SUMMARY OF RULES FOR CHEMICAL NAMES AND FORMULAS

<table>
<tr><th></th><th>BINARY IONIC COMPOUNDS</th><th>POLYATOMIC COMPOUNDS</th><th>ACIDS (Ionic compounds containing H^+ ions)</th><th>COVALENT COMPOUNDS</th></tr>
<tr><td>HOW TO RECOGNIZE BY NAME</td><td>No numerical prefixes; second word ends in “-ide”</td><td>Second word ends in “-ate” or “-ite” (or “hydroxide” or “cyanide”)</td><td>Includes the word “acid”
BINARY ACIDS have names beginning with “hydro-”
OXYACIDS do not have this prefix</td><td>Contains numerical prefixes:
1 = mono- 6 = hexa-
2 = di- 7 = hepta
3 = tri- 8 = octa-
4 = tetra- 9 = nona-
5 = penta- 10 = deca-</td></tr>
<tr><td>HOW TO RECOGNIZE BY FORMULA</td><td>Two elements only; first is a metal</td><td>More than two elements, but first is not H</td><td>First element is H
BINARY: 2 elements only
OXYACIDS: contain oxygen
SPECIAL CASE:
HCN = hydrocyanic acid</td><td>Two elements only; both are nonmetals</td></tr>
<tr><td>RULES:</td><td colspan="2">NAMES: Name the positive ion first, then the negative ion. <u>Never use numerical prefixes</u>.
Single-atom negative ions end in “-ide”, so binary compounds always have this ending.
Polyatomic compounds usually end in “-ate” or “-ite”.
FORMULAS: Write the positive ion, <u>with its charge</u>, then the negative ion, <u>with its charge</u>.
Now “Criss-cross”: charge on the negative ion (ignoring minus sign) becomes subscript on the first element; charge on the positive ion becomes subscript on the second element.
Reduce to lowest terms if needed.
A polyatomic ion that occurs more than once needs parentheses, then a subscript.</td><td>ALWAYS IDENTIFY the negative ion (whatever follows H).
<table><tr><th>ION NAME</th><th>ACID NAME</th></tr><tr><td>-ide</td><td>Hydro- + (element) + -ic</td></tr><tr><td>-ate</td><td>-ic</td></tr><tr><td>-ite</td><td>-ous</td></tr></table>Prefixes “hypo-” or “per-” must be kept if present.
Subscript on H always follows the charge on the negative ion.</td><td>NAMES: First word is a numerical prefix (omitted if first element occurs only once), then name of first element. Second word is a numerical prefix (always present), then the name of the second element changed to end in “-ide”. (Second element is always more electronegative, closer to F on the periodic table.)
FORMULAS: Just write what the numerical prefixes say. Forget ionic charges; they don’t exist for these compounds.</td></tr>
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