Electrolytes

- All ionic compounds are strong electrolytes, because they mostly break up into ions as they dissolve in water.
- Electrolytes for molecular compounds depends on whether they dissolve without ion formation, a little ion formation, or mostly ion formation, respectively.

Molecular Compound	Electrolyte Type	Species in Solution
Sucrose $C_{12}H_{22}O_{11}$	non-electrolyte	Molecules only
Acetic Acid CH_3COOH	Weak electrolyte	Molecules and some ions
Hydrogen Chloride HCl	Strong electrolyte	Ions only

Electrolytes

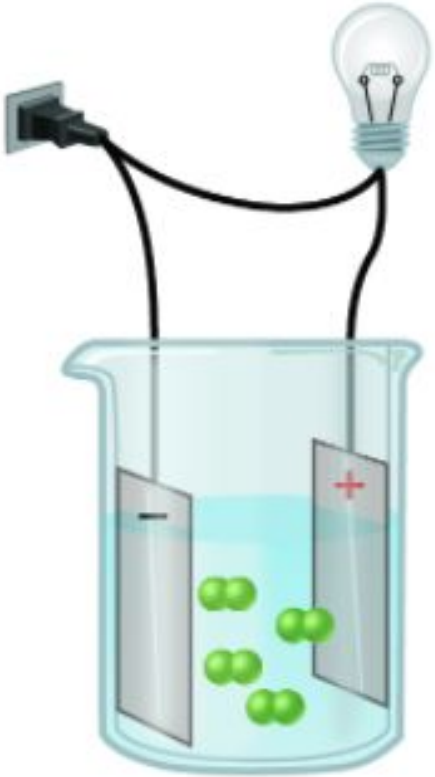
- Strong electrolytes dissociate completely into ions. This includes the strong acids (HCl, HBr, HI, HNO_3, $HClO_4$, and H_2SO_4).

- The strong bases (LiOH, NaOH, KOH, RbOH, CsOH, $Ca(OH)_2$, $Sr(OH)_2$ and $Ba(OH)_2$) dissociate completely

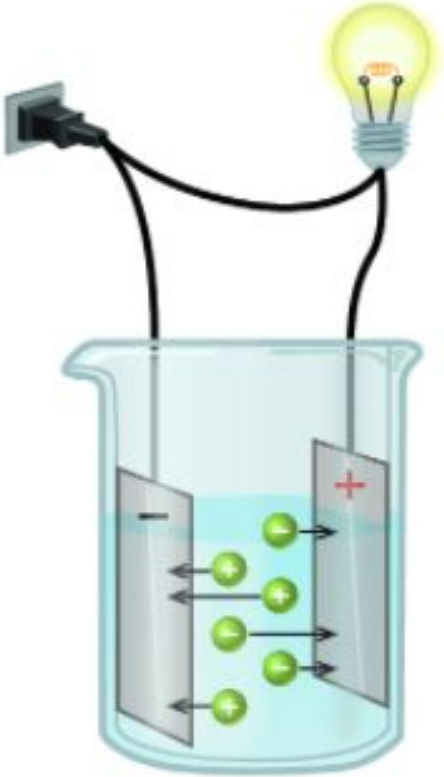
Electrolytes

- Weak electrolytes do not dissociate completely into ions. This includes most acids and bases, except those listed above.

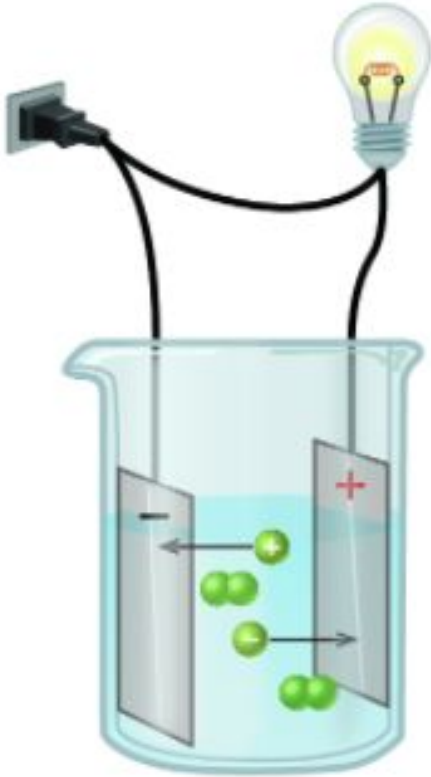
- Non-electrolytes are species which dissolve in water, but which do not dissociate. Soluble covalent compounds are covalent compounds like glucose and ammonia.



ethanol
No conductivity



KCl
High conductivity



acetic acid solution
Low conductivity

- Common Polyatomic Ions -
Click on the table for a more complete list

ion	name	ion	name
NH_4^+	ammonium	CO_3^{2-}	carbonate
NO_2^-	nitrite	HCO_3^-	hydrogen carbonate†
NO_3^-	nitrate	ClO^-	hypochlorite
SO_3^{2-}	sulfite	ClO_2^-	chlorite
SO_4^{2-}	sulfate	ClO_3^-	chlorate
HSO_4^-	hydrogen sulfate*	ClO_4^-	perchlorate
OH^-	hydroxide	$C_2H_3O_2^-$	acetate
CN^-	cyanide	MnO_4^-	permanganate
PO_4^{3-}	phosphate	$Cr_2O_7^{2-}$	dichromate
HPO_4^{2-}	hydrogen phosphate	CrO_4^{2-}	chromate
$H_2PO_4^-$	dihydrogen phosphate	O_2^{2-}	peroxide

*Bisulfate and †bicarbonate are widely used common names for hydrogen sulfate and hydrogen carbonate, respectively.