

## SEA NO.22 DEC.1998

### Mapping with Bench-Top Micro X-ray Fluorescence Analyzer Measuring contaminants on the surface of porcelain

#### 1. Introduction

The SEA5100 series instrument is able to accurately control the optical position and X-ray micro beam, and analyze elements at microscopic levels. It is also capable of line and surface measurements (mapping measurement) when used in analysis applications (qualitative, bulk FP, thin film FP).

#### 2. Mapping Example (Measurement of contaminants of the surface of porcelain)

The area surrounding the black spots (3×4 mm) on the surface of the porcelain was mapped to determine what elements the black spots are composed of.

Fe, Si, Ti, K, Al, Rb, Sr, and Cu were detected from measurement using all elements of the spectrum (Figure 1). The black spots were found to be composed of Fe from the intensities displayed in Figures 2 and 3. From figure 3 we can see that the elements except Fe are fairly uniform.

Together with spectrum analysis, the SEA5100 allows us to accurately determine elements by mapping images.

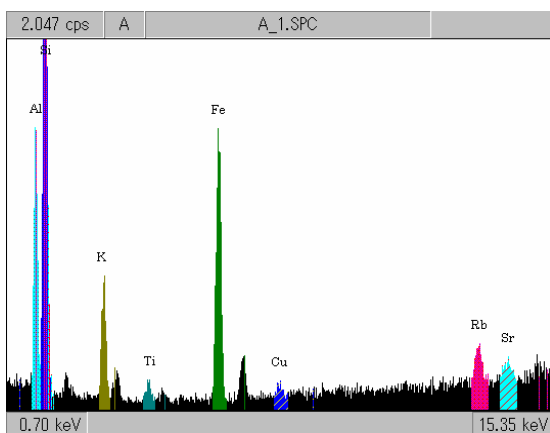


Figure 1 Spectrum of Black Spots

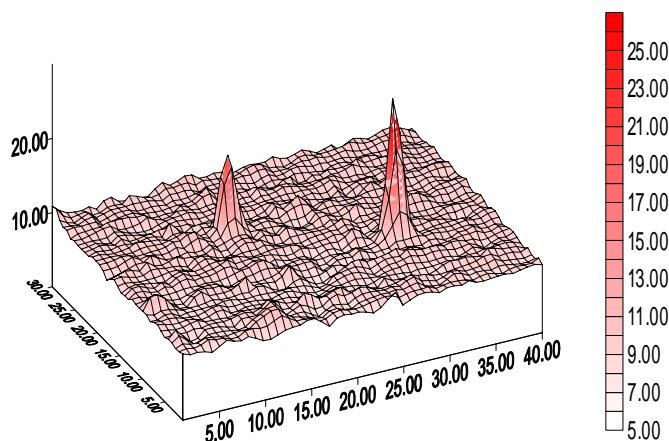
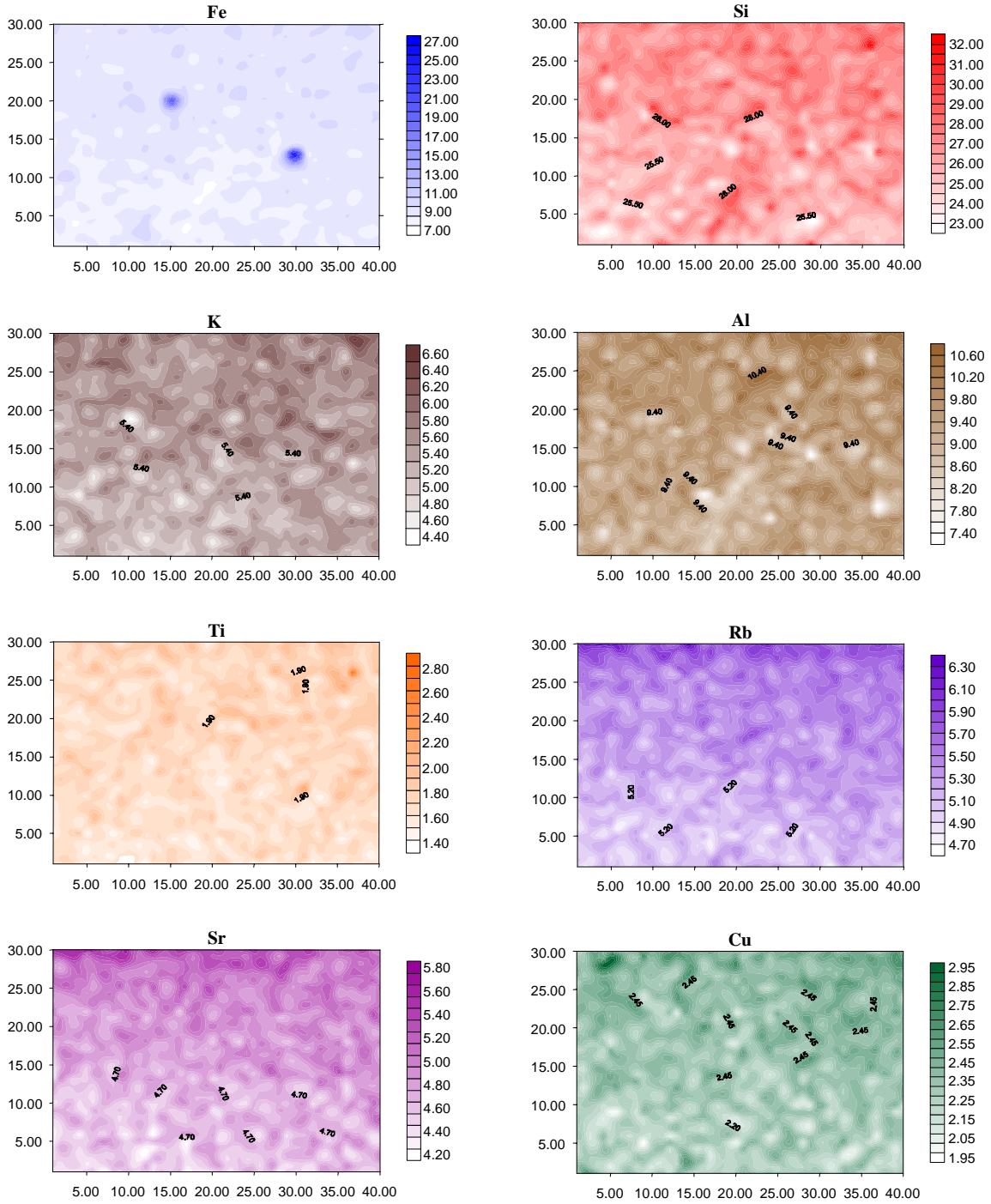


Figure 2 Birds-eye View  
Element: Fe  
Units in cps



## Mapping Area

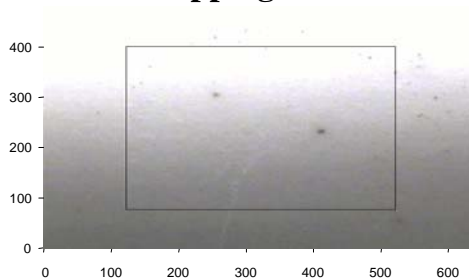


Figure 3 Contour Maps of each Element