

عنوان مقاله:

Processes and apparatuses for formation, separation and pelletizing of gas hydrate

محل انتشار:

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خلاصه مقاله:

Despite the suggested applications for gas hydrate in transportation and storage of natural gas, desalination of water, etc., there has been no applied industrial application for it. There are several patents and papers on thermodynamically and kinetically promotion of gas hydrate formation and many concerning its related processes. In designing a process based on gas hydrate application in industry, one must include the following operations: formation, separation, pelletizing, storage, transportation and gasification. In this review, operations of each gas hydrate's application are studied and processes for formation, separation and pelletizing of gas hydrate are widely discussed. Gas hydrates formation systems are classified based on contact type of gas and liquid. Autoclave, spray, bubble column, using micro bubbles, hydrate formation with emphasis on nucleation sites and gas ice process are discussed as hydrate formation systems. Separation of gas hydrate and unreacted water is a solid-liquid separation process which is done by operations based on density difference (using gravity force or centrifugal force) or mechanical separation such as filtration. Pelletizing of gas hydrate with more storage gas capacity and less decomposing rate has been accomplished by piston and cylinder or roller systems.

کلمات کلیدی:

Gas hydrate, Gas hydrate formation, separation, Natural gas transportation, Gas hydrate pelletizing

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