

# Chemical composition and thermal property of tobermorite from Fuka, Bitchu-cho, Okayama Prefecture, Japan

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Chemical and thermal property of tobermorite(-11A) and tobermorite-14A (plombierite) from Fuka, Okayama Prefecture, Japan were studied. Tobermorite occurs as fissure filling veins in gehlenite-superrite skarns with calcite, scawtite, xonotolite, bultfonteinite and appophyllite.

Plombierite (tobermorite-14A) containing 2 layers of water molecules in the inter-layer is stable at low temperatures and is dehydrated to tobermorite (-11A) containing 1 layer of water molecules by heating at about 90 degree. Tobermorite dehydrates to tobermorite-9A (riversideite) by heating at about 300 degree and converts to wollastonite at 800 degree. Tobermorite which converts to tobermorite-9A by heating is called as normal type and that not convert to tobermorite-9A is called as anomalous type. There is a mixture of the both types and is called mixed type.

Tobermorite is a hydrate calcium silicate and usually contains aluminium substituting silicon. Tobermorites from Fuka are usually normal type and contain small amount of aluminium (0.1 to 1.5 wt. percent). Mixed type also occurs at Fuka and contains various amounts of aluminium: some contain 0.1 to 0.7 wt. percent of Al<sub>2</sub>O<sub>3</sub> and rarely contain 3.5 to 4.8 wt. percent. Tobermorites from Fuka contain almost no alkaline ion which can partially substitute inter-layer calcium ion.

Cell parameters of orthorhombic pseudocell showed small change in a-axes and b-axes. Cell parameter along c-axis decreases with increase in aluminium contents.

Stability temperatures of tobermorite lie between 90 and 200 degree (Mutsuda, 1988), those of scawtite between 140 to 300 degree (Harker, 1965) indicate the formation temperature of tobermorite from Fuka between 90 to 200 degree.