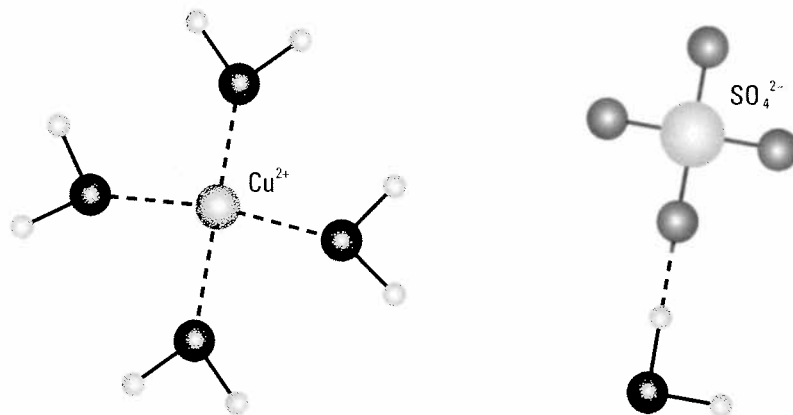


Figure 2

In a model of the compound copper(II) sulfate pentahydrate, the copper(II) ions are surrounded by four water molecules. The fifth water molecule is hydrogen-bonded to the sulfate ion.

**Table 4: Prefixes Used When Naming Hydrated Compounds**

Number of water molecules in chemical formula	Prefix in chemical nomenclature
1	mono
2	di
3	tri
4	tetra
5	penta
6	hexa
7	hepta
8	octa
9	nona
10	deca

Practice

Understanding Concepts

- How many elements are there in a tertiary compound?
- Use each of the following terms correctly in a sentence about the formation of compounds:
 - polyatomic ion
 - oxyanion
 - hydrate
- Write the IUPAC name for each of the following ionic compounds:
 - $\text{NaNO}_{3(s)}$ (found in tobacco)
 - $\text{NaNO}_{2(s)}$ (a meat preservative)
 - $\text{Cu}(\text{NO}_3)_2(s)$ (forms a blue solution in water)
 - $\text{CuNO}_3(s)$ (forms a green solution in water)
 - $\text{Al}_2(\text{SO}_4)_3(s)$ (a food additive in pickles)
 - $\text{Ca}(\text{OH})_2(s)$ (firming agent in fruit products)
 - $\text{PbCO}_3(s)$ (cerussite, a mineral popular with collectors)
 - $\text{Sn}_3(\text{PO}_4)_2(s)$ (use to fix paints to silk)
 - $\text{Fe}_2(\text{SO}_4)_3(s)$ (a mineral found on Mars)
- Write the chemical formula for each of the following ionic compounds:
 - calcium carbonate (active ingredient in antacids)
 - sodium bicarbonate (a foaming agent added to foods)
 - sodium hypochlorite (a component of bleach)
 - calcium sulfate (plaster of Paris)
 - ammonium nitrate (used in fertilizers)
 - ammonium phosphate (a leavening agent added to foods)
 - copper(II) sulfate (used as a fungicide)
 - sodium hydroxide (a strong base used as a washing agent)
 - potassium permanganate (a traditional antiseptic)
- Use IUPAC chemical nomenclature to name each of the following ionic compounds containing polyatomic ions:

(a) $\text{LiClO}_{3(s)}$	(n) $\text{Ag}_2\text{SO}_{4(s)}$
(b) $\text{BaSO}_{4(s)}$	(o) $\text{Hg}(\text{BrO}_3)_2(s)$
(c) $\text{Hg}_2\text{CO}_{3(s)}$	(p) $\text{Fe}_2(\text{CO}_3)_3(s)$
(d) $\text{Mg}(\text{NO}_3)_2(s)$	(q) $\text{NH}_4\text{ClO}(s)$
(e) $\text{Fe}(\text{BrO}_3)_3(s)$	(r) $\text{Au}(\text{NO}_3)_3(s)$
(f) $\text{Na}_3\text{PO}_{4(s)}$	(s) $\text{Mg}(\text{BrO}_3)_2(s)$
(g) $\text{NH}_4\text{IO}_3(s)$	(t) $\text{NaIO}(s)$
(h) $\text{AuC}_2\text{H}_3\text{O}_2(s)$	(u) $\text{Zn}(\text{ClO}_2)_2(s)$
(i) $\text{Zn}_3(\text{PO}_4)_2(s)$	(v) $\text{SnCO}_{3(s)}$