Naming Acids

Chem Worksheet 19-0

Name _____

Acids are compounds that can donate the hydrogen ion, H^+. When the formula for an acid is written the symbol for this hydrogen generally appears at the beginning of the formula. For example the formula for hydrochloric acid is written HCl and the formula for phosphoric acid is H_3PO_4. Notice that both formulas begin with the letter H. In both cases the acid is made of a hydrogen ion (or hydrogen ions) and a negative ion, known as the **anion**.

The name for an acid is based on the name of the anion. If the anion ends with the letters –ide, the acid is named one way while acids containing anions that end with –ate use a different rule. Remember that monatomic anions typically end with –ide. The rules for naming acids are summarized below.

Naming Acids

Anion called (root) ide
Example: sulfide, S^{2-}

↓

Acid called hydro (root) ic acid
Example: hydrosulfuric acid, H_2S

Anion called (root) ate
Example: chlorate , ClO_3^-

↓

Acid called (root) ic acid
Example: chloric acid, $HClO_3$

Anion called (root) ite
Example: chlorite , ClO_2^-

↓

Acid called (root) ous acid
Example: chlorous acid, $HClO_2$

Examples

#1. Write the chemical formula for: sulfurous acid.

- this acid contains the hydrogen ion and the sulfite ion: H^+ SO_3^{2-}
- create a neutral compound from these ions: H^{1+} ~~SO_3^{2-}~~ H_2SO_3

#2. Name the following acid: H_2CO_3.

- this acid contains the hydrogen ion and the carbonate ion: H^+ CO_3^{2-}
- the name of the negative ion is **carbonate**, therefore the acid is called **carbonic acid.**

Fill in the following table with the missing information.

	Formula	Cation	Formula for anion	Name of anion	Name of Acid
1.	HCl	H^+	Cl^-	chloride	
2.	HNO_3	H^+		nitrate	
3.		H^+	F^-		hydrofluoric acid
4.	H_2SO_4	H^+	SO_4^{2-}		
5.		H^+		carbonate	
6.	H_2SO_3			sulfite	
7.			ClO_3^-		chloric acid
8.		H^+		phosphate	
9.	$H_2C_2O_4$			oxalate	
10.					hydrocyanic acid
11.					acetic acid
12.			I^-		
13.				sulfide	
14.	HClO				
15.			AsO_4^{3-}	arsenate	
16.					nitrous acid

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