Determining Acid Strength (Page 1)

Two major factors affecting molecule to behave as acid.

① Polarity of molecule

② Strength of bond

** strength of Acid = how easy it is to remove H^+

Ⓐ Look @ H-X

1. Metal hydride ($\overrightarrow{NaH}$) Act as base (proton acceptor)

The larger the electronegativity value, the greater the basic tendency

2. Non-metal hydride ($\overrightarrow{HCl}$) acts as acid (proton donor)

(Pg 690)

Table 14.7 Exception to rule is HF

* HF is weak acid, because the small size of F acid, that it has a significant attraction for the electrons.

This attraction OVER comes the high polarity.

Determing Acid strength (Page 2)

(B) Oxy acids : acidic proton is attached to oxygen atom
(ex. strong acid : H_2SO_4)

(1) Look @ X-O-H X = halogen (Fig 14.9) Pg 691
(Weak acids)

- As polarity between $X \overset{\leftarrow}{-} O-H$, less electron density between O-H, ∴ easier to remove H^+, K_a ↑

* note CH_3OH, 10^{-15} (basically no acidic characteristic

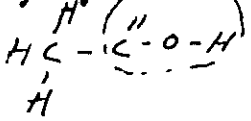
(2) Look @ $H-O-X(O)_n$ Table 14.8 (Pg 690)

- As you add more oxygen, electron density increases away from H, K_a increases.

* Also applies to other central elements than X [Halogens].

(3) Look @ carbon backbone acid
(all have carboxylic ~~acid~~ group) carboxylic group

ex. acetic acid



← acidic hydrogen