Fe2SiO4-Fe3O4系の高圧相平衡

Phase equilibria for the Fe2SiO4-Fe3O4 system under high pressure

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High pressure phase relation of the system Fe2SiO4-Fe3O4 was investigated by synthesis experiments using multi-anvil high pressure apparatus. A complete solid solution with spinel structure along Fe2SiO4-Fe3O4 join occurs above 9 GPa at 1200℃. Lattice constants of the solid solution show almost linear variation with composition. A spinelloid phase is stable for intermediate compositions in the pressure range from 3 to 9 GPa. The synthesized spinelloid phase is successfully indexed assuming nickel aluminosilicate V type structure.

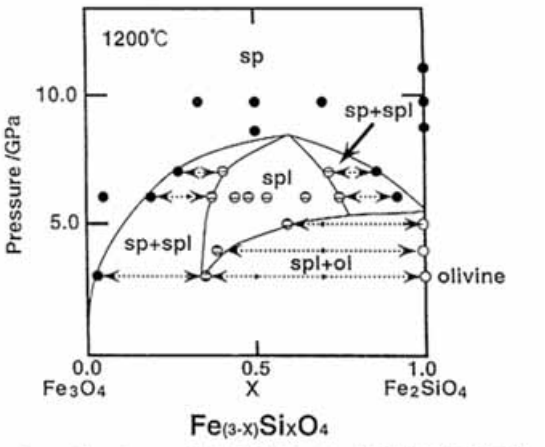

Figure　Phase diagram of Fe_2SiO_4-Fe_3O_4 system at 1200°C. Data points at 7 GPa are after Ross et al. (1992).