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# 天然气处理工艺初步分析

## 摘要

天然气是环保、清洁、高效的能源，但随着我国天然气开采区域越来越多、使用率越来越高，开采出来的天然气含水量偏高影响天然气的正常使用，集输成本较高。本文针对长庆 JH 气田天然气高含水的问题提出集输工艺设计方案，以解决集输成本高、含水量高等问题。

本文分析天然气处理工艺，然后将不同压力下天然气收集和运输的总体流程图进行比较和分析，并据此确定脱水过程。最后，模拟计算能耗和成品天然气各项指标。现得出以下结论：根据长庆 JH 气田的实际情况，确定长庆 JH 集输站的核心工艺采用分子筛脱水，通过软件模拟能耗得出脱水工艺单元的能耗为 25387kw，天然气处理工艺总能耗为 107168kw，与现有的国内同规模的处理工艺相比，此处理工艺的总能耗偏低，且在实际运行工况下所生产产品气的 H<sub>2</sub>S 含量、CO<sub>2</sub> 含量、水露点、烃露点、热值等指标均满足使用标准。

**关键词：**脱水工艺；天然气集输；分子筛脱水

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## Abstract

Natural gas is an environmentally friendly, clean, and efficient energy source. However, with the increasing number of natural gas extraction regions and higher utilization rates in China, the high water content of the extracted natural gas affects the normal use of natural gas, and the cost of gathering and transportation is relatively high. In this paper, the design scheme of gathering and transportation process is proposed for the problem of high water content of natural gas in Changqing JH gas field, in order to solve the problems of high gathering and transportation cost and high water content.

This article analyzes the natural gas treatment process, and then compares and analyzes the overall flow chart of natural gas collection and transportation under different pressures, and determines the dehydration process based on this. Finally, the energy consumption and finished gas indexes are simulated and calculated. The following conclusions are drawn: According to the actual situation of Changqing JH gas field, it is determined that the core process of Changqing JH gathering station uses molecular sieve dehydration, and the energy consumption of the dehydration process unit is 25387kw through the software simulation of energy consumption. The total energy of the natural gas treatment process Consumption is 107168kw, compared with the existing domestic treatment process of the same scale, the total energy consumption of this treatment process is relatively low, and the H<sub>2</sub>S content, CO<sub>2</sub> content, water dew point, hydrocarbon dew point of the product gas produced under actual operating conditions , Calorific value and other indicators meet the use standards.

**Keywords:** Dehydration process; Natural gas gathering and transportation; Molecular sieve dehydration

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