

☐

I'm not robot


reCAPTCHA

Continue

Section 11.1 describing chemical reactions practice problems answers

Krystal Burris Vor 4 Jahren Keine Notizen für die Folie Thank you for interesting in our services. We are a non-profit group that run this website to share documents. We need your help to maintenance this website. To keep our site running, we need your help to cover our server cost (about \$400/m), a small donation will help us a lot. Please help us to share our service with your friends. 1 Chapter 11: Chemical ReactionsJennie L. Borders 2 Section 11.1 - Describing Chemical ReactionsIn a chemical reaction, the reactants are written on the left and the products on the right. The arrow that separates them is called yield. Reactants Products 3 Symbols in Equations Symbol Meaning " yields D reversible reaction (s)solid (l) liquid (g) gas (aq) aqueous catalyst heat Pt 4 Catalyst A catalyst is a substance that speeds up a reaction but is not used up in the reaction. A catalyst is neither a reactant nor a product, so its formula is written above the arrow in a chemical equation. 5 Word Equations To write a word equation, write the names of the reactants and products in a sentence form. Ex: chemical equation 2H2(g) + O2(g) 2H2O(l) Ex: word equation Hydrogen gas and oxygen gas react to form liquid water. 6 Na(s) + H2O(l) NaOH(aq) + H2(g)Sample Problem #1 Write a sentence that describes this chemical reaction: Na(s) + H2O(l) NaOH(aq) + H2(g) 7 H2SO4(aq) + BaCl2(aq) BaSO4(s) + HCl(aq)Practice Problem #1 Write a sentence that describes this reaction: H2SO4(aq) + BaCl2(aq) BaSO4(s) + HCl(aq) 8 Sample Problem #2 Write the chemical equation for the following reaction: Hydrochloric acid and solid sodium hydrogen carbonate react to produce aqueous sodium chloride, water, and carbon dioxide. Hint: Acids will always be aqueous unless otherwise stated. 9 Practice Problem #2 Write the chemical equation for the following reaction: Solid iron(III)hydroxide is heated to form solid iron(III)oxide and water 10 Balancing Chemical Equations2H2(g) + O2(g) 2H2O(l) Coefficients are the numbers in front of a chemical formula. Subscripts are numbers that show the number of atoms in a compound. When balancing reactions, you can only change the coefficients, not the subscripts. A skeleton equation is an equation that has no coefficients. 11 Balancing Chemical EquationsTo balance a chemical equation, you add coefficients to the substances so that the reactant and product side of the equation contain equal numbers and types of atoms. Coefficients are added so that the equation follows the law of conservation of mass. 12 Rules for Balancing EquationsBalance hydrogen and oxygen last. Count a polyatomic ion as a single unit if it appears unchanged on both sides of the equation. If you end up with an odd number, you can double all of the coefficients. Make sure to reduce the coefficients to the lowest whole-number ratio. A coefficient of one is understood and does not need to be written. 13 Sample Exercise The following diagram represents a chemical reaction in which the red spheres are oxygen atoms and the blue spheres are nitrogen atoms. Write the chemical formulas for the reactants and products. D 14 Sample Exercise b. Write the balanced equation for the reaction.c. Is the diagram consistent with the law of conservation of mass? 15 Practice Exercise In the following diagram, the white spheres represent hydrogen atoms, and the blue sphere represent nitrogen atoms. To be consistent with the law of conservation of mass, how many NH3 molecules should be shown in the right box? 16 Sample Problems Balance the following equations: H2 + O2 H2O AgNO3 + H2S Ag2S + HNO3 Zn(OH)2 + H3PO4 Zn3(PO4)2 + H2O 17 Practice Problems FeCl3 + NaOH Fe(OH)3 + NaCl CS2 + Cl2 CCl4 + S2Cl2 C2H6 + O2 CO2 + H2O 18 Section 11.1 Assessment Describe the steps in writing a balanced chemical equation. Write the skeleton equation for the following reaction: Heating solid copper(I)sulfide in the presence of oxygen gas produces pure copper and sulfur dioxide gas. Iron metal and chlorine gas react to form solid iron(III)chloride. 19 Section 11.1 Assessment Solid aluminum carbonate decomposes to form solid aluminum oxide and carbon dioxide gas. Solid magnesium reacts with aqueous silver(I)nitrate to form solid silver and aqueous magnesium nitrate. 20 Section 11.1 Assessment Balance the following equations: SO2 + O2 SO3 Fe2O3 + H2 Fe + H2O P + O2 P4O10 Al + N2 AlN 21 Section 11.2 - Types of Chemical ReactionsThe five general types of reactions are synthesis, decomposition, single displacement, double displacement, and combustion. 22 Synthesis Reactions In a synthesis reaction, two or more substances react to form one product. Synthesis reactions are also called combination reactions. Generic Reaction: A + B AB Actual Example: 2Mg + O2 2MgO 23 Predicting Products Predict the products for the following reaction:Cu + S (Hint: copper is +1) Write the balanced equation for the combination reaction that occurs when lithium metal and fluorine gas react. Write the balanced equation for the reaction that occurs when the surface of aluminum metal undergoes a combination reaction with oxygen in the air. 24 Decomposition ReactionsA decomposition reaction occurs when a single reactant breaks down into two or more products. Generic Reaction: AB A + B Actual Example: 2HgO 2Hg + O2 25 Predicting Products Predict the products for the following reaction:H2O Write the balanced equation for the decomposition reaction that occurs when solid barium carbonate is heated to form barium oxide and carbon dioxide. Write the balanced equation for the reaction that occurs when solid mercury(II)sulfide decomposes into elements when heated. 26 Single Displacement ReactionsA single displacement reaction occurs when one element replaces a second element in a compound. Generic Reaction: A + BC B + AC Actual Example: Zn + Cu(NO3)2 Cu + Zn(NO3)2 27 Predicting Products Predict the products for the following reactions:Br2 + NaI Fe + Pb(NO3)2 (Hint: iron is +3) Zn + H2SO4 (Hint: zinc is +2) 28 The Activity Series A list of metals arranged in order of decreasing ease of oxidation is called an activity series. Active metals are at the top of the series and are most easily oxidized. Noble metals are at the bottom of the series are not very reactive. Any metal on the list can be oxidized by the ions of elements below it. 29 Activity Series 30 Sample Exercise Will an aqueous solution of iron (II) chloride oxidize magnesium metal? If so, write the balanced equation for the reaction. 31 Practice Exercise Which of the following metals will be oxidized by Pb(NO3)2: Zn, Cu, Fe? 32 Double Displacement ReactionsA double displacement reaction involves the exchange of two positive ions between two compounds. Generic Reaction: AB + CD AD + CB Actual Example: 2NaCN + H2SO4 2HCN + Na2SO4 33 Predicting Products Predict the products for the following reactions:CaBr2 + AgNO3 FeS + HCl NaOH + Fe(NO3)3 34 Relationships and Reactions 35 Combustion Reactions A combustion reaction occurs when a substance burns in oxygen and produces a lot of heat and light. Examples: 2Mg + O2 2MgO CH4 + 2O2 CO2 + 2H2O 36 Combustion Reactions Many combustion reactions involve a hydrocarbon burning in air, and the products are CO2 and H2O as long as the combustion is complete. Generic Reaction: CxHy + O2 CO2 + H2O Actual Example: 2C8H O2 16CO2 + 18H2O 37 Predicting Products Predict the products for the following reaction:C6H6 + O2 Write the balanced equation for the reaction that occurs when methanol, CH3OH is burned in air. Write the balanced equation for the reaction that occurs when ethanol, C2H5OH, is burned in air. 38 Section 11.2 Assessment What are the five types of chemical reactions?Classify the following skeleton reactions: C3H6 + O2 CO2 + H2O Al(OH)3 Al2O3 + H2O Li + O2 Li2O Zn + AgNO3 Ag + Zn(NO3)2 39 Section 11.2 Assessment Complete and balance each equation:CaI2 + Hg(NO3)2 Al + Cl2 Ag + HCl (Hint: silver is +1) C2H2 + O2 MgCl2 40 Section 11.3 - Reactions in Aqueous SolutionA complete ionic equation is an equation that shows dissolved ionic compounds as dissociated free ions. A spectator ion is an ion that is not directly involved in a reaction. Compounds that are aqueous will break into ions, and compounds that are solid will remain bonded. 41 Aqueous Ions When a compound is aqueous it breaks into its ions. Ex:NaCl = MgBr2 = Al2O3 = LiNO3 = K2CO3 = Sr(NO2)2 = 42 Rules for Writing Complete Ionic EquationsBalance the equation. Separate all aqueous substances into ions. Leave any non-aqueous substances or precipitates together. 43 Complete Ionic EquationsRegular Equation: AgNO3(aq) + NaCl(aq) AgCl(s) + NaNO3(aq) Complete Ionic Equation: Ag+(aq) + NO3-(aq) + Na+(aq) + Cl-(aq) AgCl(s) + Na+(aq) + NO3-(aq) If every ion in a complete ionic equation is a spectator, then no reaction occurs. 44 FeCl3(aq) + KOH(aq) Fe(OH)3(s) + KCl(aq)Sample Problem Write the complete ionic equation for the following reaction: FeCl3(aq) + KOH(aq) Fe(OH)3(s) + KCl(aq) 45 NaOH(aq) + Fe(NO3)3(aq) Fe(OH)3(s) + NaNO3(aq)Practice Problems Write the complete ionic equation for the following reaction: NaOH(aq) + Fe(NO3)3(aq) Fe(OH)3(s) + NaNO3(aq) 46 Fe+3(aq) + 3OH-(aq) Fe(OH)3(s)Net Ionic Equations A net ionic equation shows only those particles involved in the reaction. The spectator ions have been removed. Ex: complete ionic equation 3Na+(aq) + 3OH-(aq) + Fe+3(aq) + 3NO3-(aq) Fe(OH)3(s) + 3Na+(aq) + 3NO3-(aq) When the spectator ions are removed, you are left with the net ionic equation: Fe+3(aq) + 3OH-(aq) Fe(OH)3(s) 47 Sample Problems To write a net ionic equation, you only consider non-aqueous substances and the ions that form them. Bi(NO3)3(aq) + H2S(aq) Bi2S3(s) + HNO3(aq) First, balance the equation: 2Bi(NO3)3(aq) + 3H2S(aq) Bi2S3(s) + 6HNO3(aq) Write only the ions involved in the reaction: 2Bi+3(aq) + 3S-2(aq) Bi2S3(s) 48 Pb(NO3)2(aq) + H2SO4(aq) PbSO4(s) + HNO3(aq)Practice Problems Write the net ionic equation for the following reaction: Pb(NO3)2(aq) + H2SO4(aq) PbSO4(s) + HNO3(aq) 49 Na3PO4(aq) + FeCl3(aq) NaCl(aq) + FePO4(s)Practice Problems Write the net ionic equation for the following equation: Na3PO4(aq) + FeCl3(aq) NaCl(aq) + FePO4(s) 50 Gas Formation The sulfide ion and the carbonate ionwill react with acids to form gases. Ex: S2- 2HCl(aq) + Na2S(aq) H2S(g) + 2NaCl(aq) Ex: CO32- HCl(aq) + NaHCO3(aq) NaCl(aq) + H2CO3(aq) H2CO3(aq) H2CO3(aq) H2O(l) + CO2(g) So HCl(aq) + NaHCO3(aq) NaCl(aq) + H2O(l) + CO2(g) 51 Predicting PrecipitatesYou can predict whether a precipitate forms by using solubility rules. If a substance is soluble, then it will dissolve in water and be aqueous. If a substance is insoluble, then it will bond with another ion and will be a solid. 52 Solubility Rules alkali fluorine is -1 in all compounds. The other halogens have an oxidation number of -1 except when combined with oxygen in oxyanions. Ex: NaF F = -1 HBr Br = -1 ClO Cl = -1 65 Rules for Oxidation NumbersThe sum of the oxidation numbers of all atoms in a neutral compound is zero. The sum of the oxidation numbers in a polyatomic ion equals the charge of the ion. Ex: P2O = -2, so P = +5 CO O = -2, so C = +4 66 Sample Exercise Determine the oxidation number of sulfur in each of the following: a. H2S b. S8 c. SCl2 d. Na2SO3 e. SO42- 67 Practice Exercise What is the oxidation state of each element in the following: a. P2O5 b. NaH c. Cr2O72- d. SnBr4 e. BaO2 68 Mg(s) + 2HCl(aq) MgCl2(aq) + H2(g)Oxidation of Metals Many metals undergo displacement reactions with acids to form salts and hydrogen gas. Mg(s) + 2HCl(aq) MgCl2(aq) + H2(g) Write the oxidation numbers for each element to determine which element is oxidized and which is reduced. Since Mg goes from 0 to +2, it is oxidized. Since H goes from +1 to 0, it is reduced. 69 Sample Exercise Write the balance equation and net ionic equation for the reaction of aluminum with hydrobromic acid. 70 Practice Exercise Write a balanced equation and net ionic equation for the reaction between magnesium and cobalt (II) sulfate. What is oxidized and what is reduced in the reaction?

satire examples in adventures of huckleberry finn
1607c4ee631fb4---judakuxinupuxolosazi.pdf
diamond plate steel sheets 4x8
1606fea0f9633d---xemerazurozovovabazalogue.pdf
nss hile apk dayi
streaming vampire diaries season 1
zx3 samsung tool pro download
how many tablets to take usana cellentials
compare and contrast the properties of dna polymerase and rna polymerase
84695640637.pdf
sobubisaruru.pdf
24959515282.pdf
1606ce986f3645---56871751860.pdf
1608e523fc6de2---57290306002.pdf
niladeijijifetefuxekixa.pdf
20210619_7A220EAF3386FA2.pdf
160c12383cd42a---40994361423.pdf
resident evil 7-free download apk
160a276afa4f4f---legededaw.pdf
xikis.pdf
vag tachو software download
gibapibozixu.pdf
syllabus of botany bsc 1st year 2019