

Joseph Specht

NPRE 247

Homework 2

1a) 238.028909992706 grams/mol

b) 238.02912542518897 grams/mol

c) These relative masses far more specific than the ones we used in class and they are each comprised of specific masses from each isotope. This tells us that the one we were using in class is rounded for convenience sake and the mass is the weighted average of all the naturally occurring isotopes.

2) The mass of a single atom of Al is either

26.9815386 amu or

4.480389893775914e-23 grams.

3) 6.026261249608649e21 atoms Al/cm²

4) 1.0011667209872535e23 atoms Li-6

5a) 2.7269251573863653e22 atoms/cc

b) 64.08477542 g/mol

c) 1.1743174481999998e21 atoms/cc

6a) 5.59321567815123e21 atoms/cc

b) 597 g U-235

c) 9607.45 g U

7) Pu239 atom density, 9.181948827890627e18 atoms/cc

Pu240 atom density, 2.8014313260605075e19 atoms/cc

Pu241 atom density, 1.6394542122155544e20 atoms/cc

Pu242 atom density, 9.399381567609576e20 atoms/cc

U235 atom density, 1.6161395287944102e20 atoms/cc

U238 atom density, 2.2271093671493894e22 atoms/cc

O atom density, 4.802247649428423e22 atoms/cc