1. If, in a reaction, the oxidation number of an atom in a reactant *increases*, the atom is said to undergo oxidation.

   eg. 1:
   
   ![Diagram 1](image1.png)

   eg. 2:
   
   ![Diagram 2](image2.png)

   eg. 3:
   
   ![Diagram 3](image3.png)

   eg. 4:
   
   ![Diagram 4](image4.png)

2. If, in a species subjected to a reaction, the sum of oxidation numbers of atoms that participate in the overall reaction *increases*, the species is said to undergo oxidation.

   eg. 1:
   
   ![Diagram 5](image5.png)

   In 1, the sum of oxidation numbers of atoms that participate in the reaction increases from -1 to +1; 1 is oxidized.

   eg. 2:
In 2, the sum of oxidation numbers of atoms that participate in the reaction increases from -3 to -1; 2 is oxidized.

eg. 3:

\[
\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3 + \text{CH}_3\text{CO}_2\text{H} \rightarrow \text{CH}_3\text{CH}=	ext{CH}_2 + \text{CH}_3\text{CO}_2\text{H}
\]

sum = -3 \quad \text{sum} = -1

In 3, the sum of oxidation numbers of atoms that participate in the reaction increases from -2 to +2; 3 is oxidized.

eg. 4:

\[
\text{CH}_3\text{C}==\text{CH}_2 + \text{O}_2 \rightarrow \text{CH}_3\text{C}==\text{CH}_2 + \text{O}_2
\]

sum = -2 \quad \text{sum} = +2

In 4, the sum of oxidation numbers of atoms that participate in the reaction increases from -4 to -2; 4 is oxidized.

In most oxidations, the species oxidized either gains oxygen (eg. 2 and 3), loses hydrogen (eg. 1), or both. Traditionally, in casual usage, an oxidation reaction involving neither (eg. 4) is not referred to as an oxidation. (For example, in many undergraduate textbooks, eg. 2 and 3 are discussed under oxidation of alkenes, but eg. 4 is not.)

see also \text{reduction}

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