Isomerism.

Compounds having same molecular formula but differing from each other at least in same physical or chemical properties or both are known as isomers (Berzelius) and the phenomenon is known as isomerism.

For example,

Ethyl alcohol (C ₂ H ₆ O)	Dimethyl ether (C ₂ H ₆ O)
$CH_3 - CH_2 - OH$	$CH_3 - \bigcup_{\downarrow} - CH_3$
It is liquid.	It is a gas.
Its boiling point is 78°C	Its boiling point is - 24°C.
It reacts vigorously with sodium and evolves hydrogen.	It does not react with sodium.
It reacts with HI and forms ethyl iodide, C_2H_5I .	It reacts with HI and forms methyl iodide, CH_3I .

The difference in properties of isomers is due to the difference in the relative arrangements of various atoms or groups present in their molecules. Isomerism can be classified as follows:

Isomerism										
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Cor	Constitutional or structural isomerism				Configurational or stereo isomerism					
arr	Without referring to space, the isomers differ in the arrangement of atoms within the molecule is called structural isomerism. Thus structural isomers have:				The isomerism arises due to different arrangement of atoms or groups in space. It deals with the structure of molecules in three dimensions. Thus stereoisomers have:					
•	Same molecul	ar formula				• Same molec	ular formula			
•	Same empirica	al formula				• Same empiri	cal formula			
•	Same molecular weight					Same molecular weight				
•	Different properties					Different properties				
٠	Different structural formula					 Different orientation of atoms or molecules in space 				
\checkmark	\checkmark	\downarrow	• •	¥	\rightarrow	↓	Ť	\rightarrow		
Chain	Position	Ring chain	Functional	Meta	Tauto -	Geometrical	Optical	Conformational		
isomerism	isomerism	isomerism	isomerism	merism	merism	isomerism	isomerism	isomerism		