**TITLE: *Calcium silicate mineral (CaSiO3)***

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**KEYWORDS:** *Wollastonite, Microstructure, Inorganic, Nanopowders*  
  
**ABSTRACT**

Wollastonite is a calcium silicate mineral (CaSiO3) which can be natural or synthetic. The main components of Wollastonite are SiO2 and CaO; the theoretical content of CaO is 48.25% while that of SiO2 is 51.75%. The melting point of pure Wollastonite is 1540 °C [1,2]. It has two polymorphic forms, namely: α-CaSiO3(pseudo-Wollastonite) and β-CaSiO3 [2]. They have identical chemical composition, stoichiometry but different crystalline structures [2,3].

Different procedures have been used to prepare Wollastonite ceramics. Previously, the synthesis of Wollastonite was achieved by solid state reaction of CaO and SiO2 powders heated at elevated temperatures (above 1100 °C) and for long times [7], which causes sintering and aggregation of reactive particles. By contrast, wet chemical routes, such as sol-gel [[8], [9], [10]], co-precipitation [11,12], hydrothermal [13]and solution combustion [14], remain the adequate techniques for the synthesis of high purity components, because they provide better homogeneity, composition control, and a lower processing temperature that result in more reactive powders.

Kaili Lin et al.and Li Xiaoke et al. [15,16] have synthesized successfully Wollastonite by a hydrothermal micro-emulsion and hydrothermal methods respectively; this approach is considered as an effective, convenient and soft synthetic technology. Yusuke [17] have synthesized Wollastonite powders by firing (1400 °C) co-precipitated gel, obtained from Ca(NO3)2 and (TEOS) reagents. Hamisah et al. [18]and Shamsudin et al. [19] have synthesized α-Wollastonite and β-Wollastonite, respectively, from rice husk ash and limestone. However, the use of expensive and toxic raw materials and complicated processing technologies are not appropriate for commercial purposes. Nowadays, researchers are trying to find alternative processes with less expensive, non-toxic, and abundantly available raw materials. In a recent study, Nilormis [20] report the synthesis of 100% phase pure calcium silicate without using any surfactant or peptizer at low temperature.

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