

AR CHEMISTRY: Electrolytes (ionic compounds) and Nonelectrolytes (Molecular Compounds)

Show the Ions or Molecular Compounds which will be dissolved in water.

1.  $\text{H}_2\text{SO}_4$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
2.  $\text{NaOH}$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
3.  $\text{NaBr}$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
4.  $\text{Ba}(\text{OH})_2$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
5.  $\text{C}_6\text{H}_{12}\text{O}_6$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
6.  $\text{Li}_2\text{SO}_4$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
7.  $\text{FeSO}_4$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
8.  $\text{AgCl}$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
9.  $\text{Cu}(\text{OH})_2$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
10.  $(\text{NH}_4)_2\text{S}$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
11.  $\text{NiBr}_2$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
12.  $\text{CO}_2$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
13.  $\text{CaSO}_4$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
14.  $\text{FeCl}_3$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
15.  $\text{Mg}_3(\text{PO}_4)_2$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
16.  $\text{LiHCO}_3$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
17.  $\text{CH}_3\text{OH}$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
18.  $\text{HC}_2\text{H}_3\text{O}_2$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
19.  $\text{Cu}(\text{NO}_3)_2$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
20.  $\text{Na}_3\text{PO}_4$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
21.  $\text{K}_2\text{CO}_3$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
22.  $\text{C}_2\text{H}_5\text{OH}$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
23.  $\text{NH}_4\text{OH}$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
24.  $\text{Fe}(\text{OH})_2$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_
25.  $\text{AlBr}_3$  ----- $\text{H}_2\text{O}$ -----> \_\_\_\_\_

**Answers:**

- |   |  |   |   |  |
|---|--|---|---|--|
| 1) $2 \text{H}^{+1} + \text{SO}_4^{-2}$ | 6) $2 \text{Li}^{+1} + \text{SO}_4^{-2}$ | 11) $\text{Ni}^{+2} + 2 \text{Br}^{-1}$     | 16) $\text{Li}^{+1} + \text{HCO}_3^{+1}$                  | 21) $2 \text{K}^{+1} + \text{CO}_3^{-2}$ |
| 2) $\text{Na}^{+1} + \text{OH}^{-1}$    | 7) $\text{Fe}^{+2} + \text{SO}_4^{-2}$   | 12) $\text{CO}_2$                           | 17) $\text{CH}_3\text{OH}$                                | 22) $\text{C}_2\text{H}_5\text{OH}$      |
| 3) $\text{Na}^{+1} + \text{Br}^{-1}$    | 8) $\text{Ag}^{+1} + \text{Cl}^{-1}$     | 13) $\text{Ca}^{+2} + \text{SO}_4^{-2}$     | 18) $\text{H}^{+1} + \text{C}_2\text{H}_3\text{O}_2^{-1}$ | 23) $\text{NH}_4^{+1} + \text{OH}^{-1}$  |
| 4) $\text{Ba}^{+2} + 2 \text{OH}^{-1}$  | 9) $\text{Cu}^{+2} + 2 \text{OH}^{-1}$   | 14) $\text{Fe}^{+3} + 3 \text{Cl}^{-1}$     | 19) $\text{Cu}^{+2} + 2 \text{NO}_3^{-1}$                 | 24) $\text{Fe}^{+2} + 2 \text{OH}^{-1}$  |
| 5) $\text{C}_6\text{H}_{12}\text{O}_6$  | 10) $2 \text{NH}_4^{+1} + \text{S}^{-2}$ | 15) $3 \text{Mg}^{+2} + 2 \text{PO}_4^{-3}$ | 20) $3 \text{Na}^{+1} + \text{PO}_4^{-3}$                 | 25) $\text{Al}^{+3} + 3 \text{Br}^{-1}$  |

**AR Chemistry: Electrolytes and Nonelectrolytes**

**Electrolytes:** Dissolve in water as ions (charged particles)

**Nonelectrolytes:** Dissolve in water as whole, neutral particles.

### How can you tell from the formula?

\*\*\*\*\* The “Naming Break” is the “Break Apart Break”

1. Draw a line after the first element or  $\text{NH}_4$
2. If the first element is a metal (to the left and below the staircase), it breaks apart. (Look at your periodic table – it identifies the metals and nonmetals)
3. If the first “element” is  $\text{NH}_4$ , then it breaks apart.
4. If the first element is H, then it breaks apart.
5. If the first element is not: a metal,  $\text{NH}_4$ , or H, it doesn’t break apart!!!!

Try some:	<b>Breaks apart in water?</b>	$\text{NH}_4 \text{Cl}$	yes
		$\text{H} \text{NO}_3$	yes
		$\text{Ca} \text{Cl}_2$	yes
		$\text{C} \text{H}_4$	no
		$\text{N}_2 \text{H}_4$	no
		$\text{Na} \text{Cl}$	yes
		$\text{Ba} \text{SO}_4$	yes
		$\text{C} \text{O}_2$	no
		$\text{Na}_2 \text{CO}_3$	yes

**Now What???** If the chemical breaks into ions in water (see above), just:

1. determine the charges for each ion, and
2. shoot the subscripts up

