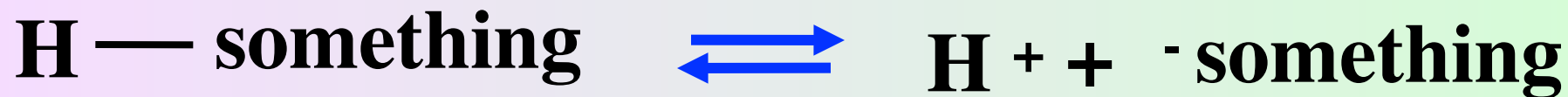


Molecular Structure of Acids



Major factors are:

Polarity of the bond to H

Strength of the bond to H

Acidity of Binary Acids

Increases going down a column



1	strongest bond	H — F	weakest acid
2		H — Cl	
3		H — Br	
4		H — I	
5	weakest bond		strongest acid

Bond strength is the major factor

Oxoacids

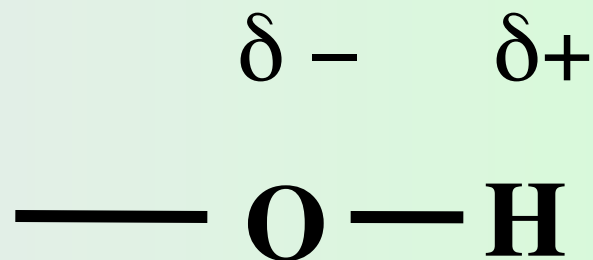
Atom or group



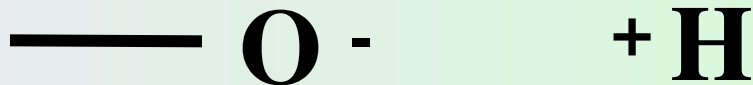
Acidity increases with the ability of the group attached to oxygen to attract electrons toward itself

Oxoacids

Electronegative
atom

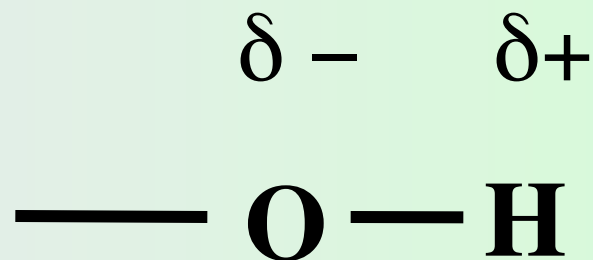


Electronegative
atom



Oxoacids

Atom in a high
oxidation state



Atom in a high
oxidation state



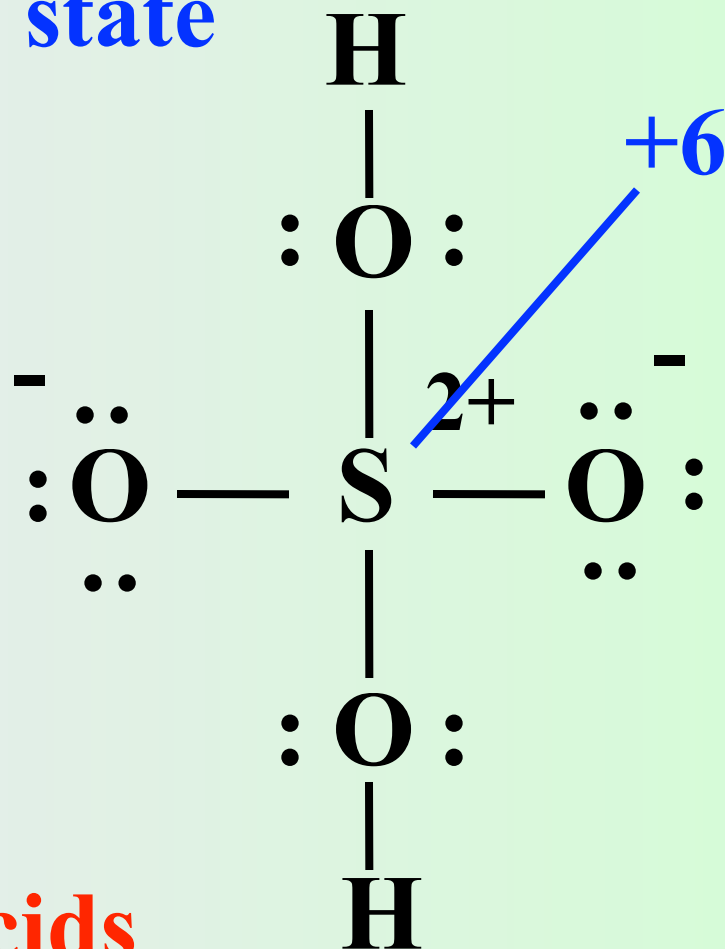
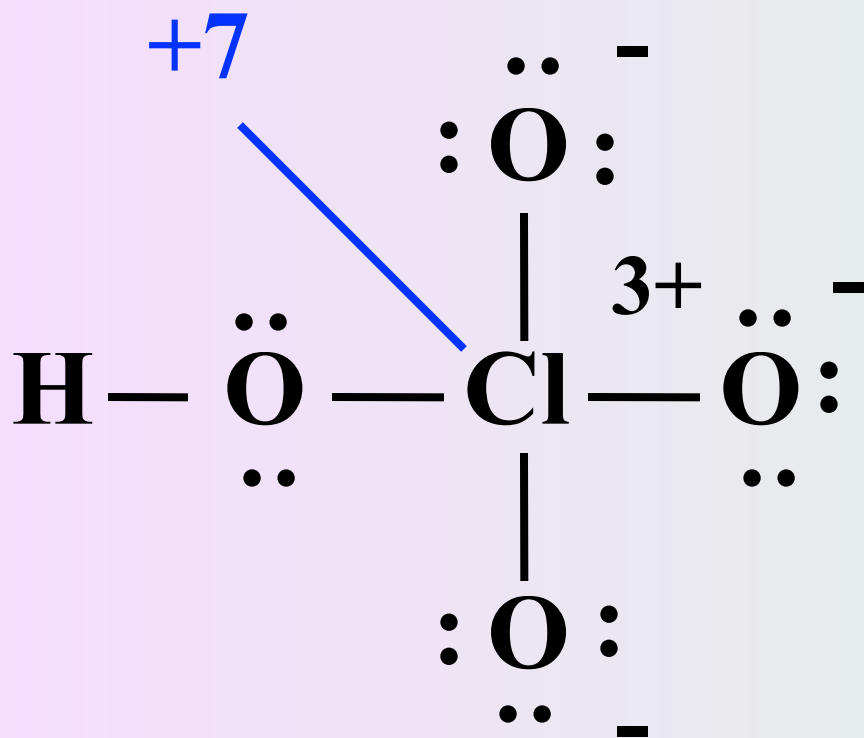
Strong Oxoacids

Acid	K_a	conj. base
HClO_4	10^9	ClO_4^-
H_2SO_4	1.6×10^5	HSO_4^-
HNO_3	10	NO_3^-

Perchloric Acid

Sulfuric Acid

oxidation state

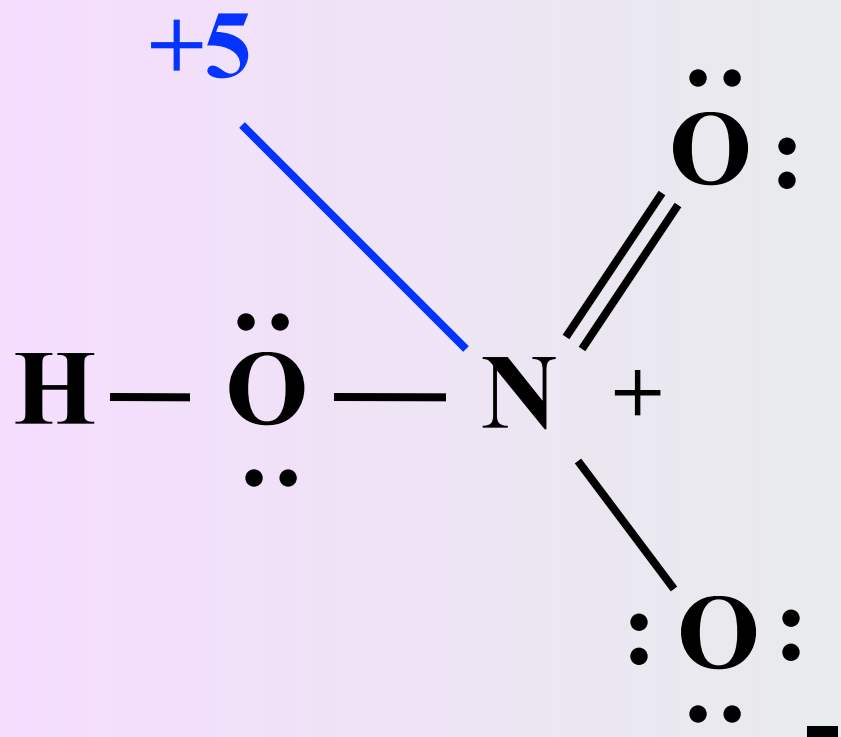


Strong Oxoacids

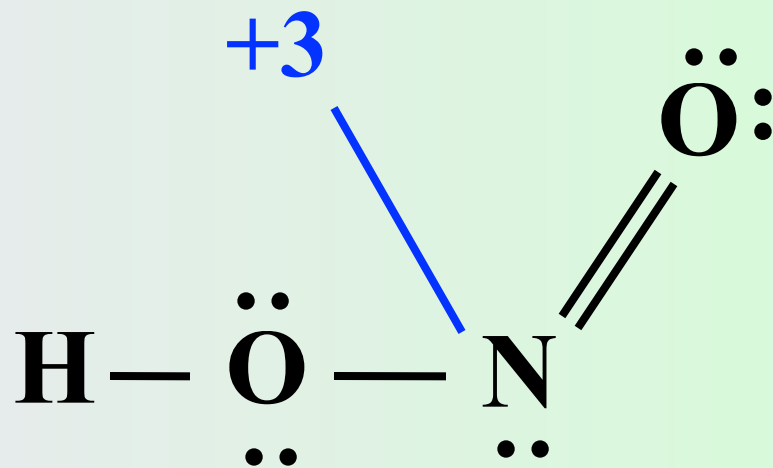
Nitric Acid

Nitrous Acid

oxidation state



Strong Acid HNO₃



Weak Acid HNO₂

Compare

Acid

perchloric



chloric



chlorous

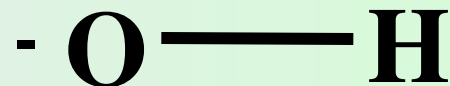


hypochlorous



**Group 1A or 2A
Metal**

+



**these compounds are ionic and are strong
bases**