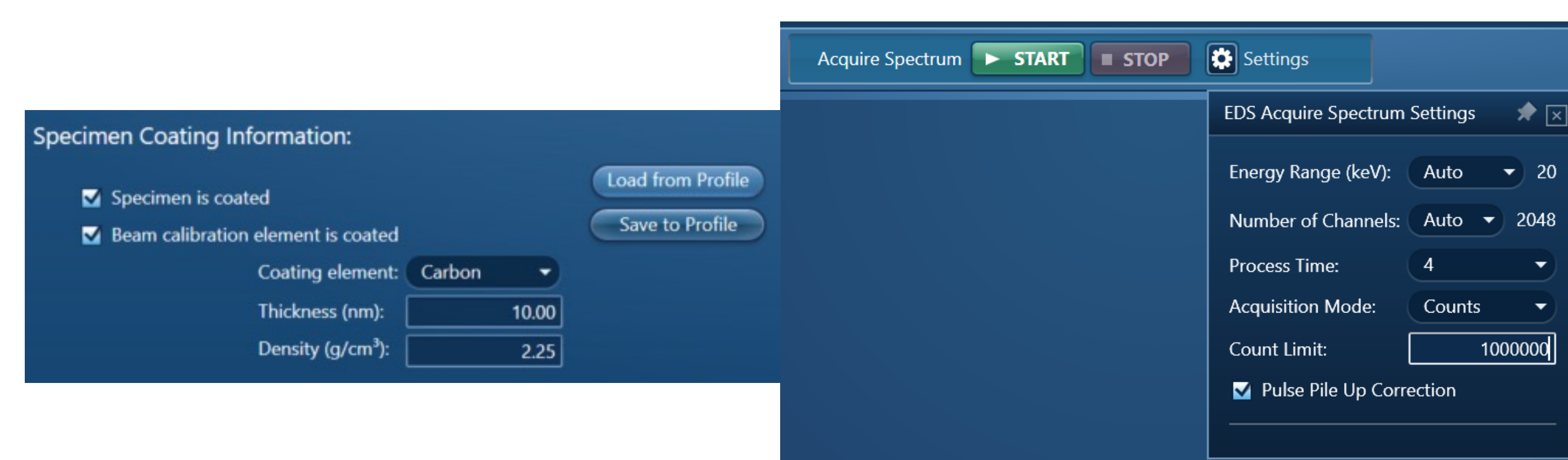
### Beam measurement - for un-normalised quant

- Perform a beam measurement on the pure metal
- Check focus (adjust stage Z)
- Set magnification to >10,000x
- Use same accelerating voltage and beam current for the beam measurement and the unknown sample
- Check beam current stability during your session



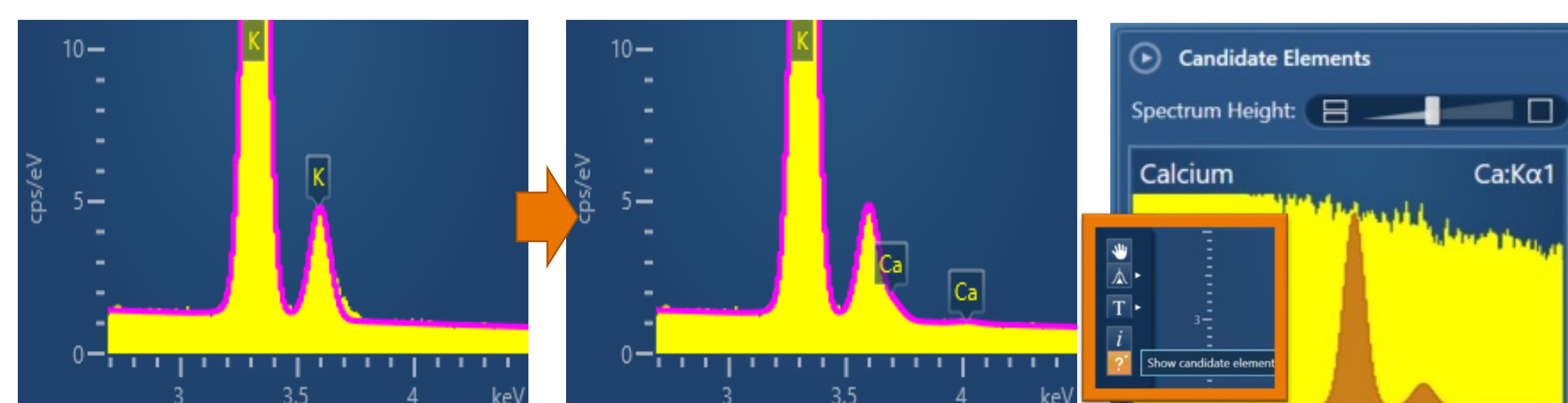
### Measuring the sample

- Enter appropriate coating information
- High magnification (e.g. >10,000x)
- EDS Acquire Spectrum settings:
  - » Set count limit to 1,000,000 counts
  - » Ensure Pulse Pile Up Correction is on



### During/post acquisition

- Verify element AutoID is correct
- This can be done using:
  - Fitted spectrum (pink)
    - » Analytical total, normally 100% ± 2% (unnormalised analysis)
    - » Load a pure metal (e.g. Cu, Co, Mn, Si) for beam measurements



### During/post acquisition

- Use 'Calculate Composition' to view and interrogate the result
- Check the quant settings
- Processing options
  - » Normalised vs. Un-normalised
  - » Select the appropriate quant standardisations database – Factory or User



Tip: 'Quant standardisations' for 10-30 kV  
'Quant standardisations (5 kV set)' for 5-10 kV