White paper

Hydrocarbon detection: a major environmental and safety challenge

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How can hydrocarbon detection be made effective to protect both the environment and the safety of industrial sites?

Hydrocarbons—essential energy resources and raw materials—play a central role in many industrial sectors such as oil, chemicals, aviation, and maritime transport.

Their storage and management are key elements in ensuring operational continuity and meeting global energy demands. However, while these substances are valuable, they also pose major risks that require rigorous monitoring and effective preventive measures.

When handled and transported, hydrocarbons can escape in liquid form, primarily at connection points, valves, and pipe junctions.

These interfaces, which are subject to pressure variations and constant mechanical stress, are critical areas where leaks are most likely to occur. These zones are particularly sensitive due to frequent connections and fluid movement, thereby increasing the risk of product loss.

More than just waste?

This product loss is far more than simple waste—it can lead to much more serious consequences. A loss of containment in such infrastructure can result in soil and water contamination, causing long-term environmental damage and requiring costly remediation operations.

Moreover, the uncontrolled dispersion of hydrocarbons into the surrounding environment, due to the evaporation of these liquids, can lead to the formation of explosive atmospheres—greatly increasing the risk of fires, explosions, and industrial disasters.

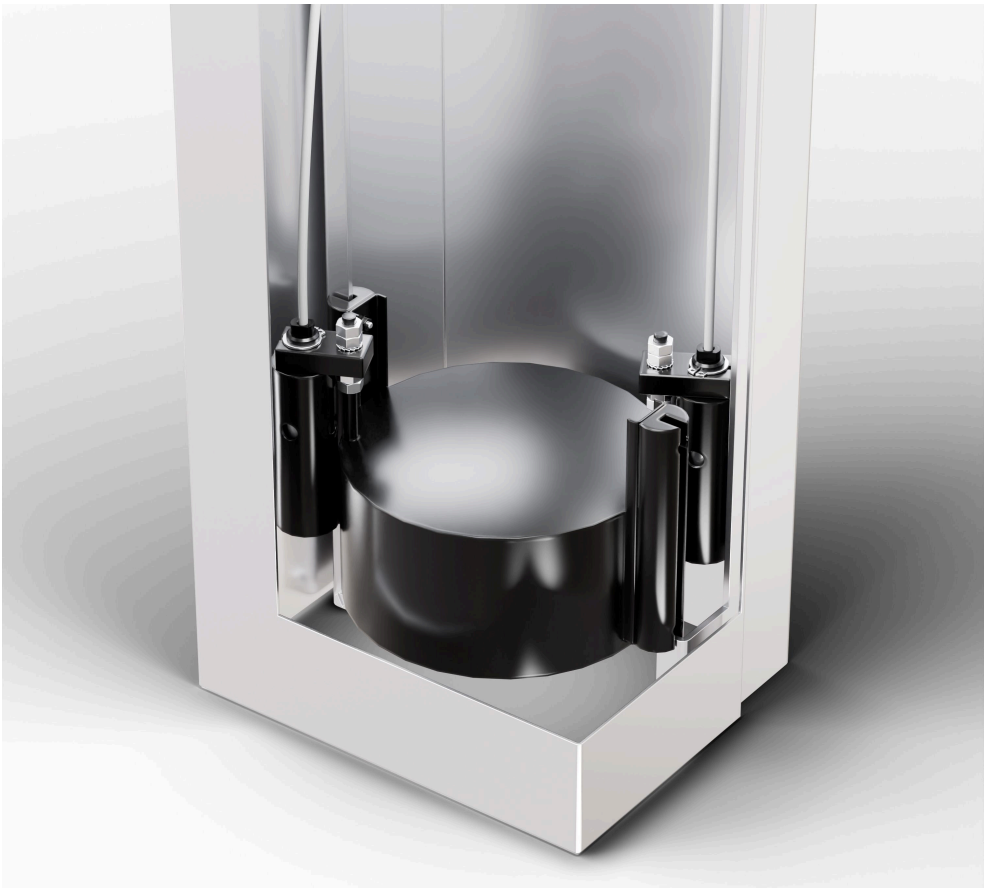
As a result, hydrocarbons can end up in industrial wastewater through separators, settling tanks, and pump stations—devices designed to separate oils and hydrocarbons from water before discharge. If these systems are inefficient or fail, they can release uncontrolled discharges, contaminating groundwater and soil.

Such pollution severely affects ecosystems and can render land unsuitable for agriculture or other industrial uses.

The HK detector: a reliable and effective solution for hydrocarbon detection

To address the critical challenges linked to hydrocarbon leaks, LARCO has developed the HK detector—an innovative solution based on DOCIL technology that provides fast and reliable detection.

- **Advanced DOCIL technology:** The HK uses a light reflection/refraction principle, allowing it to instantly detect hydrocarbons from as little as 15 mm.
- **Instant and selective detection:** It identifies the presence of hydrocarbons —even when mixed with water—thanks to the difference in liquid density. Optionally, it can also detect the presence of water.
- **Continuous monitoring:** It provides 24/7 detection, ensuring constant protection of infrastructure.
- **Accuracy and reliability:** Its robust design allows it to operate efficiently even in demanding industrial environments.
- **Easy integration:** Compatible with industrial management systems, it integrates easily into existing infrastructure without requiring major modifications.



Where should the HK detector be installed for maximum effectiveness?

The liquid hydrocarbon detector can be positioned in strategic locations where the risk of hydrocarbon leaks is highest:

- **In separators and at the last compartment of settling tanks**: to prevent hydrocarbons from being discharged into the environment through wastewater.
- **At the lowest point of storage tank containment basins**: to quickly detect any accidental leak from an overflow, pipeline rupture, leaking valve, or tank breach.
- **At pump stations and manifolds**: where pressure variations and multiple connections increase the risk of leaks.
- **Near loading bays**: to monitor transfer operations and ensure no major product loss occurs.

The HK detector therefore enables constant monitoring and rapid response in the event of a large-scale leak, thus reducing the risks of environmental pollution and major industrial incidents. By relying on this technology, operators can enhance the safety of their facilities while remaining compliant with applicable regulations.

Interested in the DOCIL HK?

contact@larco.fr

+33-1-39-47-12-22

www.larco.fr