

Stoichiometric Calculations Answer Key

Chemistry
Stoichiometry Worksheet #24
Learning Target: Calculate stoichiometry to calculate amounts

13. Balance the equation: $2\text{Fe} + 3\text{Cl}_2 \rightarrow 2\text{FeCl}_3$

14. Determine the mass of chlorine gas used if the student weighed out 232 g of Fe.

$$232 \text{ g Fe} \left(\frac{1 \text{ mol Fe}}{55.85 \text{ g Fe}} \right) \left(\frac{3 \text{ mol Cl}_2}{2 \text{ mol Fe}} \right) \left(\frac{70.90 \text{ g Cl}_2}{1 \text{ mol Cl}_2} \right) = 232 \text{ g Fe} \left(\frac{3 \times 70.90 \text{ g Cl}_2}{2 \times 55.85 \text{ g Fe}} \right) = 496 \text{ g Cl}_2$$

15. Determine the amount of water of hydration used in this reaction.

$$1.50 \text{ mol Ba} \left(\frac{2 \text{ mol H}_2\text{O}}{1 \text{ mol Ba}} \right) = 3.00 \text{ mol H}_2\text{O}$$

16. Determine how many grams of Fe were used in this reaction.

$$1.234 \text{ mol Fe} \left(\frac{55.85 \text{ g Fe}}{1 \text{ mol Fe}} \right) = 68.9 \text{ g Fe}$$

17. Using the following chemical reaction: $\text{PbCl}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{PbSO}_4 + 2\text{HCl}$ and knowing that 10.0 g of lead(II) chloride was used in this experiment, how many molecules of water will also be used?

$$10.0 \text{ g PbCl}_2 \left(\frac{1 \text{ mol PbCl}_2}{278.1 \text{ g PbCl}_2} \right) \left(\frac{2 \text{ mol H}_2\text{O}}{1 \text{ mol PbCl}_2} \right) \left(\frac{6.022 \times 10^{23} \text{ molecules}}{1 \text{ mol}} \right) = 4.36 \times 10^{23} \text{ molecules H}_2\text{O}$$

18. Challenge

When 10.0 grams of lead(II) chloride is dissolved in 100 mL of water, the solution is 0.1 M. How many grams of lead(II) chloride are present in the solution? (Note: you must include the hydration shell.)

$$10.0 \text{ g PbCl}_2 \left(\frac{1 \text{ mol PbCl}_2}{278.1 \text{ g PbCl}_2} \right) \left(\frac{100 \text{ mL}}{1 \text{ L}} \right) \left(\frac{1 \text{ L}}{1000 \text{ mL}} \right) \left(\frac{1 \text{ mol}}{0.1 \text{ mol}} \right) \left(\frac{278.1 \text{ g PbCl}_2}{1 \text{ mol PbCl}_2} \right) = 27.81 \text{ g PbCl}_2$$

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STOICHIOMETRIC CALCULATIONS ANSWER KEY

stoichiometric calculations answer key pdf

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Moles Lab Activities - VDOE

The heating value (or energy value or calorific value) of a substance, usually a fuel or food (see food energy), is the amount of heat released during the combustion of a specified amount of it. The calorific value is the total energy released as heat when a substance undergoes complete combustion with oxygen under standard conditions. The chemical reaction is typically a hydrocarbon or other ...

Heat of combustion - Wikipedia

YEAR 11 TERM 1: What is the Matter This unit is an introduction to the course of Chemistry. Fundamental concepts related to atoms, compounds, formulas, physical and chemical properties and the periodic table are introduced.

Senior Chemistry | GaryTurnerScience

According to the previous mechanistic studies, the reaction network for the CO₂ reduction or hydrogenation can occur via several possible routes to produce CO, CH₃OH and CH₄ as depicted in Fig. 1, , , , . The formate pathways are initiated with the formation of the *HCOO species, which undergoes a series of hydrogenation and dissociation reactions to form CH₄ and CH₃OH.

CO₂ hydrogenation on Pt, Pt/SiO₂ and Pt/TiO₂: Importance

Backdraft or Smoke Explosion. While smoke explosion and backdraft are often confused, there are fairly straightforward differences between these two extreme fire behavior phenomena.

» smoke explosion | Compartment Fire Behavior - CFBT-US

Oxygen is a chemical element with symbol O and atomic number 8. It is a member of the chalcogen group on the periodic table, a highly reactive nonmetal, and an oxidizing agent that readily forms oxides with most elements as well as with other compounds. By mass, oxygen is the third-most abundant element in the universe, after hydrogen and helium. At standard temperature and pressure, two atoms ...

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Chemistry
Stoichiometry Worksheet #24
Learning Goal: Calculate stoichiometry to calculate amounts

1. Balance the reaction: $2\text{Fe} + 3\text{Cl}_2 \rightarrow 2\text{FeCl}_3$

2. Determine the mass of chlorine gas used if the student weighed out 10.0 g of Fe.

3. Determine the amount of mass of iron also used in this reaction.

4. Determine how many grams of iron were used in this reaction.

5. Using the following chemical reaction: $\text{Fe}_2\text{O}_3 + 3\text{H}_2\text{O} \rightarrow 2\text{Fe} + 3\text{H}_2\text{O}$ and knowing that 1.0 g of hydrogen peroxide was used in this reaction, how many molecules of water will also be used?

Oxygen - Wikipedia

The $n = 1$ boundaries (elemental vertices) are always farthest from the equimolar point, the $n = 2$ boundaries (binary edges) are always the next farthest, and the $n = (N - 1)$ boundaries are always closest. As N increases, the vertices become progressively farther from the equimolar point. Thus, vertices are 67%, 75% and 80% distant from equimolar ternary, quaternary and quinary ...

A critical review of high entropy alloys and related

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Introduction to MegaSquirt - MegaSquirt(R) FAQ Main Page

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CRAN Packages By Name - UCLA

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Chemical Process Safety, 2nd Ed, Daniel a[1]. Crowl

Why Boron Motors Won't Emit. How can hot combustion in a flame be reconciled with zero emissions? Nature's answer seems to be that the flame should be that of boron burning in pure oxygen.

Boron: A Better Energy Carrier than Hydrogen? (28 February

Yet we begin to see the limitations of each system. Point defense systems, railguns, coilguns, conventional guns, or even lasers, are power limited in this exchange.