# Degrees octahedral molecular geometry

The molecular geometry of octahydral sulfur hexyfluoride: Chime in the new window is an example of the molecular geometry of tuctadral, resulting from six geometry of the electron pair $SF_6$. The sulfur atom has 6 electrons. However this is an example where there are six fluoride atoms and acts are expanded. Lewis's chart is as follows: F = 7 e- x 6 = 42 e- S = 6 e - Total = 48 e - Fluorine atoms are as far from each other as possible at close to the 90o bond angle in all directions. This is octagonal geometry. Octagonal geometry is determined by 6 pairs of electrons. Bromine pentafluoride: Chime in the new window in this example, $BrF_5$, shows the Lewis Br diagram in the center with a single pair of electrons and five connected fluoride atoms. Lewis's diagram is: Br= 7 e-F = 7 e- x 5 = 35 e- Total electrons = 42 e- with five atoms and a single pair is the geometry of the octagonal electron pair. Molecular geometry is called a square meth. Chlorine trifluoride: Chime in the new window in this $ClF_3$ example shows the Lewis Keller diagram in the center with three fluorine atoms attached and two pairs of electrons alone. The Lewis chart is as follows: Cl = 7 e- F = 7 e- x 3 = 21 e- Total electrons = 28 All fluorine atoms have an octet of electrons, and chlorine has expanded an octet. The geometry of the electron pair is two trigonal pyramids and the molecular geometry is T-shaped. Again, axial atoms bend slightly from an angle of 180 degrees. Compare this with $BH_3$, which also has three connected atoms but no single coupling. Or ammonia, $NH_3$, with three connected atoms and a single pair. Triudie Ion: In this example, $I_3$-shows the Lewis I diagram in the center with 3 pairs of electrons only and two other iodide atoms attached. Lewis's chart is like this: I = 7 e- x 3 = 21 e - -1 charge = 1 e - Total electrons = 22 e- with two connected atoms and three single pairs, the geometry of the electron pair is trigonal pyramidal. Molecular geometry is called linear. Ion Tri-Yodine is responsible for the blue-black color with starch. The element iodine does not color alone. Iodine in the mixture with iodine ions causes trii iodine ion. In inorganic chemistry, an octaheadron is classified by its molecular geometry, in which its distant shape is described as having six atoms, groups of atoms or electron pairs symmetrically arranged around a central atom and defining the heads of an octagonal. The default Octa, which means eight, comes from the fact that the molecule has eight symmetrical faces. All atoms are 90 degrees apart, and 180 degrees apart from the atom, directly across and opposite. In relation to identifying each species, we will look at three separate unique shapes with different number of transplant pairs and single pairs. It allows us to recognize and classified octagonals based on the following shapes: octagonal, square and square planer . IntroductionHeading #2ReferencesOutside LinksProblemsAnswersContributors to be able to understand and distinguish the difference between the three types of octahedral species and how they different from one molecule to the next, it is essential to try to visualize geometrically shapes and in 3D. This allows one to detect and see differences in molecular design for each individual molecule. We will begin by describing the design of an octagon and then continue to have the next two molecules. An octagon is best described as a central atom symmetrically arranged by six other atoms. What makes this molecule different from other species is the fact that it is surrounded by six atoms either identical or different. There are six pairs of bondings in this molecule and the electron pair is not alone. The molecule below does not have any single electron pairs around it, allowing it to have a distinctive shape. In the three-dimensional sense, we might think of an x, y, and z coordinate aircraft that have both positive coordinate systems and negative coordinate systems. Another way to look at it would mean that all the molecule figures exist; through this reference, it is similar to what would be a three-dimensional prism. All atoms are 90 degrees from each other and 180 degrees of atoms spread directly across and opposite. The resonance for distance is due to a molecule that sorts itself in the most stable way possible and limits the bond-placenta to the interaction of the bond pair. Here's the basic example, but clear of what an octagon looks like: the octagonal (6 pairs of bonding and 0 pairs of electrons) of the next molecule we'll examine is known as the square pyramid. This molecule has many similar characteristics, with an octagonal in the sense that it is composed of a central atom still symmetrically surrounded by six other atoms. What makes this molecule different from the previous one is the fact that it is not just composed of the bonded pair atoms around it. There's a pair of electrons that replaced one of the atoms, and because these electrons now exist, it gives a new look away to the molecule. There are five bonded pairs and one pair of electrons. Atoms must sort themselves in the most stable way possible, not only limiting the bond-coupling to the bond-placenta interaction, but also limiting the bond pair to the electron-coupling interaction. The easiest way to visualize what this molecule looks like to re-visualize the coordinate plate x, y and z, but this time removes what is deemed a negative y coordinate axis and places a pair of lone pair electrons in place. The molecule is still separate from intended Species affect the shape because it still satisfies the need for six atoms, but in terms of its shape, electrons effect the shape. This allows it to take its new shape. If you actually put those electrons aside and put the molecule on the surface, you'll see it looks like a 3D mem with a square base. Again, all atoms and electron pairs are 90 degrees apart and 180 degrees from the atom directly throughout and opposite. Here's what the square pyramid looks like: the square pyramid (5 pairs of grafts and 1 pair of electrons) is the last octagonal species known as a square planer. It resembles both previous molecules, but it's more like a square pyramid. It still has the characteristics of a square pyramid, but what makes it different is that instead of having only one pair of electrons replacing the position of an atom, there are two pairs of electrons that replace the position of two atoms. To visualize what this molecule looks like, we refer to the x, y and z coordinate system, the only difference is that this time we destroy the entire y coordinate, replacing it with electrons that will be the axis of positive y coordinates as well as placing a pair of electrons in what is considered a negative y coordinate axis. The reason for this arrangement is to have the molecule to sort itself in the most stable way possible the limiting interactions between the bond-placenta to the bond-placenta, the bond-coupling to the electron-coupling, and the electron-coupling to the electron-coupling. If you try to visualize what this will look like, it's almost like a 3D X with two pairs of electrons alone. Because the only pair of electrons still exists, which allows this molecule to still be considered octagonal due to the fact that it still meets the requirements of being surrounded by 6 atoms or groups. In relation to its shape, the electron pair causes repulsion, allowing it to have its new shape. Atoms and electrons are still 90 degrees away from each other and 180 degrees from the atom directly across and opposite. Here's what a square planer would seem like: square planer (4 bond pairs and 2 pairs of electrons) renamed to below the desired subject. You can remove the header for this section and place yourself relevant to the subject. Remember to hyperlink your module to other modules via the link button in the Toolbar Editor. References Brown, Theodore L. Chemistry: the Central Science. 10th ed. Upper Saddle River, NJ: Pearson Prentice Hall, 2006. Printing. Housecroft, Catherine E., and Alan G. Sharpe. Inorganic chemistry. 3rd ed. Harlow: Pearson Education, 2008. Printing. (Pgs 51-52) Outside Links Sample octahedral image adapted from wikipedia key word octahedral geometry:en.wikipedia.org/wiki/Octahedral_molecular_geometry Sample square planar image adapted from wikipedia key word planar geometry:en.wikipedia.org/wiki/Square_planar_molecular_geometry Sample square pyramidal image adapted from wikipedia key word square pyramidal geometry:en.wikipedia.org/.../Square_pyramidal_molecular_geometry 1. What makes three different octa-varieties sort the way they are done? What conditions should be met? 2. Can two pairs of separate electrons stand at 90 degrees apart? why? 3. Give an example of molecules that fall into the category of an octagonal, square pyramid, and square planer. 1. Molecules make the arrangement they make because they attempt to sort themselves into the most stable structure possible to limit the interaction between the bond-coupling and the electron pair interaction. As long as these conditions can be met, it is possible that the structure will not only exist, but remain stable. 2. This again returns to satisfying the conditions of keeping the molecule as stable as possible by limiting only the placenta to the interaction of only the placenta as well as the interaction of the same cue. Because electrons hold the same type of load, they cannot be near each other because of the same load repulsion and therefore must be as far away from each other as possible so that the molecule is stable. 3. Molecules that fall into the triganol planer category based on their molecular geometry will be $SF_6$, the molecule placed in the square pyramid category will be $BrF_5$, and a molecule that will be placed in a category of a square planr will be $[AuCl_2]^-$. Participants #1 here (if anonymous, you can avoid this) with a university affiliation