Chemistry 141 Name key

Dr. Cary Willard

Quiz 3a (20 points) September 12, 2012

1. (7 points) A metal forms a compound with the formula MCl3. If the compounds contains 68.96 % Cl by mass, what is the identity of the metal?

In one mole of the compound there are

Titanium has a molar mass of 47.88 so the metal must be Ti.

1. (7 points) Vanadium forms four different oxides. One of the oxides is 68% vanadium, what is the empirical formula of this vanadium oxide?
2. (6 points) Write and balance the equation for the reaction described below:

Solid lead(II) sulfide reacts with aqueous hydrobromic acid to form solid lead(II) bromide and dihydrogen monosulfide gas.

PbS(s) 2 HBr(aq) 🡪 PbBr2(s) + H2S(g)

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1. (7 points) A metal forms a compound with the formula MCl3. If the compounds contains 52.57 % Cl by mass, what is the identity of the metal?

In one mole of the compound there are

Molybdenum has a molar mass of 95.94 so the metal must be Mo.

1. (7 points) Vanadium forms four different oxides. One of the oxides is 56% vanadium, what is the empirical formula of this vanadium oxide?
2. (6 points) Write and balance the equation for the reaction described below:

Aqueous hydrochloric acid reacts with solid manganese(IV) oxide to form aqueous manganese(II) chloride, liquid water, and chlorine gas.

4 HCl(aq) + MnO2(s) 🡪 MnCl2(aq) + 2 H2O(l) + Cl2(g)