

OGBORONA VICTOR CHIBUZO

ELECT/ELECT ENGINEERING

17/EN0104/048

D Organic Compounds Importance

Organic compounds are used in the production of

- (i) Food; carbohydrates, proteins, fats, etc
- (ii) FUELS, Coal, wood, natural gas, Petrol
- (iii) Clones, Cotton, silk, wool, nylon
- (iv) Medicine, Penicillin, Streptomycin, chloramphenicol etc
- (v) Explosives, Nitroglycerine, Nitrocellulose, etc
- (vi) Insecticides; DDT, Gammaxane, etc
- (vii) Dyes; Indigo, Methylate green, Alizarin etc
- (viii) Household and other common articles, Soaps, cosmetics, perfumes, etc

(c) Homocyclic Compounds: These are compounds which consist of atoms belonging to the same element present within the ring of a cyclic compound while

Heterocyclic Compounds: These are compounds which consist of atoms of both carbon and any other elements present within the ring of a cyclic compound

2(a) Retardation Factor (RF) = $\frac{\text{Distance moved by Rad}}{\text{Distance moved by solvent front}}$

(i) Band (2.4cm) : $RF = \frac{2.4 \text{ cm}}{12.2 \text{ cm}} = \underline{\underline{0.19672}}$

(ii) Band (5.6cm) : $RF = \frac{5.6 \text{ cm}}{12.2 \text{ cm}} = \underline{\underline{0.45902}}$

(iii) Band (8.9cm); $RF = \frac{8.9 \text{ cm}}{12.2 \text{ cm}} = \underline{\underline{0.72951}}$

(c) Homologous compounds: These are compounds which differ by a CH_2 group and belong to the same class of compounds. The difference in their molecular weights is constant.

Heterologous Compounds: These are compounds which differ by a CH_2 group and belong to different classes of compounds. The difference in their molecular weights is not constant.

2(a) Retardation Factor (RF) = $\frac{\text{Distance moved by spot}}{\text{Distance moved by solvent front}}$

(i) Spot (2.4 cm) : $RF = \frac{2.4 \text{ cm}}{12.2 \text{ cm}} = \underline{\underline{0.19672}}$

(ii) Spot (5.6 cm) : $RF = \frac{5.6 \text{ cm}}{12.2 \text{ cm}} = \underline{\underline{0.45902}}$

(iii) Spot (8.9 cm) : $RF = \frac{8.9 \text{ cm}}{12.2 \text{ cm}} = \underline{\underline{0.72951}}$

(b) Organic compound A belongs to \rightarrow Aldehyde family
Organic compound B belongs to \rightarrow Ketone family

(c) 2,4-Dinitrophenylhydrazine test is employed for identification of both Aldehydes and Ketones.

- (d)
- (i) Alkyl Halide \rightarrow $-F, -Cl, -Br$
 - (ii) Esters \rightarrow $\begin{array}{c} OH \\ || \\ -C-O \end{array}$
 - (iii) Alkanones \rightarrow $\begin{array}{c} \\ || \\ -C=O \\ | \end{array}$
 - (iv) Alkanols \rightarrow $-OH$
 - (v) Alkanals \rightarrow $-COH$
 - (vi) Alkanoic Acid \rightarrow $-COOH$
 - (vii) Ethers \rightarrow $-OR$

Examples

- (i) (1) 3-bromo-1-propane (Alkyl bromide) (2) Cyclopentyl bromide
- (ii) (1) Methyl ethanoate (2) Ethyl propanoate
- (iii) (1) Propanone (2) Pentan-3-one
- (iv) (1) Butanal (2) Cyclopentanone
- (v) (1) Ethanal (2) Butanal
- (vi) (1) Methanoic acid (2) 2-methyl butanoic acid
- (vii) (1) 2-methoxy-2-methyl propanone (2) diphenyl-ether