1006/ Researcher Inorganic Chemistry D-set (HGS Polyhedron Molecular Model)

Synopsis

(1) In the HGS polyhedron models, atoms are represented by polyhedrons, and bonds are represented by sticks. Polyhedron atoms have holes corresponding to the exact bond angles: e.g., sp3 carbon with 109Ã Â 28'; sp2 carbon with 120Ã Â ; sp carbon with 180Ã Â . Sticks of different bond lengths are provided. So students can assemble molecular models considering the hybrid orbital of atoms and bond length. The HGS molecular models are thus very useful for students to understand not only molecular structure but also atom hybrid orbitals, bond angle, and bond length.ã (2) Because of the exact mechanical matching of hole and stick, polyhedron atoms can smoothly rotate around a bond stick connecting atoms, but the rotation needs some small force. Therefore, the HGS models of high quality are the best for demonstrating conformational changes. For example, the cyclohexane ring flips can be easily performed even by beginners, and the ideal chair form and flipped one are readily obtained together with the boat form as an intermediate. Another example is the all-trans conformation of n-hexane, which is easily assembled and maintained. It is thus easy to maintain a specific conformation of flexible acyclic compounds. (3) In some models including the HGS polyhedron models, two sp3 carbon atoms connected with two bent bonds are traditionally used as a C = C double bond, because it easily visualizes the double bond (two bonds). However, such simple visualization may be confusing to students, because this structure is scientifically incorrect. In the HGS model, two sp2 carbon atoms can be connected with one Alfa-bond, and Pi-bond can be made by using p-atomic orbital plates, showing the correct structure and bonding mechanism of a C = C double bond. After understanding the basic nature of double bond, p-atomic orbital plates become unnecessary for assembling larger molecules. If double and triple bonds of old type are desired, it is still possible to use the bent bonds

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Easy to build with and contains a great variety of atoms and bonds to work with. I bought this product because I liked their organic kit.

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