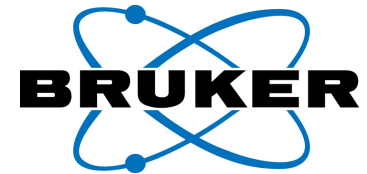


Silver Artifact Analysis



By
Bruce Kaiser

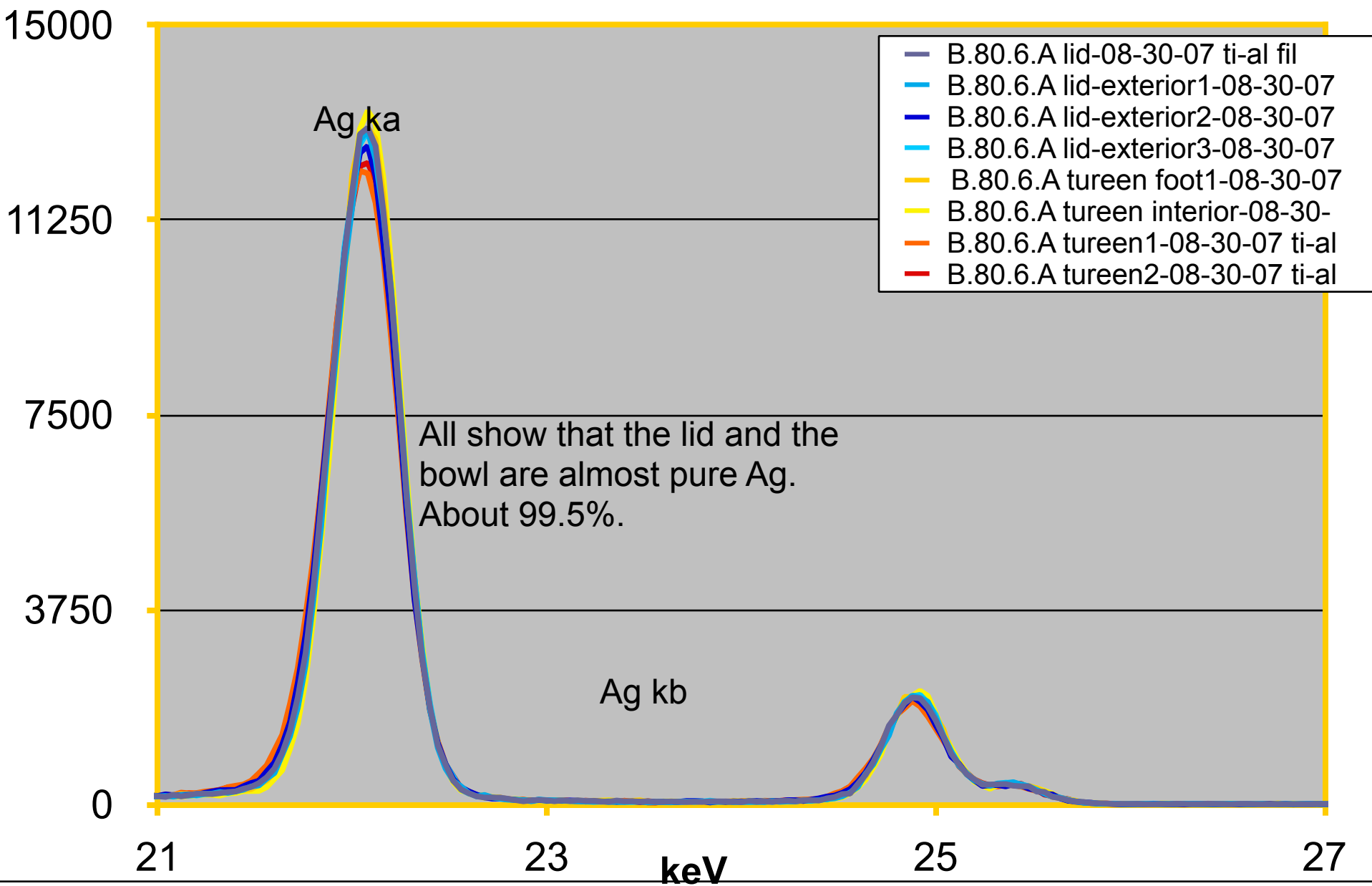
Silver Tureen Analysis

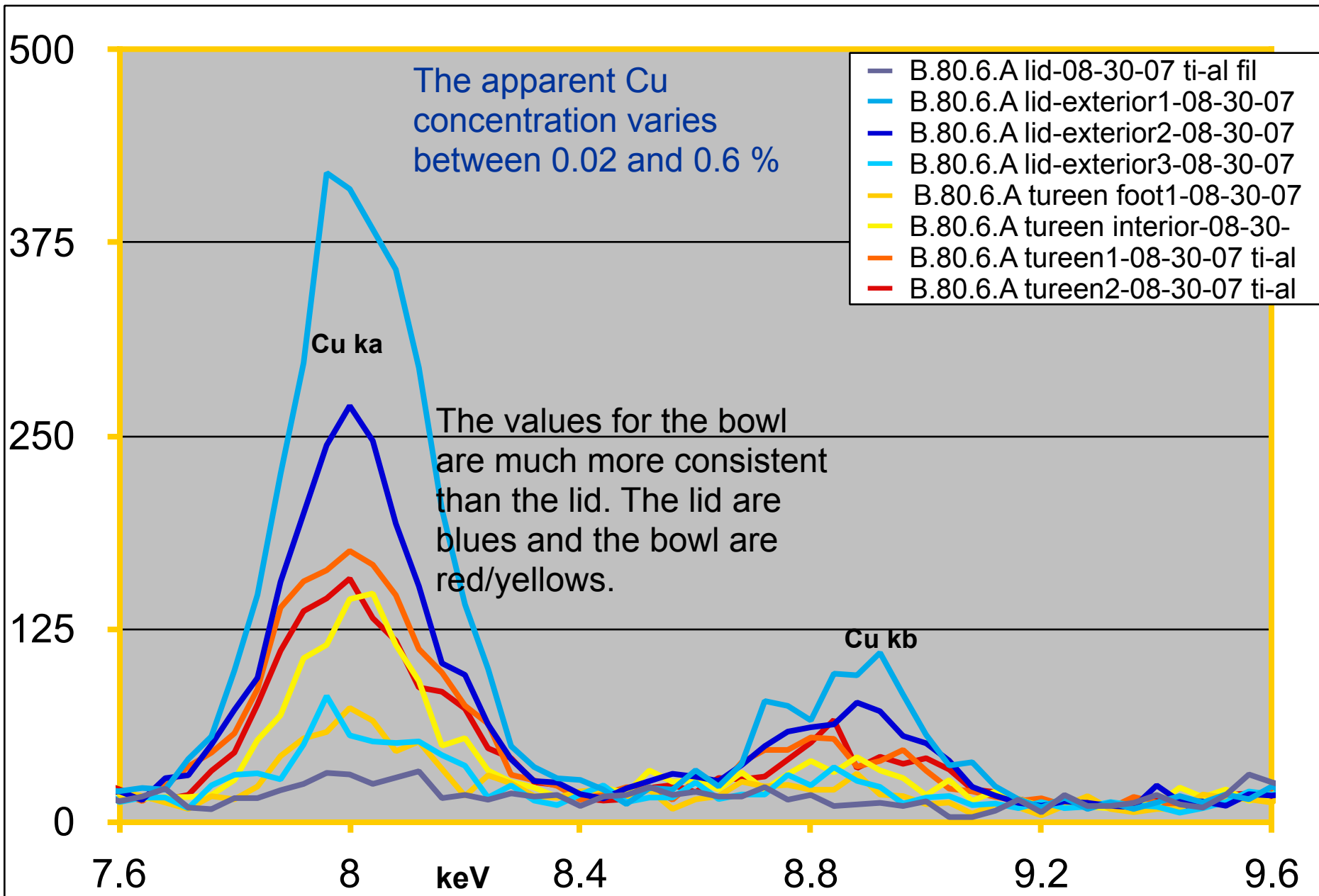
Several locations on a silver tureen and its lid at the Houston Museum of Fine Arts Museum were analyzed using 46 kV and 3 micro amps and the Ti-Al beam filter. What follows is an examination and interpretation of all the Tureen spectrum and a comparison of 2 Ag standard spectra with one of the spectrum from the tureen.

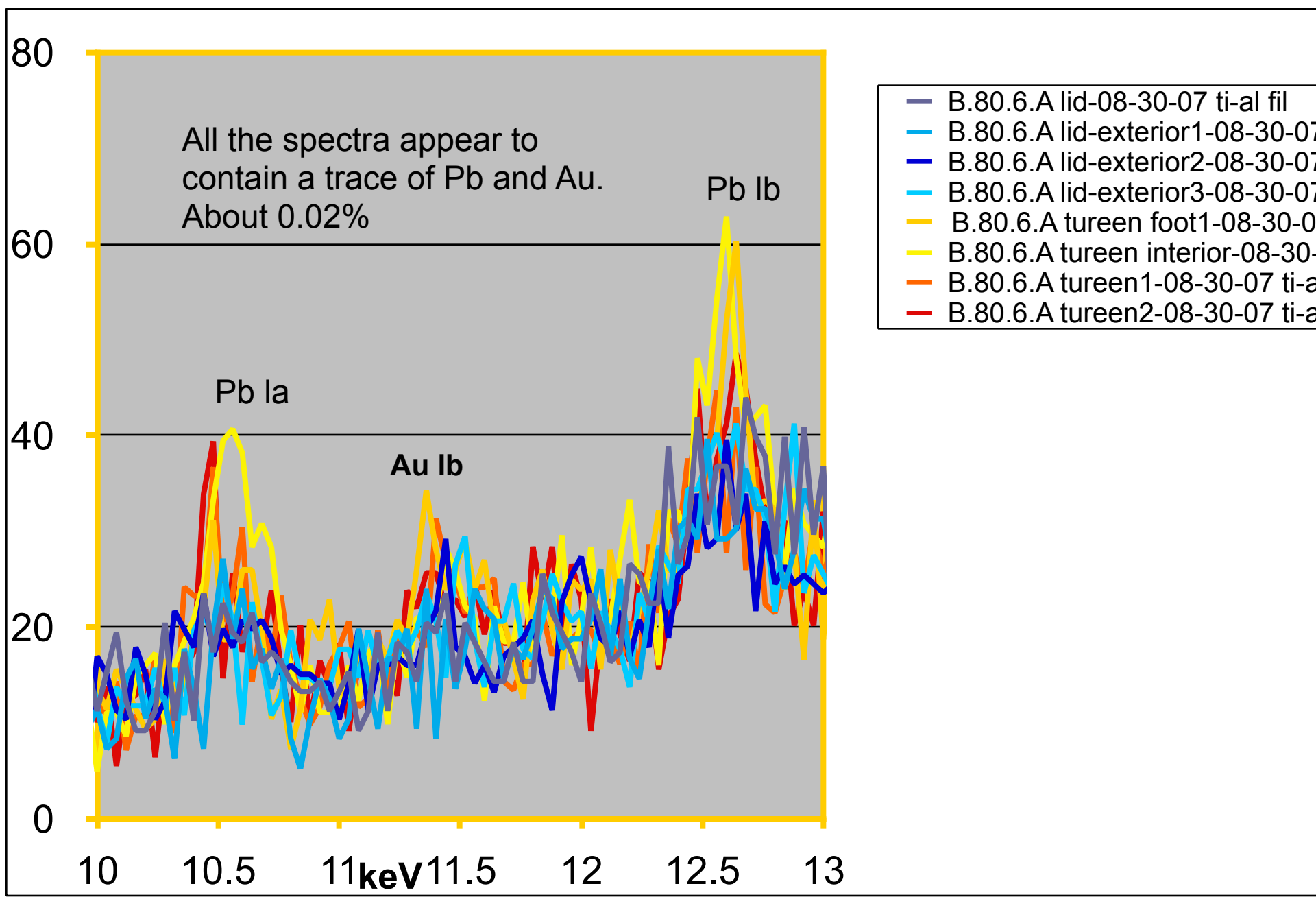
Because of the importance of the tureen analysis it is important to clearly understand the tureen spectrum in every detail.

It is always good to overlay unknown spectrum with those taken with very well characterized standards.

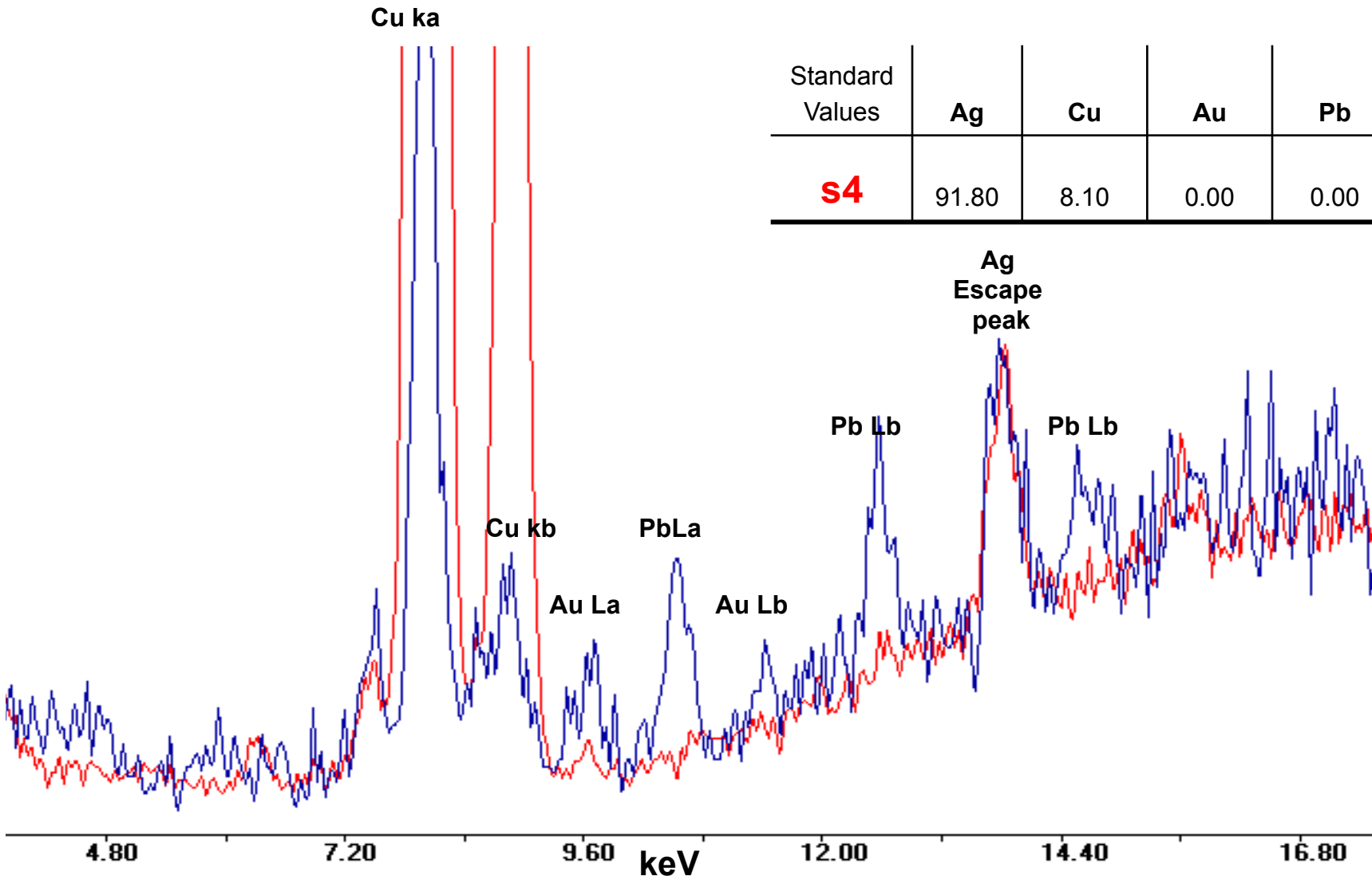
- The first 3 slides overlay particular spectral region of interest; the energy regions where the x ray peaks for Ag, Cu and Pb and Au would appear.
- The final 2 slides below over lay the spectrum from 2 different standards with one from the tureen.
- They clearly show that the tureen has a trace of Pb and Au in the spectrum.
- Since these peaks occur in all the tureen spectrum one can state with a certainty that elements are in the Ag alloy,
- or they have been uniformly applied over the entire tureen





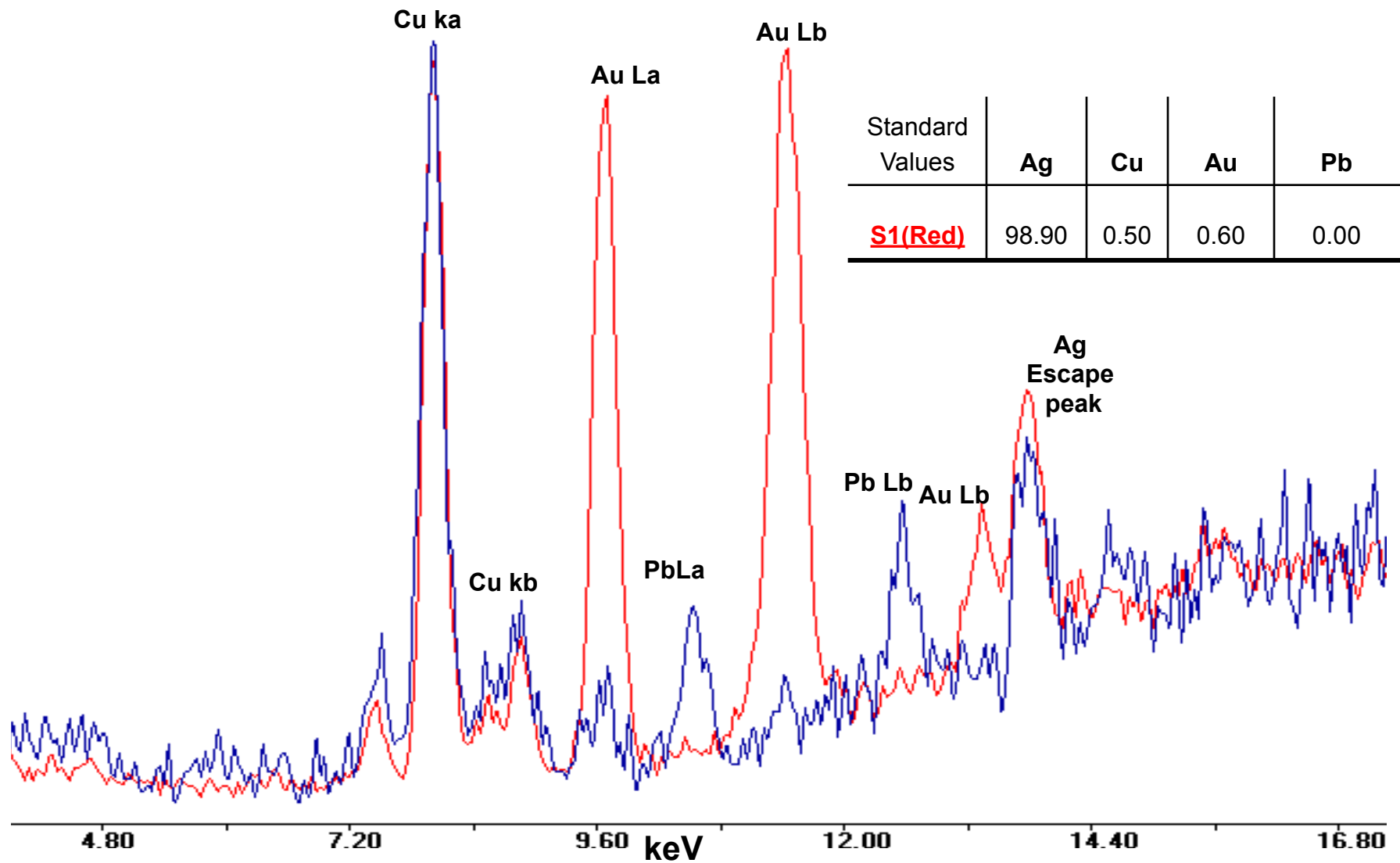


[s4/B.80.6.A tureen interior-08-30-07 ti-al filter](#)



This is an overlay of standard **s4 (red)** that contains no Au or Pb and the **tureen interior (blue)**. It is apparent that the tureen does contain traces of both Au and Pb. I would estimate both to be around 0.02 %.

[s1/B.80.6.A tureen interior-08-30-07 ti-al filter](#)



This is an overlay of a standard **s1(red)** that contains 0.60 % Au and no Pb, and the **tureen interior (blue)**. It is apparent that the tureen does contain traces of both Au and Pb. I would estimate both to be around 0.02 %. Also comparing the tureen to the standard shows that the Cu content is about 0.50 %