

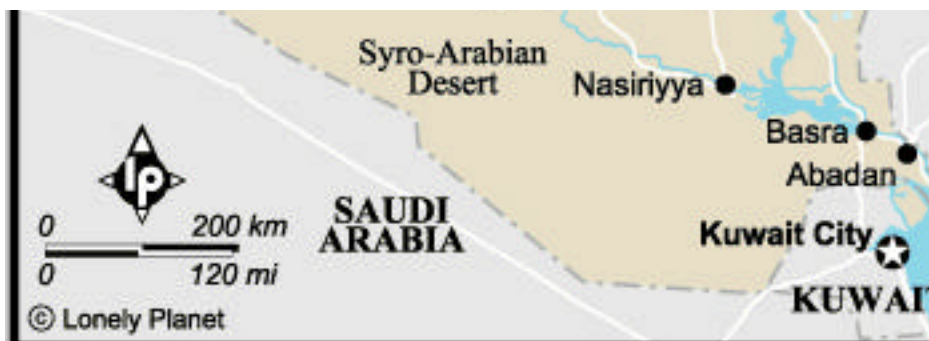
Battles over pure water or OIL?

One substance with hydrate your body ,
the other will dehydrate (a laxative)

Euphrates River
Tigris River



Who has the ultimate control of these waterways?



Sparklettes Water

Dr. Gergens - SD Mesa College

The Crystal-Fresh® Drinking Water ingredient label says the following:

“Drawn from our deep protected wells in Santa Ana, CA. Purified using our Crystal-Fresh process, including filtration, ozonation, reverse osmosis, and/or dionization. Contains purified water and specially selected minerals in nutritionally insignificant amounts for great taste (sodium bicarbonate, magnesium chloride, calcium chloride and sodium sulfate).

Sparklettes Water

Dr. Gergens - SD Mesa College

Lets learn to write the correct formulas for these substances (sodium bicarbonate, magnesium chloride, calcium chloride and sodium sulfate) that Sparkletts[®] adds to it's purified water In "nutritionally insignificant amounts for great taste."

Sparklettes Water Nomenclature Exercise: "Nutritionally insignificant amounts of these compounds added for good taste."
 Dr. Gergens - SD Mesa College

Supplemental packet page

- Write the name each cation and each anion (e.g., Na^+ is sodium ion; Cl^- is chloride ion)
- Say and write the name of the ionic salt compound by combining each cation with each anion in the table (e.g., sodium chloride)
- Complete the table by writing in the ionic salt compound formula in each cell of the table (e.g., NaCl).
- When writing a formula a cation and anion must combine in an appropriate ration to balance charge; see examples on back.

cations (name these ions)	anions (name these ions)		
	Cl^- chloride ion	SO_4^{2-} sulfate ion	HCO_3^- hydrogen carbonate ion
Na^+ sodium ion	NaCl sodium chloride	Na_2SO_4 sodium sulfate	NaHCO_3 sodium hydrogen carbonate
Mg^{2+} magnesium ion	MgCl_2 magnesium chloride	MgSO_4 magnesium sulfate	$\text{Mg}(\text{HCO}_3)_2$ magnesium hydrogen carbonate
Ca^{2+} calcium ion	CaCl_2 calcium chloride	CaSO_4 calcium sulfate	$\text{Ca}(\text{HCO}_3)_2$ calcium hydrogen carbonate

- Predict the transition metal cation charge for iron, Fe, in the ionic salt $\text{Fe}_2(\text{SO}_4)_3$, and place it in the cation box below.
- Give a name for $\text{Fe}_2(\text{SO}_4)_3$. Since transition metals can variable charge, you must some how indicate metal cation charge in its name.
- Write additional formulas for the cation Fe^{3+} combined with the anions Cl^- and HCO_3^- and give their compound names.

cation iron (III) ion	FeCl_3 iron (III) chloride	$\text{Fe}_2(\text{SO}_4)_3$ iron (III) sulfate	$\text{Fe}(\text{HCO}_3)_3$ iron (III) hydrogen carbonate
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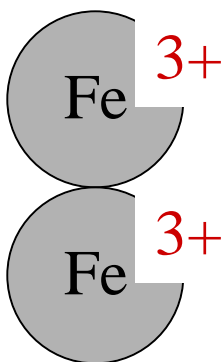
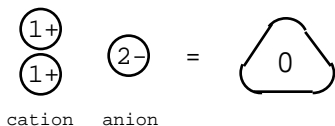
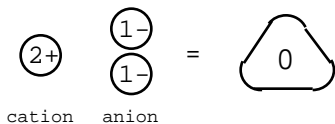
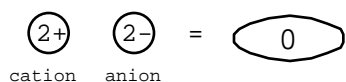
Acids. In general, a substance that has an 'H' listed first in its formula is referred to as an acid. Name the acid but place a prefix in its name di = 2, tri = 3, tetra = 4, penta = 5, hexa = 6, hepta = 7, octa = 8, nona = 9, deca = 10 to indicate the number of hydrogens in the formula.

cations	anions		
	Cl^-	SO_4^{2-}	HCO_3^-
H^+ hydrogen ion	HCl hydrogen chloride	H_2SO_4 hydrogen chloride	H_2CO_3 dihydrogen carbonate
give a common name and use for each acid	hydrochloric acid stomach acid	sulfuric acid car battery acid	carbonic acid carbonated water

Calculation of Oxidation State

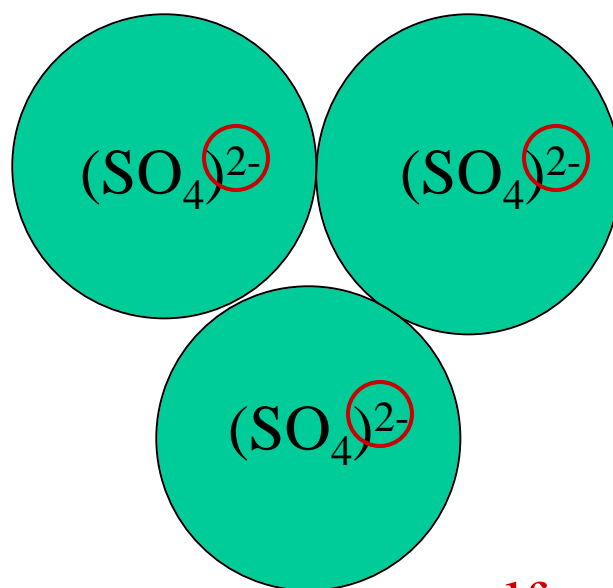


We are looking for balance in charge



iron (III) ion

total charge of positive 6



sulfate ion

total charge of negative 6

What must be the charge over the two iron ions to balance sulfate ion charges? ratio of $2 \text{Fe}^{3+} : 3 (\text{SO}_4)^{2-}$

Charge Balance: two iron(III) ions for every three sulfate ions

tutorial

http://homework.sdmesa.edu/dgergens/chem100/nomenclature/naming_practice.htm