

PPS004-P03

会場:コンベンションホール

時間:5月27日 10:30-13:00

ケイ酸塩-有機物-水反応 : (1) 非晶質ケイ酸塩 Interaction among silicates, organics, and water: (1) the role of amorphous silicate

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We have investigated the chemical interaction of silicate, organics, and water at various temperature conditions to get better understanding of evolution of solid materials in the solar nebula with special interest to the evolution of organic materials on silicate. At first, we have carried out thermodynamic calculation for hydration of the amorphous silicate, and we found that the reaction boundary lies at much higher temperature portion compared to crystalline silicates, that is the hydration of amorphous MgSiO_3 takes place at higher temperatures by ~ 300 C compared to crystalline enstatite, and amorphous Mg_2SiO_4 by ~ 200 C than crystalline forsterite. The results predict that hydrous silicate is easily formed from amorphous silicate, which should be abundant in the precursor material of the solar nebula. Because hydrous silicate are a good candidate for the formation and evolution of organic materials, formation of hydrous silicate at high temperature will enlarge a possibility of organic material formation in the nebula. In order to confirm the calculation results, we have done hydration experiments for crystalline and amorphous silicate in water vapor. The results will be presented.

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