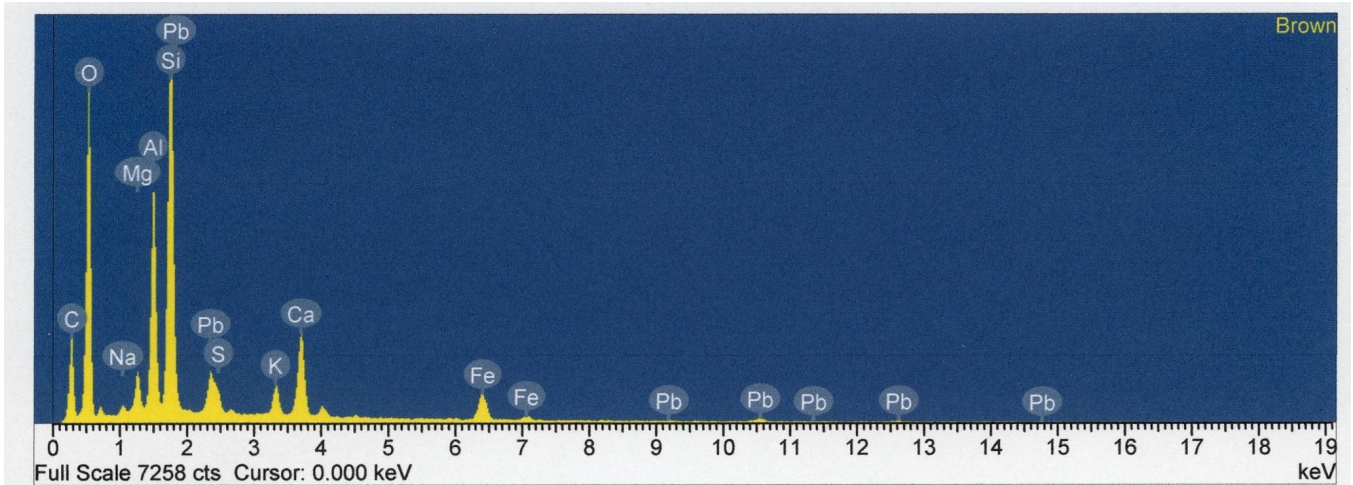


# Sample 10

## Red (from lips)

### EDS



#### *Elements detected:*

- C - Carbon
- O - Oxygen
- S - Sulfur
- Cl - Chlorine
- Ca - Calcium
- Hg - Mercury
- Pb - Lead

#### *Pigments identified:*

#### **Vermilion - HgS**

Lead white -  $2\text{PbCO}_3 \cdot \text{Pb}(\text{OH})_2$

Cochineal -  $\text{C}_{22}\text{H}_{20}\text{O}_{13}$

Careful visual observation suggests that the red in the saint's lips is a different hue from that of the drapery. EDS analysis reveals that it is indeed a different pigment: vermilion.

Spain possessed natural sources of vermilion, but by the date of this painting, it was more practical to create the pigment artificially. The vermilion used here was produced via the dry process—a technique largely outdated by 1726. In this technique, mercury and melted sulfur are combined, mashed together, and then heated. From the vapors, a crystalline form of mercury sulfide is produced, which, when ground, forms the red pigment.