

## Existing Technique Applied in a Renewed Way: Perfpods for Sealing Leaking Gas Lift Valves or Holes In Tubing

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### Abstract

Gas lift valve failures in annular and tubing flow gas lift wells can lead to inefficient gas injection, gas recirculation, and production losses. These failures disrupt the intended gas injection strategy, leading to suboptimal production and increased operational costs. Traditional remediation methods, such as wireline intervention or full workovers, are expensive and time-consuming, often requiring significant well downtime.

This paper presents an innovative adaptation of an existing technique, commonly referred to as the "pantyhose method," by utilizing Perfpods—a self-dissolvable sealing technology originally designed for perforation isolation—to effectively seal leaking gas lift valves without the need for tubing pull. Unlike traditional implementations of the pantyhose method, this renewed approach allows for easy reversion in case of undesired outcomes, making it a flexible and risk-mitigated solution. The Perfpods were deployed in two different gas lift configurations: in annular flow wells, they were introduced through the wellhead tree cap, while in tubing flow wells, they were injected via the gas lift injection line. Upon reaching the leaking valves, the Perfpods formed an effective temporary seal, allowing deeper valves to regain control of gas injection.

Field trials were conducted under various well conditions to optimize deployment effectiveness. Different sizes of Perfpods were tested to evaluate their sealing efficiency and adaptability to various gas lift valve configurations. Experiments included testing different gas lift rates and assessing performance with production flowing and shut-in. The results demonstrated a high success rate in sealing leaking valves, reducing gas recirculation, and restoring injection efficiency. Moreover, the method proved to be highly cost-effective, eliminating the need for immediate well intervention and significantly extending the operational life of gas lift wells.

This novel yet reversible technique provides a simple, adaptable, and low-cost solution for mitigating gas lift valve failures. The paper discusses key operational considerations, best practices for successful implementation, and recommendations for future applications of this technique in gas lift optimization. The findings contribute to industry efforts in improving gas lift efficiency and minimizing intervention-related downtime.