

Nefertiti's Makeup

Problem

- * Was Nefertiti's makeup poison?
- * Recent chemical analysis of ancient Egyptian tombs shows that phosgenite ($\text{Pb}_2\text{Cl}_2\text{CO}_3$) was used by Egyptians as fine powders in make-up and eye lotion



Problem

- * Find the percent of lead in phosgenite.
- * Lipstick containing over 12% lead have recently been banned by the FDA. By these standards, would Nefertiti's make-up be considered toxic today?



Problem

* Find molar mass

* $\text{Pb}_2\text{Cl}_2\text{CO}_3$

* $\text{Pb} = 2 \times 207 = 414$

* $\text{Cl} = 2 \times 35 = 70$

* $\text{C} = 1 \times 12 = 12$

* $\text{O} = 3 \times 16 = 48$

* $= 544 \text{ g/mol}$

Problem

* Find percent lead

$$* = (\text{Mass of lead} / \text{mass of molecule}) \times 100$$

$$* = (414 / 544) \times 100$$

$$* = 76 \% \text{ lead}$$