

Name : _____ Date : _____

Solubility Rules Worksheet

1. Classify each substance as being soluble or insoluble in water.

- | | |
|--------------------------------|---------------------------------|
| a. Potassium bromide – _____ | f. Silver iodide - _____ |
| b. Lead (II) carbonate – _____ | g. Cadmium (II) sulfide - _____ |
| c. Barium sulfate – _____ | h. Zinc carbonate - _____ |
| d. Zinc hydroxide – _____ | i. Silver acetate - _____ |
| e. Sodium acetate – _____ | j. Copper (II) sulfide – _____ |

2. Identify the two new compounds which form if the solutions were mixed. Circle any compounds that would precipitate from the solution (are insoluble).

| | KBr | Na ₂ CO ₃ | CaS | NH ₄ OH |
|-----------------------------------|-----|---------------------------------|-----|--------------------|
| AgNO ₃ | | | | |
| BaCl ₂ | | | | |
| Al(NO ₃) ₃ | | | | |
| CuSO ₄ | | | | |

3. Name or give the chemical formula for each of the following compounds and state whether they are soluble (will dissolve) or insoluble (will not dissolve) in solution.

| Chemical Formu | Name | Solubility |
|--|------------------|------------|
| NH ₄ C ₂ H ₃ O ₂ | | |
| | Barium hydroxide | |
| FeCO ₃ | | |
| NaOH | | |
| | Rubidium nitrate | |
| MgSO ₄ | | |
| | Zinc chloride | |
| | Zinc hydroxide | |

Solubility Rules Worksheet

Answers

1. Classify each substance as being soluble or insoluble in water.

- | | |
|---|--|
| a. Potassium bromide – <u>Soluble</u> | f. Silver iodide - <u>Insoluble</u> |
| b. Lead (II) carbonate – <u>Insoluble</u> | g. Cadmium (II) sulfide - <u>Insoluble</u> |
| c. Barium sulfate – <u>Insoluble</u> | h. Zinc carbonate - <u>Insoluble</u> |
| d. Zinc hydroxide – <u>Insoluble</u> | i. Silver acetate - <u>Soluble</u> |
| e. Sodium acetate – <u>Soluble</u> | j. Copper (II) sulfide – <u>Insoluble</u> |

2. Identify the two new compounds which form if the solutions were mixed. Circle any compounds that would precipitate from the solution (are insoluble).

| | KBr | Na ₂ CO ₃ | CaS | NH ₄ OH |
|-----------------------------------|--|--|--|---|
| AgNO ₃ | <u>AgBr</u> + KNO ₃ | <u>Ag₂CO₃</u> + NaNO ₃ | <u>AgS</u> + CaNO ₃ | <u>AgOH</u> + NH ₄ NO ₃ |
| BaCl ₂ | BaBr ₂ + KCl | <u>BaCO₃</u> + NaCl | BaS + CaCl ₂ | Ba(OH) ₂ + NH ₄ Cl |
| Al(NO ₃) ₃ | AlBr ₃ + KNO ₃ | <u>Al₂(CO₃)₃</u> + NaNO ₃ | <u>AlS</u> + Ca(NO ₃) ₂ | <u>Al(OH)₃</u> + NH ₄ NO ₃ |
| CuSO ₄ | CuBr ₂ + K ₂ SO ₄ | <u>CuCO₃</u> + Na ₂ SO ₄ | CuS + <u>CaSO₄</u> | <u>Cu(OH)₂</u> + NH ₄ (SO ₄) |

3. Name or give the chemical formula for each of the following compounds and state whether they are soluble (will dissolve) or insoluble (will not dissolve) in solution.

| Chemical Formu | Name | Solubility |
|--|---------------------|------------|
| NH ₄ C ₂ H ₃ O ₂ | Ammonium acetate | Soluble |
| Ba(OH) ₂ | Barium hydroxide | Soluble |
| FeCO ₃ | Iron (II) carbonate | Insoluble |
| NaOH | Sodium hydroxide | Soluble |
| RbNO ₃ | Rubidium nitrate | Soluble |
| MgSO ₄ | Magnesium sulfate | Soluble |
| ZnCl ₂ | Zinc chloride | Soluble |
| Zn(OH) ₂ | Zinc hydroxide | Insoluble |