

能源和环境工程

甲烷水合物分解实验

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摘要

在体积10 L的静态反应器中研究了水合物分解动力学, 考察了储存温度和水合物量等因素对水合物分解的影响。实验结果表明, 水合物在273.15 K以下时存在一种异常的自我保护效应, 其在268.05 K时分解速度最慢; 而水合物的储运压力与储罐中的水合物量有关, 当储罐容积一定时, 分解压力随着储罐中水合物量的增加而增加, 但水合物的分解百分比随着水合物量的增加而减少; 最后提出了在一定压力下储运水合物的方法。以期水合物法固态储存气体技术的工业化应用提供实验数据和理论依据。

关键词 [甲烷水合物](#) [储存](#) [分解](#) [水合物量](#)

分类号

Dissociation experiment of methane hydrate

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Abstract

The effects of temperature and hydrate quantity on the dissociation kinetics of methane hydrate were studied in a 10 L quiescent reactor. A self-preservation phenomenon of methane hydrates was observed at a temperature below 273.15 K, and the dissociation rate was the least at 268.05 K during the experimental runs. The experimental results indicated that the pressure of the storage and transportation system depended on the hydrate quantity in the vessel. When the volume of the vessel was constant, the pressure of the system increased but dissociation percentage of the hydrate decreased with increasing hydrate quantity. The experimental results were useful for gas storage in the form of methane hydrate in large-scale industrial application.

Key words

[methane hydrate](#) [storage](#) [dissociation](#) [hydrate quantity](#)

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