Answer on Question #45386 – Chemistry – Physical Chemistry

Question:

1. The radius of a platinum atom is 139 pm. How many platinum atoms would have to be laid side by side to span a distance of 3.47 mm?

2. The mass of a single uranium atom is 4.70E-22 grams. How many uranium atoms would there be in 175 milligrams of uranium?

3. The volume of a single uranium atom is 1.37E-23 cm^3. What is the volume of a uranium atom in microliters?

Answer:

1. To find the number of many platinum atoms which would have to laid side by side to span a distance of 3.47 mm if the radius of a platinum atom is 139 pm you need:

N = 3.47 mm / 139 pm = $3.47*10^9$ pm / 139 pm = 24964028.78 ≈ **24964029**

2. To find the number of uranium atoms which would be in 175 milligrams of uranium if the mass of a single uranium atom is 4.70E-22 grams you need:

N = 175 mg / 4.70E-22 g = $175*10^{-3}$ g / $4.70*10^{-22}$ g ≈ **$3.72*10^{20}$**

3. As you know in 1 cm^3 is 1000 microliters;

So in 1.37E-23 cm^3 will be 1.37E-20 microliters.