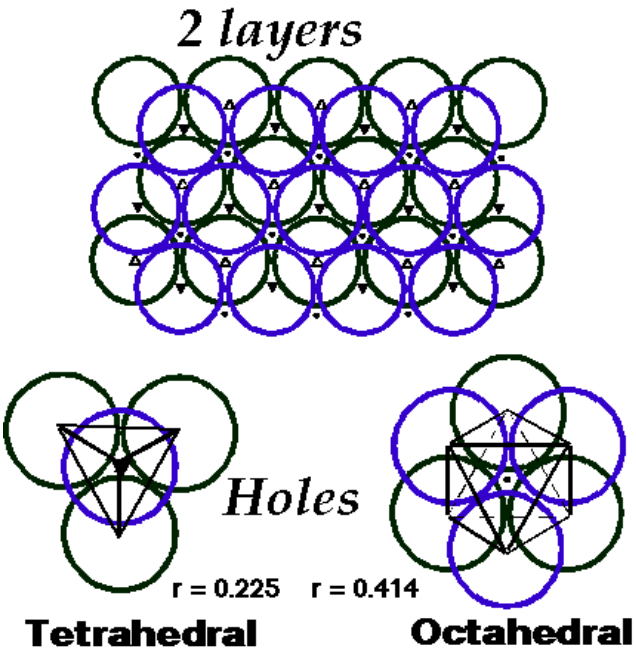
Answer on Question #53359 - Chemistry - Inorganic Chemistry

Question:

What are tetrahedral sites and octahedral sites in a crystal lattice? Explain with an example.

Answer:

Tetrahedral and octahedral sites in a crystal lattice can be occupied by other atoms or ions in crystal structures of salts and alloys. Thus, recognizing their existence and their geometrical constrains help the interpretation of crystal chemistry. The packing of spheres and the formation of tetrahedral and octahedral sites or holes are shown below.



Whenever you put four (4) spheres together touching each other, you've got a tetrahedral arrangement of spheres. The space in the center is called a **tetrahedral site**. The **octahedral site** is formed by six spheres. These sites are also called **holes** in some literature, and they are shown in the diagrams above.