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Diamond Industry ABC Guide on Crystallography of Diamonds:

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Hardness of a Diamond

- Diamonds are one of the hardest known substance to Mankind
- Diamonds are rated 10 on the Mohs hardness scale
- Due to this hardness it takes a diamond to cut another diamond

Structure of a Diamond

- The Atomic structure of a diamond comprises of carbon atoms, each being covalently bonded by four neighbouring atoms in a tetrahedral arrangement.
- The phrase tetrahedral comes from the Greek language with tetra meaning four and edron meaning three; hence it is a four faced three dimensional shapes.
- The tetrahedron resembles the basic atomic building block of a diamond.
- The four outer atoms take on the position in the four points of the tetrahedron.

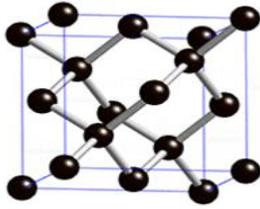
Crystal Shapes:

Cube

- The cube is also referred to as the hexahedron meaning it has six faces.
- Cubes usually yield 28-33% during the polishing phase.

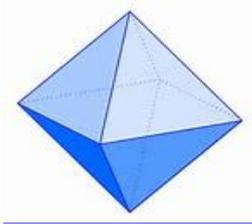
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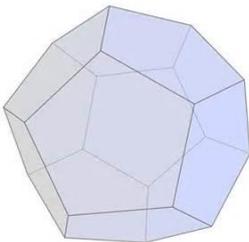
Octahedron

- It is the most recognizable crystal shape for diamonds.
- An octahedron has 8 faces and each face is joined at three points.
- Octahedrons are often known to be the perfect diamond shape and often yields a 45-55% polished diamond.
- The below is a picture of an octahedron:



Dodecahedron

- This diamond structure is fairly common in the productions found in Africa.
- It is also one of the favourites among diamond cutters due to it yielding higher results when cut into round and cushion shapes.



Conclusion:

- A diamond structure is extremely important for a diamond polisher, as it stipulated the polished outcome.
- The structure also indicated if the rough diamond will be sawn in half to yield two polished stones or if it will be made as is, and recover one polished diamond.

