

Abstract Submitted  
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**The effect of surfactant on the formation and combustion of methane hydrates**<sup>1</sup> JEFFREY BOTIMER, PETER TABOREK, SUNNY KARNANI, DEREK DUNN-RANKIN, Univ of California - Irvine — Methane hydrates are an abundant and globally distributed fuel source that has potential to play an important role in the worlds energy economy. We have used optical imaging to study the effects of surfactant on the kinetics of formation and the combustion of methane hydrates. We grow hydrates from liquid water in methane gas at 275K and 1000psi. The hydrate growth front propagates into the vapor rather than into the liquid. We have investigated the effect of wetting properties of the substrate on the growth of the hydrate. The combustion of hydrates is complicated by the requirement of draining away the melting water during combustion. The surfactant complicates the combustion process further because it inhibits the drainage of water. We have investigated this process as a function of surfactant concentrations and ambient pressure.

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Jeffrey Botimer  
Univ of California - Irvine

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