

Assignment Preview

[Close this window](#)**Course:** Chem113, Fall 2004**Dates:**

Available: Thu Jul 1 2004 10:07 PM EST

Due: Sun Sep 26 2004 10:07 PM EST

practice test 1

About this assignment

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1. ZumChem5 2.E.070. [224546] Name each of the following compounds.

(a) $\text{HC}_2\text{H}_3\text{O}_2$ (aq)(b) NH_4NO_2 (c) Co_2S_3 (d) ICl (e) $\text{Pb}_3(\text{PO}_4)_2$ (f) KIO_3 (g) H_2SO_4 (aq)(h) Sr_3N_2 (i) $\text{Al}_2(\text{SO}_3)_3$ (j) SnO_2 (k) Na_2CrO_4 (l) HClO (aq)2. ZumChem5 3.AE.108. [224556] Chloral hydrate ($\text{C}_2\text{H}_3\text{Cl}_3\text{O}_2$) is a drug formerly used as a sedative and hypnotic. It is the compound used to make "Mickey Finns" in detective stories.

(a) Calculate the molar mass of chloral hydrate.

 g/mol(b) How many moles of $\text{C}_2\text{H}_3\text{Cl}_3\text{O}_2$ molecules are in 400.0 g chloral hydrate?

4.0 ✓ mol

(c) What is the mass in grams of 2.0×10^{-2} mol chloral hydrate?

4.0 ✓ g

(d) How many chlorine atoms are in 5.0 g chloral hydrate?

4.0 ✓ atoms

(e) What mass of chloral hydrate would contain 5.0 g Cl?

4.0 ✓ g

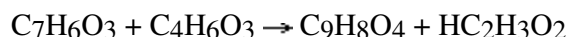
(f) What is the mass of exactly 500 molecules of chloral hydrate?

g

3. ZumChem5 3.E.026. [224572] The element rhenium (Re) has two naturally occurring isotopes, ^{185}Re and ^{187}Re , with an average atomic mass of 186.207 amu. Rhenium is 62.60% ^{187}Re , and the atomic mass of ^{187}Re is 186.956 amu. Calculate the mass of ^{185}Re .

amu

4. ZumChem5 3.E.104. [224605] A student prepared aspirin ($\text{C}_9\text{H}_8\text{O}_4$) in a laboratory experiment using the following reaction.



The student reacted 1.50 g salicylic acid ($\text{C}_7\text{H}_6\text{O}_3$) with 2.00 g acetic anhydride ($\text{C}_4\text{H}_6\text{O}_3$). The yield was 1.50 g aspirin. Calculate the theoretical yield and the percent yield for this experiment.

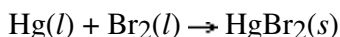
theoretical yield

4.0 ✓ g

percent yield

4.0 ✓ %

5. ZumChem5 3.AE.100. [224551] Mercury and bromine will react with each other to produce mercury(II) bromide.



(a) What mass of HgBr_2 can be produced from the reaction of 10.27 g Hg and 9.00 g Br_2 ?

4.0 ✓ g

What mass of reagent is left unreacted?

g

Which reagent is in excess?

Br_2

Hg

(b) What mass of HgBr_2 can be produced from the reaction of 5.63 mL mercury (density = 13.6 g/mL) and 5.63 mL bromine (density = 3.10 g/mL)?

4.0 ✓ g

6. ZumChem5 3.E.078. [224595] A compound contains only carbon, hydrogen, and oxygen. Combustion of 10.68 mg of the compound yields 16.01 mg CO₂ and 4.37 mg H₂O. The molar mass of the compound is 176.1 g/mol. What are the empirical and molecular formulas of the compound? (Type your answer using the format CO₂ for CO₂.)

empirical formula

molecular formula

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