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# Syntheses of Glauconite at Surface Temperatures

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**Abstract:** Glauconite has been synthesized at low temperature by precipitation of Fe-hydroxides from Si-, Fe-, Al-, and K-containing solutions under reducing conditions. The compositions favorable for the synthesis at 20° C and pH 8.5 are 1 ppm Fe, 0.15 ppm Al, 13 ppm SiO<sub>2</sub>, 1000 ppm KCl, and 1000 ppm dithionite. The K-content of the solutions must be sufficiently high to fix K in the precipitate.

Under special early diagenetic conditions glauconite is formed in marine sediments, probably at the interface between reducing and oxidizing zones in the muddy sediments. The silica content of pore waters seems to control the formation of glauconite or chamosite rather than depth or temperatures of the bottom waters.

**Key Words:** Glauconite • Diagenesis • Pore solutions • Synthesis

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