I've just attached the XRF data for the day and am getting the Raman spectra together.

The spectra were exported to Excel for plotting and the concentration data has also been collated.

Just some notes on these files:

The spectra files also have the analysis parameters for reporting (tube current, voltage, etc).

For the concentration data:

I've exported the values for each individual analysis to a sheet in the file and the students would need to copy and paste this into one table.

The elements are listed with the X-ray line that was used and its this column and the Concentration column that's useful.

The CU1 in brackets is the name of the calibration that was used.

All of the data is given to many many decimal points but they could safely quote to 2 decimal places.

For the students with high Ag values we found that the Cu calibration was still the best one. The Ag values are out of concentration range for this calibration (as far as I can see the highest value for Ag in the standards was at 3%), so the sum might be a little high. They might also notice high Sn values but this is due to the Ag-Sn overlap.

All of the students will notice that they get some negative values and for these I would recommend quoting as "below level of determination" or less than 0.01%

Finally (sorry for the long email) for the ceramics I haven't provided concentration data as that was more a search for possible pigments (and that calibration required vacuum, so the numbers look a bit off i.e. low). Seeing as he has similar matrices though, he could look at peak data/overlay spectra and make comparisons within the same element across samples/surfaces (even if not able to directly compare the amount of each element within each analysis/sample i.e. in this spectra there is more Fe than Si, etc- if that makes sense)

Hi Erin,

just sending through the EZRaman data and should be able to send the BRAVO data tomorrow, if that's okay

If they would like to open the non-Excel files as well (for the both Ramans), there are a couple of free programs they could download too:

There is OPUS Viewer for free ([https://www.bruker.com/products/infrared-near-infrared-and-raman-spectroscopy/opus-spectroscopy-software/downloads.html](https://aus01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fprotect-au.mimecast.com%2Fs%2FQv4NC6XQ4Lf880JAU6MoUT%3Fdomain%3Dbruker.com&data=04%7C01%7CEJS%40sydgram.nsw.edu.au%7C1c8f0c2b6c8445aff65908d9145d68e0%7Ccd5921786f8a416ba45e655ba3160a60%7C0%7C0%7C637563215852310884%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=uDv%2BMy6y1e90xs0ReEZELXh8Wr5RBWy2Vw%2Flnd0C%2FLE%3D&reserved=0))

and the Essential FTIR software ([https://www.essentialftir.com/filetypes.html](https://aus01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fprotect-au.mimecast.com%2Fs%2FYfiNC71R2NTooVYxFBgvGn%3Fdomain%3Dessentialftir.com&data=04%7C01%7CEJS%40sydgram.nsw.edu.au%7C1c8f0c2b6c8445aff65908d9145d68e0%7Ccd5921786f8a416ba45e655ba3160a60%7C0%7C0%7C637563215852320846%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=08tVdH%2FPJd0GwTrI6huGz9wWioWXS9sbuUM6QU0RPIQ%3D&reserved=0))

Please let us know if they have any trouble with the data

Best wishes

Sarah

we've processed the Artax data - attached. The Excel files contain the areas under the peaks of associated elements (used to map elemental distributions), as well as the analysis parameters. The files in the spectra folders contain the individual map spectra, in case the students would like to plot spectra from the maps. We also took images at each corner of the map so that the chemical maps can be matched to optical images of the coins.

To plot the maps we normally use a Matlab script - latest version attached - or the Artax program. Please let us know if you'd like us to use the Artax program, we weren't sure if the students would have access to Matlab

just sending through the Bravo Raman data. This instrument is a dual laser system, so it collects on using two lasers and then stitches together the data. We think that sometimes the stitching isn't ideal, and we can retrieve the raw/unstitched data as well. So we've also included in the folder a screen shot of the data in it's stitched and raw form and we think you can see more peaks in the raw data. Please let us know if the stitched data is difficult for the boys to interpret and we can supply the other files if you'd like too

Also, we've run all of the coins as well and should be able to send that data along either tomorrow or Friday