OPEN ACCESS Freely available online

ISSN: 2329-6798
Modern Chemistry & Applications

Short Communication

Chemical Reactivity by Structural Change of Compounds

Amelia William*

Department of Chemical Sciences, University of British Columbia, Vancouver, Canada

DESCRIPTION

Organic chemistry composes a very large number of compounds and illustrations have focused on their structural characteristics [1].

Chemical reaction

Chemical reaction is a transformation which resulting in a change of composition and configuration of a compound (which referred to as the reactant or substrate).

Substrate

Organic compounds undergo change in chemical reactions. Other compounds may also be involved in chemical reaction with most common reactive partners may be identified. Reactant is often the larger and more complex molecule in the reacting system. Most of the reactant molecules are normally incorporated as part of the product molecules [2].

Reagent: Most common partner of the reactant in many chemical reactions may be organic or inorganic in nature and which are either small or large, gas or liquid or solid. Portion of a reagent which was incorporating in product may range from little to none.

Product

Product is known as the final form taken by the major reactants of a reaction.

Reaction conditions

Various environmental conditions such as temperature, pressure, catalysts and solvent which are under reaction progresses optimally. Catalysts are the substances which accelerates the rate velocity of a chemical reaction without being consumed or appearing as a part of the reaction product. Catalysts do not require changing equilibria positions.

Classification by structural change

This type of classification does not require any knowledge or speculation reaction mechanisms.

Acidity and basicity: By beginning with a discussion of organic chemical reactions by a review of acid-base chemistry and terminology for the several reasons. Acid-base reactions are the simplest reactions to recognize and understand. Some classes of organic compounds distinctly contain acidic properties and some other classes of organic compounds behave as bases, so the classes need to be identifying these aspects of their chemical reactions. Many organic reactions are catalyzed by acids and bases. Although such transformations of reactions may seem complex to understanding of how they occur from beginning with the functioning of the catalyst.

Organic chemists' uses two acid-base theories for the interpreting and planning of their work which are Bronsted theory and Lewis theory of chemical bonding [3, 4].

Oxidation and reduction reactions: These reactions are parallel and independent methods of characterizing the organic reactions are by oxidation-reduction terminology. Carbon atoms contains oxidation state which depending upon their substituents. By determining the absolute oxidation state of each carbon atom in a given molecule, but only change in oxidation state of those carbons involved in a chemical transformation reaction. To determine a carbon atom undergone a redox change during a reaction by simply note any changes in the number of bonds to hydrogen and the number of bonds to electronegative atoms such as O, N, F, Cl, Br, I, and S that has been occurred. Bonds having other carbon atoms are ignored. Maximum count should be conducted for each carbon atom by undergoing changes during a chemical reaction [5].

- Number of hydrogen atoms bonded to a carbon then increases in oxidation state and if the number of bonds of electronegative atoms decreases then decreases in oxidation state, the carbon in question has been reduced.

Correspondence to: Amelia William, Department of Chemical Sciences, University of British Columbia, Vancouver, Canada, E-mail: amelia123@gmail.com

Received: 28-Oct-2022, Manuscript No. MCA-22-19240; **Editor assigned:** 01-Nov-2022, PreQC No. MCA-22-19240 (PQ); **Reviewed:** 14-Nov-2022, QC No. MCA-22-19240; **Revised:** 21-Nov-2022, Manuscript No. MCA-22-19240 (R); **Published:** 29-Nov-2022, DOI: 10.35248/2329-6798.22.10.387

Citation: William A (2022) Chemical Reactivity by Structural Change of Compounds. Modern Chem Appl. 10:387.

- Number of hydrogen atoms bonded to a carbon decreases, then the number of bonds to more electronegative atoms increases.
- If there is no change in the number of such bonds, then the carbon in question has not change in oxidation state. Hydrolysis reaction of a nitrile showed the blue colored carbon which has not changed its oxidation state.

CONCLUSION

In the addition of hydrogen both carbon atoms are reduced and the overall reaction is known as reduction. Per acid epoxidation and addition of bromine can oxidize the both carbon atoms, so these are termed as oxidation reactions. Addition of HBr reduces one double bond and carbon atoms which oxidizes each other. Consequently, there is no overall redox change in the substrate molecules.

REFERENCES

1. Grommet AB, Feller M, Klajn R. Chemical reactivity under nanoconfinement. Nat Nanotechnol. 2020;15(4):256-271.
2. van Zeist WJ, Bickelhaupt FM. The activation strain model of chemical reactivity. Org Biomol Chem. 2010;8(14):3118-3127.
3. Vermeeren P, vander LSC, Fonseca GC, Bickelhaupt FM, Hamlin TA. Understanding chemical reactivity using the activation strain model. Nature protocols. 2020;15(2):649-667.
4. Geerlings P, De Proft F. Chemical reactivity as described by quantum chemical methods. Int J Mol Sci. 2002;3(4):276-309.
5. Xue Q, Yeung ES. Differences in the chemical reactivity of individual molecules of an enzyme. Nature. 1995;373(6516):681-683.