

Oxidation Numbers

1. For an atom in its **elemental** form, the oxidation number is zero.
2. For any **monatomic** ion, the oxidation number equals the ionic charge.
3. Nonmetals *usually* have negative oxidation numbers:
 - (a). The oxidation number of oxygen is usually -2.
Exceptions: peroxides O_2^{2-} oxidation number -1
superoxides O_2^- oxidation number $-\frac{1}{2}$
 - (b). the oxidation number of hydrogen is usually +1 bonded to non-metals and -1 bonded to metals
 - (c). The oxidation number of fluorine is always -1.
The other halogens are -1 in most binary compounds. When combined with oxygen, have positive oxidation states.
4. The sum of the oxidation numbers is equal to the charge on the species.