Oxidation and Reduction Reactions
Learning Objectives

As we study this chapter, you should...

1) Be able to recognize an oxidation reaction in organic chemistry. The classic definition of oxidation is loss of an electron (this is the definition you learned in general chemistry). In organic chemistry, there are two additional ways to recognize that an oxidation has taken place:

A decrease in the number of C–H bonds... An increase in the number of C–Z bonds...

(where Z = O, N, or X)

the compound has lost a C–H bond the compound has gained "four" total bonds to oxygen (two σ and two π bonds)

The classic definition of reduction is gain of an electron (this is the definition you learned in general chemistry). In organic chemistry, there are also two additional ways to recognize that a reduction has taken place:

An increase in the number of C–H bonds... A decrease in the number of C–Z bonds...

(where Z = O, N, or X)

the compound has gained two C–H bonds the compound has lost a C–O π bond