In [chemistry](https://en.wikipedia.org/wiki/Chemistry), **isomers** are [molecules](https://en.wikipedia.org/wiki/Molecule) or [polyatomic ions](https://en.wikipedia.org/wiki/Polyatomic_ion) with identical [molecular formula](https://en.wikipedia.org/wiki/Molecular_formula) – that is, same number of [atoms](https://en.wikipedia.org/wiki/Atom) of each [element](https://en.wikipedia.org/wiki/Element_(chemistry)) – but distinct arrangements of atoms in space.[[1]](https://en.wikipedia.org/wiki/Isomer#cite_note-1) [Diamond](https://en.wikipedia.org/wiki/Diamond) and [graphite](https://en.wikipedia.org/wiki/Graphite) are a familiar example; they are isomers of [carbon](https://en.wikipedia.org/wiki/Carbon). *Isomerism* refers to the existence or possibility of isomers.

Isomers do not necessarily share similar [chemical](https://en.wikipedia.org/wiki/Chemical_property) or [physical properties](https://en.wikipedia.org/wiki/Physical_property). Two main forms of isomerism are [structural](https://en.wikipedia.org/wiki/Structural_isomerism) (or constitutional) isomerism, in which [*bonds*](https://en.wikipedia.org/wiki/Chemical_bond) between the atoms differ; and [stereoisomerism](https://en.wikipedia.org/wiki/Stereoisomerism) or (spatial isomerism), in which the bonds are the same but the *relative positions* of the atoms differ.

Isomeric relationships form a [hierarchy](https://en.wikipedia.org/wiki/Hierarchy). Two chemicals might be the same constitutional isomer, but upon deeper analysis be stereoisomers of each other. Two molecules that are the same stereoisomer as each other might be in different conformational forms or be different [isotopologues](https://en.wikipedia.org/wiki/Isotopologue). The depth of analysis depends on the field of study or the chemical and physical properties of interest.

The English word "isomer" ([/ˈaɪsəmər/](https://en.wikipedia.org/wiki/Help:IPA/English)) is a [back-formation](https://en.wikipedia.org/wiki/Back-formation) from "isomeric",[[2]](https://en.wikipedia.org/wiki/Isomer#cite_note-MW.isomer-2) which was borrowed through [German](https://en.wikipedia.org/wiki/German_language) *isomerisch*[[3]](https://en.wikipedia.org/wiki/Isomer" \l "cite_note-MW.isomeric-3) from [Swedish](https://en.wikipedia.org/wiki/Swedish_language)*isomerisk*; which in turn was coined from [Greek](https://en.wikipedia.org/wiki/Greek_language) ἰσόμερoς *isómeros*, with roots *isos* = "equal",  *méros* = "part".[[4]](https://en.wikipedia.org/wiki/Isomer#cite_note-berz1830-4)