"TRY YOURSELF" PROBLEMS FROM STUDY SECTION 2.7

Try Yourself 2.10

How many sodium atoms are included in 0.023 kg of sodium? (Given the real mass of one sodium atom is 3.819×10^{-23} g)

Try Yourself 2.11

What is the mass of one sulfur atom? (Given: Molar mass of S = 32.1 $g.mol^{-1}$)

Try Yourself 2.12

Calculate the mass, in grams, of 3.63×10^{-4} mole of Pu. Given: Pu = 244 $g.mol^{-1}$

Try Yourself 2.13

The recommended daily allowance (RDA) of iron in your diet is 15 mg. How many moles is this? How many atoms? Given: Fe = 55.9 $g.mol^{-1}$

Try Yourself 2.14

An object is coated with a layer of chromium, 0.15 cm thick. The object has a surface area of 15.3 cm^2. How many atoms of chromium are used in the coating? (Density of chromium = 7.19 $g.cm^{-3}$)
Cr = 52 g/mol

Try Yourself 2.15

Calculate the molar mass of the following compounds: HCl and $Mg_3(PO_4)_2$ and $C_{12}H_{22}O_{11}$

Try Yourself 2.16

Calculate the number of moles of NaOH in 26.00 g of NaOH and also calculate the mass, in grams, of 0.02 moles of NaOH.

Try Yourself 2.17

Sulfur trioxide, SO_3, is made industrially in enormous quantities by combining oxygen and sulfur dioxide, SO_2.

1. How many moles of SO_3 is represented by 1.00 kg of SO_3?
2. How many molecules of SO_3 are in 1.00 kg of SO_3?
3. How many sulfur atoms are in 1.00 kg of SO_3?
4. How many oxygen atoms are in 1.00 kg of SO_3?