

## Relationship of zeolites and host rocks

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Natural zeolites occur in various rocks, such as igneous rocks, sedimentary rocks, and metamorphic rocks, at surface and shallow zone of upper crust.

In this research, the relationship between chemical composition of the host rocks and zeolite species are discussed in terms of the basis of chemical analysis of samples from Izu Peninsula and the Chichijima of Ogasawara (Bonin) Islands.

Although origin relations between the microscopic zeolite species and host rock compositions are seen under the conditions of low water/rock ratio, like a burial diagenesis, low degree regional metamorphism, and contact metamorphism, it has reported that macroscopic crystals occur in veins and geodes, not controlled by host rock composition, as they produced under the conditions of high water/rock ratio of hydrothermal alteration, in a previous work. (Utada 1995)

### Result and discussion

The identification of the zeolites species are characterized by X-ray diffractometry and bulk rock chemical composition of host rocks are analyzed by X-ray fluorescence.

To research 10 points of Chichijima (Ogasawara islands) and 2 points of Izu Peninsula, eight kinds of zeolite ( Heulandite, Analcime, Chabazite, Mordenite, Erionite, Phillipsite, Stilbite and Yugawalite) were able to be identified.

Samples from Chichijima, Stilbite was detected on Miyanohama, Hatsuneura north side, Hatsuneura south side, Suzaki, Buta seashore, and Kin-shi beach.. Stilbite did not occur on the samples from other 4 points

As a results Si/Al ratio of the host rocks are clearly different between the points of Stilbite occurred and not occurred, Si/Al ratio of former rocks were 5.248~7.672, the latter rocks were 4.230~4.768. The boundary of Stilbite occurrence Si/Al ratio of host rock seems to be around 5. . In the Chichijima (Ogasawara islands), correlation was found between host rocks and formed zeolites.

Keywords: zeolites, host rocks, Chichijima, Ogasawara islands