Percent Composition

Chemistry Name

1 Calculate the percent composition by mass of these compounds:

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| (a) FeCl3 | (b) SiCl4 | (c) NaBr |
| (d) AgNO3 | (e) KHCO3 | (f) Al2(SO4)3 |

2 Which compound has the following characteristics? *Check your answers by calculation if you wish.*

|  |  |
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| (a) Higher percent by mass of hydrogen: N2O4or NO2 ? | (b) higher percent by mass of oxygen: H2O2 or H2O? |

|  |  |
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| 3 A 25.75-g sample of a nitrogen oxide was found to contain 6.68 g nitrogen and the rest, oxygen. Calculate the percent composition of the compound. | 4 A 35.75-g sample of an alcohol was analyzed and found to contain 18.64 g carbon, 4.70 g hydrogen, and the rest, oxygen. Calculate the percent composition of the compound. |

6 Calculate the empirical formula of each compound from the compositions given:

|  |  |
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| a)  | b)  |
| c) a 75.0-g sample of an oxide of vanadium, containing 42.0 g V and the rest, oxygen | d) a 150.0-g sample of a compound containing 57.66 g carbon, 7.26 g hydrogen, and the rest, chlorine |

7 Calculate the percent composition and determine the molecular formula and the empirical formula for the nitrogen-oxygen compound that results when 12.04 g of nitrogen are reacted with enough oxygen to produce 39.54 g of product. The molar mass of the product is 92.02 g.

8 Benzoyl peroxide, an ingredient of some topical acne products, contains 69.42% carbon, 4.16% hydrogen, and 26.42% oxygen. Its molar mass is 242 g/mol. Determine the empirical and the molecular formulas.

9 Aspirin is well known as a pain reliever (analgesic) and as a fever reducer (antipyretic). It has a molar mass of 180.2g/mol and a composition of 60.0%C, 4.48% H, and 35.5% O. Calculate the molecular formula of aspirin.