

## Assignment 8 Predicting and Naming Polyatomic Ionic Compounds WS KEY

### Predicting and Naming Polyatomic Ionic Compounds Worksheet

Name Key

You are required to know numbers of atoms and charge on the following polyatomic ions:

Name of the ion	Chemical structure	Name of the ion	Chemical structure
Phosphate ion	$\text{PO}_4^{3-}$	Sulfate ion	$\text{SO}_4^{2-}$
Hydrogen phosphate ion	$\text{HPO}_4^{2-}$	Hydrogen sulfate ion	$\text{HSO}_4^-$
Dihydrogen phosphate ion	$\text{H}_2\text{PO}_4^-$	Nitrate ion	$\text{NO}_3^-$
Carbonate ion	$\text{CO}_3^{2-}$	Acetate ion	$\text{C}_2\text{H}_3\text{O}_2^-$
Hydrogen carbonate ion	$\text{HCO}_3^-$	Hydroxide ion	$\text{OH}^-$
		Ammonium ion	$\text{NH}_4^+$

Given the following **polyatomic** ionic compounds, fill in the formula of the compound from its name.

Name of Compound	Element or Polyatomic Cation	Element or Polyatomic Anion	Compound Formula
Lithium Nitrate	$\text{Li}^+$	$\text{NO}_3^-$	$\text{LiNO}_3$
Sodium Sulfate	$\text{Na}^+$	$\text{SO}_4^{2-}$	$\text{Na}_2\text{SO}_4$
Potassium Phosphate	$\text{K}^+$	$\text{PO}_4^{3-}$	$\text{K}_3\text{PO}_4$
Lithium Carbonate	$\text{Li}^+$	$\text{CO}_3^{2-}$	$\text{Li}_2\text{CO}_3$
Sodium Acetate	$\text{Na}^+$	$\text{C}_2\text{H}_3\text{O}_2^-$	$\text{NaC}_2\text{H}_3\text{O}_2$
Potassium Hydroxide	$\text{K}^+$	$\text{OH}^-$	$\text{KOH}$

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Name of Compound	Element or Polyatomic Cation	Element or Polyatomic Anion	Compound Formula
Ammonium Fluoride	<del>Al<sup>3+</sup></del> NH <sub>4</sub> <sup>+</sup>	F <sup>-1</sup>	<del>AlF<sub>3</sub></del> NH <sub>4</sub> F
Beryllium Nitrate	Be <sup>+2</sup>	NO <sub>3</sub> <sup>-1</sup>	Ba(NO <sub>3</sub> ) <sub>2</sub>
Magnesium Sulfate	Mg <sup>+2</sup>	SO <sub>4</sub> <sup>-2</sup>	MgSO <sub>4</sub>
Calcium Phosphate	Ca <sup>+2</sup>	PO <sub>4</sub> <sup>-3</sup>	Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub>
Strontium Carbonate	Sr <sup>+2</sup>	CO <sub>3</sub> <sup>-2</sup>	SrCO <sub>3</sub>
Barium Acetate	Ba <sup>+2</sup>	C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> <sup>-1</sup>	Ba(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub>
Magnesium Hydroxide	Mg <sup>+2</sup>	OH <sup>-1</sup>	Mg(OH) <sub>2</sub>
Ammonium Sulfide	NH <sub>4</sub> <sup>+1</sup>	S <sup>-2</sup>	(NH <sub>4</sub> ) <sub>2</sub> S
Aluminum Nitrate	Al <sup>+3</sup>	NO <sub>3</sub> <sup>-1</sup>	Al(NO <sub>3</sub> ) <sub>3</sub>
Aluminum Phosphate	Al <sup>+3</sup>	PO <sub>4</sub> <sup>-3</sup>	AlPO <sub>4</sub>

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Name of Compound	Element or Polyatomic Cation	Element or Polyatomic Anion	Compound Formula
Aluminum Carbonate	$Al^{+3}$	$CO_3^{-2}$	$Al_2(CO_3)_3$
Aluminum Acetate	$Al^{+3}$	$C_2H_3O_2^{-1}$	$Al(C_2H_3O_2)_3$
Aluminum Hydroxide	$Al^{+3}$	$OH^{-1}$	$Al(OH)_3$

Given the following polyatomic ionic compounds, fill in the name of the compound from its formula.

Compound Formula	Compound Name
$BaCO_3$	Barium Carbonate
$Sr(C_2H_3O_2)_2$	Strontium Acetate
$NaOH$	Sodium Hydroxide
$NH_4Cl$	Ammonium Chloride
$Fe(NO_3)_3$	Iron (III) Nitrate
$CdSO_4$	Cadmium Sulfate
$Ca_3(PO_4)_2$	Calcium Phosphate
$Ag_2CO_3$	Silver Carbonate
$KC_2H_3O_2$	Potassium Acetate
$Fe(OH)_2$	Iron (II) Hydroxide