minerals

MDPI

Supplementary Materials

Effect of Mica and Hematite (001) Surfaces on the Precipitation of Calcite

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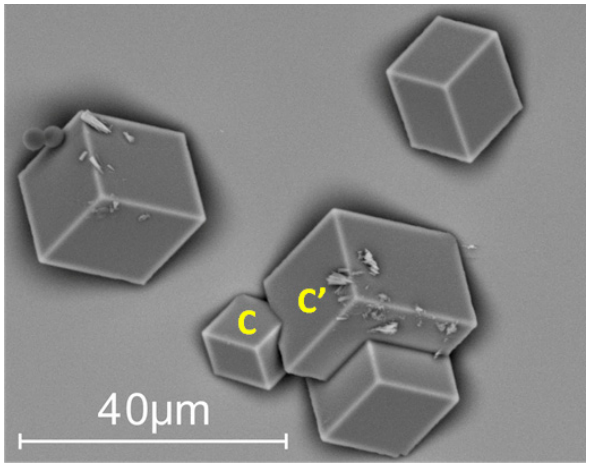

Figure S1: SEM image showing calcite crystals on (001) surface of a muscovite. Crystals C and C′ are in twinning relationship.

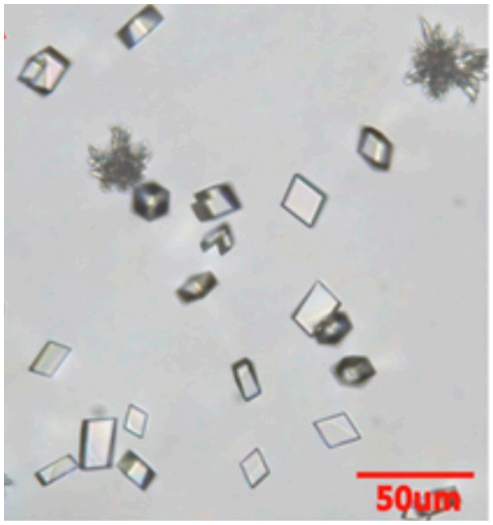

Figure S2: Calcite crystals and small amount of aragonite aggregates nucleated on gorilla glass.

The gorilla glass is usually used as cover glass for portable electronic devices like mobile phones, laptop computer displays, etc. So it is very tough and not easily broken. It is manufactured through immersion in a molten alkaline (K) salt bath using ion exchange to produce compressive residual stress at the surface.

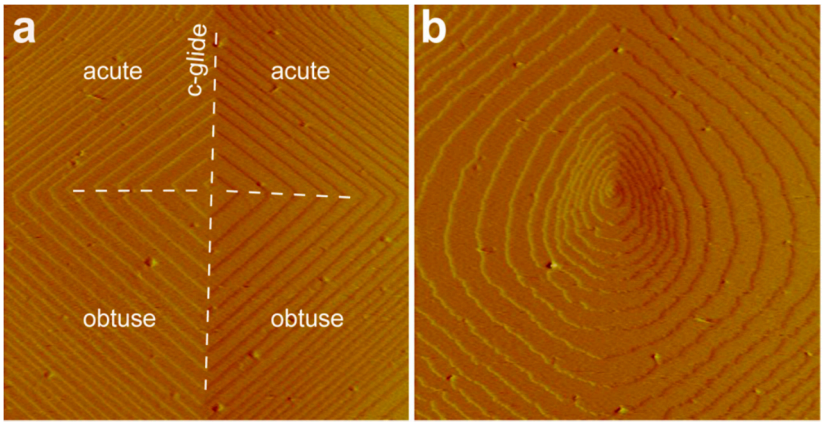

Figure S3: AFM images sowing (104) surface steps grown in Mg-free solution (left) and Mg-bearing solution with Mg/Ca ratio = 5:1 (right). Incorporation of Mg in the calcite results in slower growth rates along ***a*** and ***b*** directions. The (104) steps look like tear-drop elongated along ***c***-axis (traces of ***c***-axis in here).

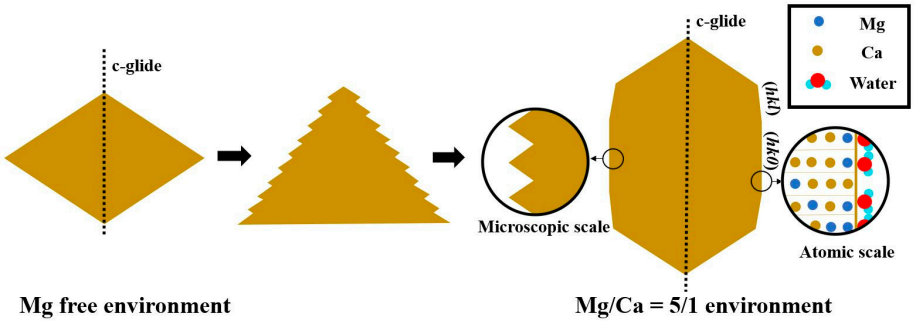

Figure S4: Diagrams showing the surface step and shape changes as Mg incorporated into the Mg-bearing calcite structure. Reduced growth rates along ***a*** and ***b*** directions resulted in the observed elongated crystals.