Solutions and Solubility

Read pages 283-288 and define the following terms.

Term	Definition
Solution	A mixture of a solvent and one or more solute that appears uniform throughout (homogeneous)
Solvent	A substance that has other substances dissolved in it The substance present in the largest amount (volume, mass, moles) is usually the solvent
Solute	A substance that is dissolved in solution
Homogeneous Mixture	A mixture in which the different components are mixed so that they appear to be a single substance (aka - Solution)
Heterogeneous Mixture	A mixture in which the different components can be distinctly seen (aka - Mechanical Mixture)
Variable Composition	A term used to describe a solution; capable of having different ratios of solutes to solvent
Aqueous Solution	A solution in which water is the solvent
Miscible	A term used to describe substances that are able to combine with each other in any proportion
Immiscible	A term used to describe substances that are NOT able to combine with each other in a solution
Alloys	Solid metallic solutions
Amalgam	An alloy that is made of a metal dissolved in mercury
Solubility	The amount of solute that dissolves in a given quantity of solvent at a specific temperature
Soluble	A term used to describe a substance that has a solubility greater than 1 gram per 100 mL of a particular solvent
Insoluble	A term used to describe a substance that has a solubility of less than 0.1 gram per 100 mL in a particular solvent
Sparingly/Slightly Soluble	A solution that is able to dissolve small amounts (0.1 - 1.0 gram) of solute per 100 mL in a particular solvent
Saturated Solution	A solution in which no more of a particular solute can be dissolved at a specific temperature (NO MORE solute will dissolve)
Unsaturated Solution	A solution in which more of a particular solute can be dissolved at a specific temperature (more solute will dissolve)
Supersaturated Solution	A solution that contains more than the maximum amount of solute (unstable) The solution is usually under increased temperature or pressure

Answer the following questions in the space provided

What is the difference between an endothermic process and an exothermic process?

An endothermic process is one that absorbs thermal energy or in other words, where energy needs to be put into a process.

An exothermic process is one that produces thermal energy, or where energy is given off.

How you can separate solutions and other mixtures using physical properties. Give 3 Explain two different methods.

Filtration – separate a mixture or solution based on different physical size or shape

Boiling or melting points – separate a solution of mixture based on different temperatures at which they change state.

Density – separate solutions or mixtures based on the ability to float or sink in different solutions

Magnetism – separated solutions or mixtures based on their attractive properties

A solution can be a gas, a liquid or a solid. Examples include:

	Gas	Liquid	Solid
Gas	Air	Pop	Hydrogen in Platinum
Liquid	Water in the air	Alcohol in water	Fillings
Solid	Mothballs in air	Salt in water	Brass

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Chapter 8

BLM 8-2

Solutions Match-up

Goal Demonstrate your knowledge of solutions.

What To Do Match each description in column A with the correct term in column B. Write the letter for the term on the line beside the description.

A		B
d	1. liquid in which solute dissolves	(a) exothermic
g	2. 58.44 g of table salt	(b) homogeneous
j	3. a poisonous nonpolar solvent	(c) temperature
n	4. material composed of one phase	(d) solvent
a	5. reaction that releases energy	(e) miscible
b	6. homogeneous mixture	(f) water
h	7. solution of two or more metals	(g) mole
f	8. a polar solvent	(h) alloy
m	9. factor affecting the rate of dissolving	(i) salt
c	10. factor that affects both rate of dissolving and solubility	(j) chloroform
l	11. reaction requiring energy to be added	(k) solubility
o	12. substance that dissolves in another substance	(l) endothermic
i	13. ionic solid such as lithium chloride	(m) stirring
k	14. property that is dependent on temperature	(n) solution
e	15. liquids capable of mixing in any proportion	(o) solute

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Chapter 8

BLM 8-1

Solution Scramble

Goal Demonstrate your understanding of terms associated with solubility.

What To Do Identify the term that is defined and enter it in the spaces at the right. All answers are listed, in scrambled form, at the bottom of the page.

1. A solution of gas in water river
2. Solution will not dissolve any more solute saturated
3. Mixture of substances appearing as one phase solution
4. An alloy of copper and tin used in making statues bronze
5. A method of separating solutions using differences in boiling points distillation
6. Alloy containing mercury, used in filling teeth amalgam
7. Name given to the dissolved substance solute
8. Method that will not separate solutions ELLIBATION
9. Gas found in the greatest proportion in air nitrogen
10. Solution of gases air
11. Solution of water and salts ocean
12. This affects the amount of solute that can dissolve in a solvent heat
13. Sugar does this in tea or coffee dissolves
14. A strong solution is called concentrated
15. The universal solvent water

1. VRREI	6. AAAMMLG	11. CANOE
2. AEATTDSRU	7. OLETSU	12. TEHA
3. LTNSOOIU	8. ORATTNLIIF	13. LSIDSESVO
4. ZRBOEN	9. GNNTRIOE	14. TTRADCCNNOEE
5. LLNAIIISDTTO	10. IRA	15. RAETPW