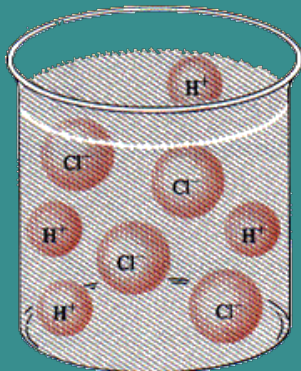
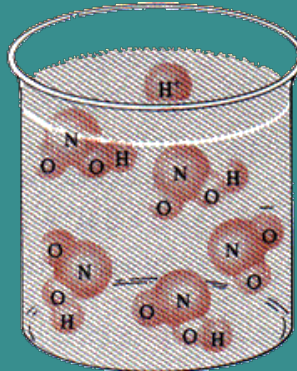


Acids

Strong vs. Weak

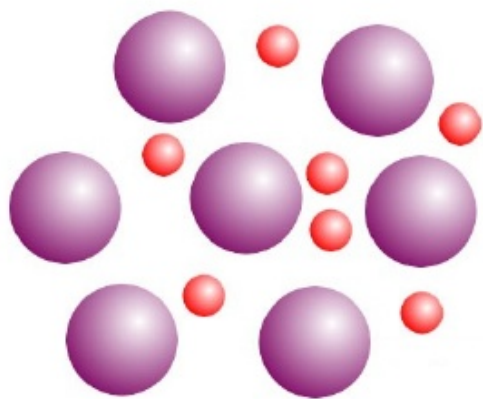


HCl

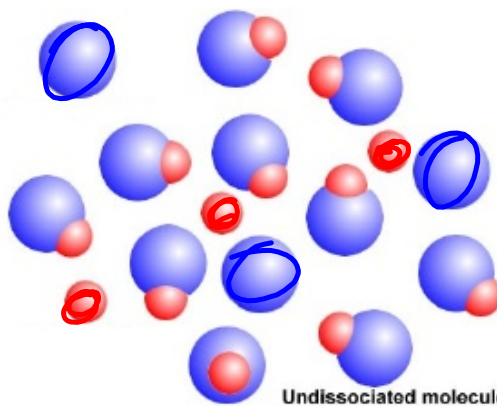


HNO₂

Strong Acids vs. Weak Acids

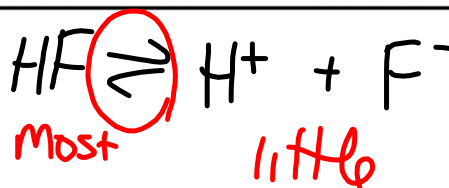


Strong acids are assumed to dissociate completely when in aqueous solution.

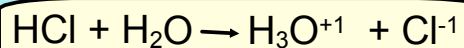


Undissociated molecule

Weak acids dissociate only slightly in aqueous solution. The majority of molecules remain undissociated.



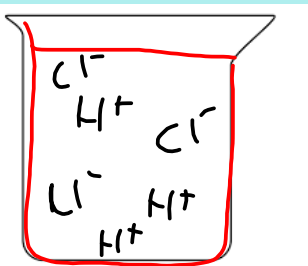
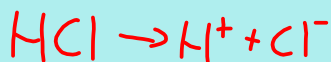
Strong acids completely ionize



I 1 mol

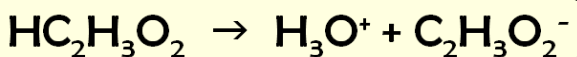
S-1mol +1mol +1mol

E 0



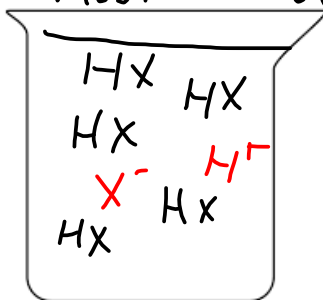
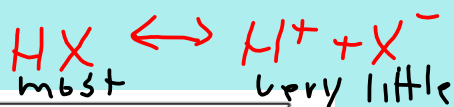
1 M HCl dissociates completely to give 1M H₃O⁺ or pH=0

Weak acids do not completely ionize



1mol

-0.0001mol 0.0001mol 0.0001mol

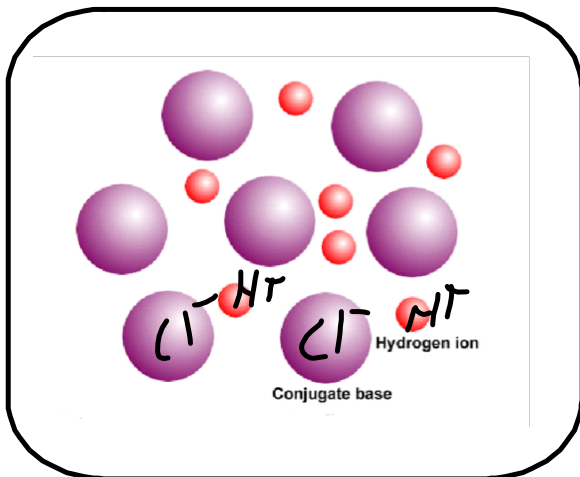


1 M HC₂H₃O₂ DOES NOT dissociate completely to give 1 M H₃O⁺
pH > 0, (pH is about 3)

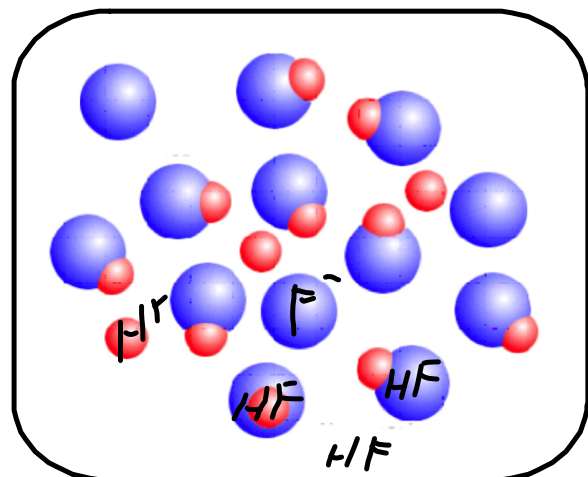
Strong

vs.

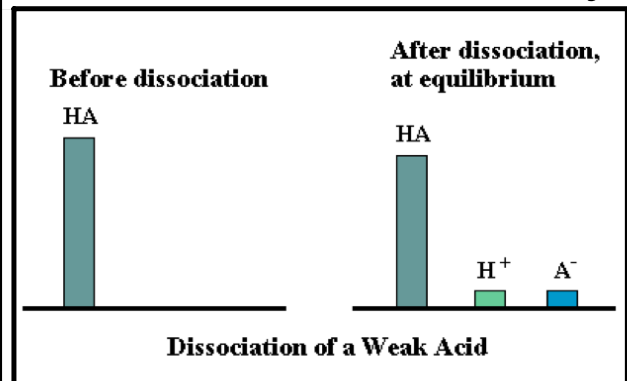
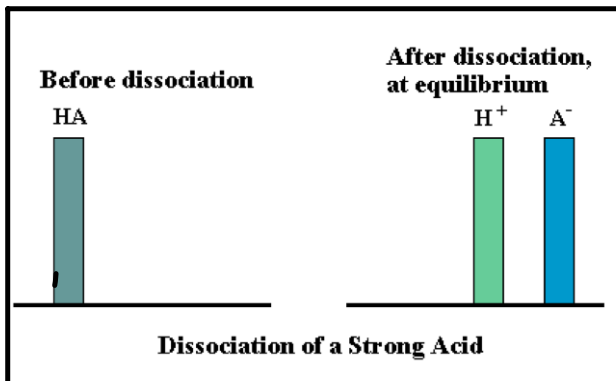
Weak



100% dissociates



dissociates minimally



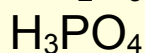
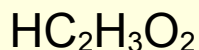
6 Strong Acids

- $\text{HCl}_{(\text{aq})}$ → Hydrochloric acid
- $\text{HBr}_{(\text{aq})}$ → Hydrobromic acid
- $\text{HI}_{(\text{aq})}$ → Hydroiodic acid
- $\text{HNO}_{3(\text{aq})}$ → Nitric acid
- $\text{H}_2\text{SO}_{4(\text{aq})}$ → sulfuric acid
- $\text{HClO}_{4(\text{aq})}$ → Perchloric acid

Weak acids

All other acids are **weak**

examples:



> edible

Strong Bases

X-OH where X is any metal from the 1st or 2nd family (except Be)

Weak Bases

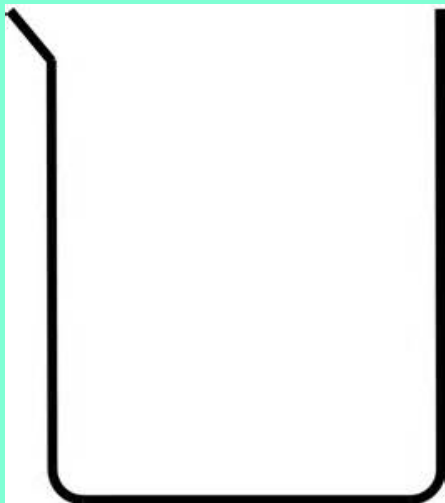
All other hydroxides are nearly insoluble



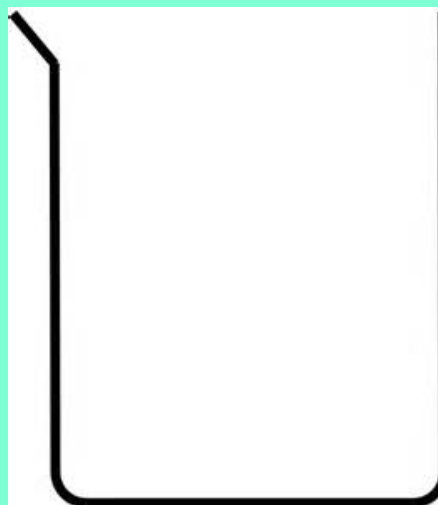
Review:

What is the difference between a strong and a weak acid?

Draw the weak acid hydrocyanic acid.



Draw the strong acid hydrochloric acid.



Strong or weak?