

Solubility Factors

Directions: Please fill out the following table. For each solute listed determine whether the **NATURE** of the compound is **NONPOLAR COVALENT**, **POLAR COVALENT**, or **IONIC**. Then determine if the solute will be soluble or insoluble in the solvent.

		SOLVENT			
		Water	Octane (nonpolar)	Hexane (nonpolar)	Ethanol (polar)
SOLUTE	NaCl				
	Nature:				
		Soluble	Soluble	Soluble	Soluble
		Insoluble	Insoluble	Insoluble	Insoluble
	HCl				
	Nature:				
		Soluble	Soluble	Soluble	Soluble
		Insoluble	Insoluble	Insoluble	Insoluble
	O ₂				
	Nature:				
		Soluble	Soluble	Soluble	Soluble
		Insoluble	Insoluble	Insoluble	Insoluble
	KCl				
	Nature:				
		Soluble	Soluble	Soluble	Soluble
		Insoluble	Insoluble	Insoluble	Insoluble
	CO ₂				
	Nature:				
		Soluble	Soluble	Soluble	Soluble
		Insoluble	Insoluble	Insoluble	Insoluble

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| <p>1. The attraction between water molecules and an Na^+ ion or a Cl^- ion occurs because water molecules are</p> <p>A) nonpolar B) polar
C) symmetrical D) linear</p> <p>2. In an aqueous solution of potassium chloride, the solute is</p> <p>A) K B) H_2O C) KCl D) Cl</p> <p>3. Under which conditions of temperature and pressure is a gas most soluble in water?</p> <p>A) high temperature and high pressure
B) low temperature and high pressure
C) high temperature and low pressure
D) low temperature and low pressure</p> <p>4. At room temperature, the solubility of which solute in water would be most affected by a change in pressure?</p> <p>A) sugar B) methanol
C) sodium nitrate D) carbon dioxide</p> | <p>5. As the pressure on a gas confined above a liquid increases, the solubility of the gas in the liquid</p> <p>A) decreases B) increases
C) remains the same</p> <p>6. At which temperature can water contain the most dissolved oxygen at a pressure of 1 atmosphere?</p> <p>A) 10°C B) 20°C
C) 30°C D) 40°C</p> <p>7. The solubility of a salt in a given volume of water depends primarily on the</p> <p>A) pressure on the surface of the water
B) rate at which the salt and water are stirred
C) surface area of the salt crystals
D) temperature of the water</p> |
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