

## **The study of methane hydrate growth kinetics by NMR method**

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### **Abstract**

The nuclear magnetic resonance method conducted researches of longterm kinetics of growth of methane of hydrate on limit of the section gas - liquid (water). The amount of the formed methane of hydrate was registered according to the analysis of a signal of recession of a free induction. To methane to hydrate that part of a signal which was characterized by small time of a cross relaxation belonged. The analysis of kinetic curves of growth of thickness of a film of methane of hydrate on limit of the section gas-liquid showed that they aren't described within the assumption of normal diffusion of molecules of methane through a film of methane of hydrate. The detailed analysis of dependence of a share of a signal of methane of hydrate from time allows to suggest about abnormal diffusive process.

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### **Keywords**

Diffusion, Kinetics, Methane hydrate, Nuclear magnetic resonance (NMR), Relaxation