

# Helium Leak Detection

DETECTING HAZARDOUS HYDROCARBON LEAKS BEFORE STARTUP AND OPERATION

## OVERVIEW

Safe operating conditions are essential to oil and gas processing systems.

With ever increasing productivity demands and complexity of processing plants, the handling of high-pressure flammable or toxic fluids requires the utmost safety

standards. Compliance with such standards ensures that remedial actions are taken swiftly and effectively.

The use of Helium Leak Detection (HLD) during commissioning or startup activities is the proven best method for helping ensure safety from hazardous

### APPLICATIONS

- Gas distribution systems
- Petrochemical process piping
- Oil refinery process piping
- Mechanical leak detection
- Valve leak detection
- Flange leak detection
- Purging during shut down and maintenance programs
- Leak testing of new process plant and system
- Leak testing following system shut down, maintenance or modification
- Test run and startup of compressors 'live simulation'

### FEATURES

- Simulation of live working conditions.
- Leaks are quantifiable
- Monitoring of joint condition over time
- Inert gases reduce oxygen content minimizing the potential hazards when hydrocarbons are introduced
- Single source for services and project documentation
- Real-time accessible records through all projects and asset life
- Step by step procedures and test packs
- Tracking of project/joint status and milestone reports

### BENEFITS

- Enhances the safe and extended operation of process plant and equipment
- Reduce the incidence of hydrocarbon leaks to zero
- Cost saving through reduced engineering and man hours
- Improvement of safety
- Save lost production, time and costs compared to repairing leaks after startup
- Seamless transition of knowledge from construction to operation phase
- Full visibility and traceability of system history prior to any commissioning activity

hydrocarbon leaks during startup and operations. Conventional testing methods such as hydrostatic testing, visual inspection or soap solution are qualitative and offer limited leak detection capability. HLD is the only method of accurately locating and quantifying system leaks.

HLD is a technique in which a system is pressurized to a predetermined level with a trace concentration of helium (usually 1%) carried by nitrogen (99%) such that any leak paths from inside the system can be detected and quantified. Helium is used due to its rare occurrence in the atmosphere and the ability to accurately detect and quantify its presence with specialized instruments such as mass spectrometers. Halliburton's calibrated helium mass spectrometers are capable of detecting leaks as small as 0.001 cubic feet of gas per year.

Specialized software allows each system to be split into individual "test packs." Preparation and planning ensures that all joints and components within the system are subject to a helium leak test and primary and secondary depressurization routes are specified. Any leaks found are assigned with an individual identification tag so that they can be easily documented for repair.

Sales of Halliburton products and services will be in accord solely with the terms and conditions contained in the contract between Halliburton and the customer that is applicable to the sale. H014306 07/22 © 2022 Halliburton. All Rights Reserved



For more information, contact your Halliburton representative or visit us at [halliburton.com](https://www.halliburton.com)

**HALLIBURTON**