Name: _____ Hour: _____ Page:_____

Acids Nomenclature

Worksheet # 1- Naming Binary Acids

You will now learn to name and write formulas for acids. The first type of acid we will name is a binary acid. Recall that binary compounds contain two different elements. The cation in all acids is the hydrogen ion or H^{+1}.

All binary acids are named using the following rule: hydro_____ ic acid. The name of the element goes in the blank. For example:

HCl would be hydrochloric acid

H_2S would be hydrosulfuric acid

Name the following acids.

Formula	Name	Formula	Name
HBr		H_2Se	
HI		HF	
H_3P		H_2Te	

When you write the formulas for acids you use the same method you used when writing the formula for compounds containing metals.

- First you write each symbol with the charge. (Remember that the cation will always be H^{+1})
- Next you switch the charges and make them subscripts. (Swap and Drop)

For example: hydroiodic acid → H^{+1} and I^{-1} becomes HI

hydrophosphoric acid→ H^{+1} and P^{-3} becomes H_3P

Name	Symbol w/ Oxidation Number	Formula
hydrosulfuric acid		
hydrochloric acid		
hydroarsenic acid		
hydrofluoric acid		
hydroiodic acid		
hydrotelluric acid		

Name: _____ Hour: _____ Page:_____

Worksheet #2: Naming Polyatomic Acids

Now you will learn to name acids that contain polyatomic ions. Here you do NOT use the hydro.

Name the polyatomic ion (look at your chart if you need to)

Change the ending of the polyatomic ion to "-ic" or "–ous".

If the ending of a polyatomic ion is "-ate" you will use the ending "-ic".

If the ending of a polyatomic ion is "-ite" you will use the ending "-ous".

An easy way to remember how to change the endings is: "ate-ic…ite-ous".

For example: $HClO_3$ = Because the acid contains the chlorate ion, it is called chloric acid

$HClO_2$ = Because the acid contains the chlorite ion, it is called chlorous acid

H_2SO_3 = Because the acid contains the sulfite ion, it is called sulfurous acid

H_2SO_4 = Because the acid contains the sulfate ion, it is called sulfuric acid

Name the following acids.

Formula	Name	Formula	Name
H_2SO_3		H_2CrO_4	
HNO_3		HIO_3	
H_3PO_3		H_3AsO_4	

Use the same rules as above as you write the formulas for the following acids, which contain polyatomic ions.

Remember these acids do NOT use the prefix of "hydro".

Also remember that if the acid has an "-ic" ending then the "ate" ion is used in the formula.

If the acid has an "-ous" ending then the "ite" ion is used in the formula.

Name	Symbol w/ Oxidation Number	Formula	Name	Symbol w/ Oxidation Number	Formula
sulfurous acid			nitrous acid		
silicic acid			chloric acid		
acetic acid			permanganic acid		
boric acid			phosphorous acid		

Name: _____ Hour: _____ Page:_____

Worksheet # 3- Naming Binary AND Polyatomic Acids

Write the correct formula or name for each of the following acids:

Name	Symbol w/ Oxidation Number	Formula
hydrochloric acid		
sulfuric acid		
nitric acid		
phosphoric acid		
carbonic acid		
acetic acid		
silicic acid		
arsenic acid		
permanganic acid		
boric acid		
oxalic acid		
chloric acid		
hydrofluoric acid		
hydrosulfuric acid		
hydrobromic acid		
hydroiodic acid		
nitrous acid		
phosphorous acid		
sulfurous acid		
chlorous acid		
hypochlorous acid		
perchloric acid		

OVER FOR MORE NAMING →

Name: _____ Hour: _____ Page:_____

Formula	Name
$H_2C_2O_4$	
$HBrO_3$	
HBr	
HNO_2	
H_2SO_4	
HI	
H_2CO_3	
H_3PO_3	
$HClO_4$	
$HClO_3$	
$HClO_2$	
HClO	
HCl	
H_3BO_3	
$HC_2H_3O_2$	
H_2CrO_4	
H_3PO_4	
HF	
H_2SiO_3	
H_2Se	
H_3AsO_4	

Name: _____ Hour: _____ Page:_____

Worksheet # 4-Review Naming Binary AND Polyatomic Acids

Name the following acids. They are a mixture of binary and those containing polyatomic ions.

Formula	Name	Formula	Name
HClO		$HC_2H_3O_2$	
HI		HBr	
H_2S		HNO_2	
H_3PO_4		$H_2C_2O_4$	

Write the formulas for the following acids.

Name	Symbol w/ Oxidation Number	Formula	Name	Symbol w/ Oxidation Number	Formula
carbonic acid			hydrotelluric acid		
phosphoric acid			sulfuric acid		
hydrophosphoric acid			bromic acid		
nitric acid			hydrochloric acid		

Name the following compounds. This contains a mixture of all of the types of compounds we have done so far.

Formula	Name	Formula	Name
HClO		$K_2C_2O_4$	
$NaNO_2$		PCl_3	
$FeBr_3$		Pb_3P_2	
N_2O		H_3P	
$NaHCO_3$		BeO	
$H_2C_2O_4$		Cs_2S	

Write the formulas for the following compounds. This contains a mixture of all of the types of compounds we have done so far.

Name	Symbol w/ Ox. #	Formula	Name	Symbol w/ Ox #	Formula
potassium nitrate			ammonium chloride		
sodium thiosulfate			zinc sulfide		
hydrobromic acid			dihydrogen monoxide		
barium sulfate			sulfurous acid		
chromic acid			sulfur trioxide		
copper (II) silicate			hydrophosphoric acid		
silver arsenate			silicic acid		

Name: _____ Hour: _____ Page:_____

Worksheet # 5- Final Review of Naming Binary AND Polyatomic Acids

Name	Symbol w/ Ox. #	Formula	Formula	Name
silver nitrate			$Fe(IO_3)_3$	
potassium dichromate			$RaBr_2$	
barium sulfate			HNO_2	
lithium oxalate			HgO	
sulfuric acid			$CuCO_3$	
zinc acetate			$HClO_4$	
rubidium iodide			HF	
ammonium chlorate			$Bi(NO_2)_5$	
acetic acid			$NaClO$	
beryllium hydroxide			H_3BO_3	
sulfur trioxide			H_2SO_3	
iron (II) oxide			N_2O_4	
oxalic acid			$FeCl_3$	
dinitrogen monoxide			H_2SiO_3	
calcium phosphate			PbO_2	
carbonic acid			CO_2	
boron triiodide			$HClO_3$	
hydrochloric acid			$NaHCO_3$	
nickel thiosulfate			HI	
iodic acid			SnF_2	
hydroiodic acid			P_4O_{10}	
sulfur hexafluoride			$SnCrO_4$	
cesium sulfide			$CaSiO_3$	
antimony (V) arsenate			$LiOH$	

Name: _____ Hour: _____ Page:_____