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CH₄-CaSO₄和H₂S-Fe₂O₃反应体系的热力学和动力学研究

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摘要 The destruction of hydrocarbon in deep carbonate diagenetic environment is one of problems on the formation of oil and gas. Organic-inorganic reactions in the process of TSR (Thermochemical Sulfate Rednction) are the main reason to make disappearance of the hydrocarbons. The work in this field has often been the subject of much research work in recent years. In this paper, the thermodynamics of CH₄-CaSO₄ and H₂S-Fe₂O₃ systems is discussed to investigate the possibility of reactions. It is found that these two reactions can proceed spontaneously. Increasing temperature is favorite for CH₄-CaSO₄ system but disfavorite for H₂S-Fe₂O₃ system. Thermal simulation experiments were carried out using autoclave at high temperature and high pressure. The properties of the products were characterized by microcoulometry, FT-IR and XRD methods. On the basis of the experimental data, a reaction kinetic model is developed and kinetic parameters are determined.

关键词 [thermochemical sulfate reduction](#) [CH₄-CaSO₄ system](#) [H₂S-Fe₂O₃ system](#) [simulation](#) [experiment](#) [kinetics](#)

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Study of Thermodynamics and Kinetics of CH₄-CaSO₄ and H₂S-Fe₂O₃ Systems

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