



What is Zeolite

“Zeolite” is the name of a Group of safe, naturally occurring, environmentally friendly minerals that are aluminosilicates with similar composition and characteristics. There are some 46 different minerals in the Group and only 4 of them have the absorption characteristics that render them of commercial value. The 4 useful minerals are clinoptilolite, mordenite, chabazite and phillipsite. Of these minerals clinoptilolite and mordenite are by far the most effective. **Castle Mountain Zeolites®** have the best of both Worlds with a mixture of both clinoptilolite and mordenite.

Natural Zeolites have an open box work crystal structure, which is occupied by cations and water molecules. These ions and water molecules can move within the large cavities allowing ionic exchange and reversible rehydration plus they have a very high micro-porosity and as their action is physical absorption and ion exchange rather than a chemical reaction, the process can proceed virtually to completion rather than reach an equilibrium. These special features of zeolites mean that they are invaluable in solving many environmental problems.

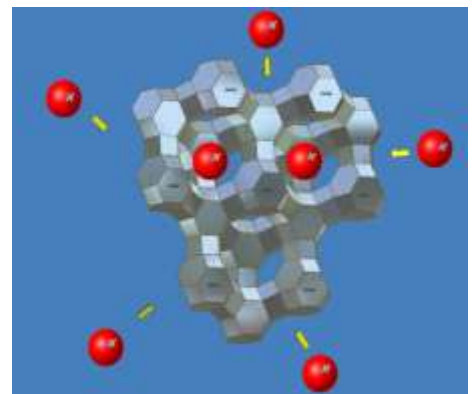
How Are Zeolites Formed?

Most commercial deposits are formed from a layer of volcanic dust (ash). The conditions required are very complex and precise and hence commercial deposits of natural zeolite are rare. One must have:

1. A relatively thick layer of volcanic ash.
2. That volcanic ash must be of the correct composition. Essentially it must be composed of amorphous silica glass (called *obsidian*).
1. That ash must fall into, or be washed into water.
2. That water must be static and neither fresh nor salt (i.e. brackish).
3. The water must be brackish with the correct salts.
4. This environment must be stable for a long time (at least ½ million years).
5. The ratio and concentration of the various salts determines which particular zeolite minerals are formed.

What happens is that the amorphous glass slowly re-crystallises and in doing so takes up the salts from the surrounding water. This causes the formation of aluminosilicate minerals with the characteristic crystal forms of the particular zeolites.

Castle Mountain Zeolites® is of Carboniferous Age, is 300 million years old and is thought to be one of the oldest commercial zeolite deposit in the World. Unlike most overseas zeolites it is hard, very stable and contains no soluble salts.



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STATION STREET POST OFFICE BOX 54, QUIRINDI NSW 2343 AUSTRALIA

TELEPHONE 02 6741 2333 FACSIMILE 02 6746 1723

EMAIL sales@cmzeolites.com.au www.cmzeolites.com.au