Pectolite genesis from Deh-Shir ophiolite, Central Iran

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Rodingites as boudined dikes occur in serpentinized harzburgites in the Deh-Shir opholite complex west of Yazd province in Central Iran. They are formed by metasomatic processes influenced on basic dikes which intruded the host harzburgites [1]. At first percolation of Ca-enriched fluids during serpentinization could have led to the initial development of static or pervasive rodingitization. This early metasomatic stage is followed by following mineral assemblage:
Hydrogrossular+vesuvianite+prehnite+epidote+chlorite+ termolite+ actinolite±relict pyroxene

Pectolite, ideally $Ca_2NaH(SiO_3)_3$, occurs as a major late veinlets in early rodingitized gabbroic dikes. There are also other veinlet mineral phases: xenotlite, wollastonite and prehnite. All of them refer to development of final dynamic rodingitization. All of reactions regarding to Ca^{2+} metasomatism and onset of rodingitization remove the alkalis from the isovolume system. We suggest an acid-leaching process is engaged to leach and remove Na^+ from decomposition of plagioclase of host gabbro so the appearance of pectolite may be visualized by following reaction: $Na^+ +2Ca^{2+}+ 3SiO_2+ 3H_2O = Ca_2NaH (SiO_3)_3 + 5H^+$

[1] Mackizadeh, M. A., 1997, Petrology and geochemistry of Deh-Shir opholites with emphasized on relate hydrothermal alterations (Rodingitization and listvenitization), M.SC. thesis (In Farsi), University of Isfahan, 149 pp.