

NAME:

HONORS CHEMISTRY

SECTION:

Chemical Formulas: Hydrates

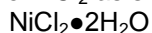
In this worksheet, you will practice writing names and formulas for ionic compounds that are hydrates. Hydrates are salts that, when they formed, included water molecules within their chemical structure. Not all chemicals form hydrates.

Different chemicals tend to form hydrates with different numbers of water molecules. Hydrates are named using Greek prefixes to tell how many water molecules are associated with each salt unit.

Example 1: Write the formula for nickel(II) chloride dihydrate.

Solution: We first recall that the Roman numeral (II) means that the charge on nickel is +2. The charge on a chloride ion is -1. Thus, the nickel(II) chloride part of the compound must be...NiCl₂.

Dihydrate means that there are 2 water molecules per each salt unit. We denote this by putting •2H₂O behind the NiCl₂ as shown below:



Example 2: Write the formula for sodium sulfate decahydrate.

Solution: You can determine the formula for sodium sulfate...Na₂SO₄. *Deca* is the Greek prefix for ten, so the formula for this compound must be...Na₂SO₄•10H₂O

Problems for you to try:

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| 1. zinc chloride dihydrate | 6. manganese(II) chloride tetrahydrate |
| 2. magnesium sulfate heptahydrate | 7. Al ₂ O ₃ •3H ₂ O |
| 3. AlCl ₃ •6H ₂ O | 8. copper(I) sulfite monohydrate |
| 4. FeSO ₄ •7H ₂ O | 9. copper(II) perchlorate hexahydrate |
| 5. copper(II) sulfate pentahydrate | 10. Fe(NO ₃) ₂ •4H ₂ O |