

Rules
Writing Formulas for
Polyatomic Ions

| Steps for Writing the Formula | Examples | |
|--|--|---|
| | iron(III) hydroxide | ammonium carbonate |
| 1. Identify each ion and its charge | iron(III): Fe ³⁺ hydroxide: OH ⁻ | ammonium: NH ₄ ⁺ carbonate: CO ₃ ²⁻ |
| 2. Determine the total charges needed to balance positive and negative | $\begin{array}{r} \text{Fe}^{3+}: \quad +3 \quad = 3+ \\ \text{OH}^{-}: \quad -1 \quad -1 \quad -1 = 3- \\ \hline \quad \quad \quad \quad \quad \quad \quad 0 \end{array}$ | $\begin{array}{r} \text{NH}_4^+ : \quad +1 \quad +1 = 2+ \\ \text{CO}_3^{2-} : \quad \quad \quad -2 = 2- \\ \hline \quad \quad \quad \quad \quad \quad \quad 0 \end{array}$ |
| 3. Note the ratio of positive ions to negative ions | 1 Fe ³⁺ for every 3 OH ⁻ ions | 2 NH ₄ ⁺ for every 1 CO ₃ ²⁻ |
| 4. Use subscripts and brackets to write the formula. Omit brackets if only one ion is needed | Fe(OH)₃ | (NH₄)₂CO₃ |

Name: _____

Polyatomic Worksheet

Use your periodic table, rule sheet and list of common polyatomic ions to complete"

Write the names of the following compounds:

1. NaCH_3COO _____
2. $\text{Ca}(\text{CH}_3\text{COO})_2$ _____
3. $\text{Cr}(\text{CH}_3\text{COO})_3$ _____
4. $\text{Al}(\text{OH})_3$ _____
5. $\text{Cr}(\text{OH})_3$ _____
6. $(\text{NH}_4)_3\text{P}$ _____
7. $(\text{NH}_4)_3\text{PO}_4$ _____
8. CaSO_4 _____
9. $\text{Mg}_3(\text{PO}_4)_2$ _____
10. $\text{Ba}_3(\text{PO}_3)_2$ _____

Write the formulas of the following compounds:

1. sodium chromate _____
2. potassium permanganate _____
3. lithium dichromate _____
4. sodium hydroxide _____
5. magnesium hydroxide _____
6. ammonium nitrate _____
7. tin(II) hydroxide _____
8. lead(II) hydroxide _____
9. aluminum nitrate _____
10. manganese(IV) sulphate _____