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National Helium Gas Shortage

The United States is experiencing a helium gas shortage. The reduced availability of the gas affects all purity levels, from consumer retail use to high purity scientific and industrial use.

While periods of scarcity have occurred in the past few years, the actual cause is unclear. Sources indicate it may be a supply chain issue, a permanent reduction in the world-wide availability of helium, or other causes. Regardless of the true basis for the shortage and the uncertain future availability of helium, prices are currently increasing and supplies are limited.

- The U.S. Bureau of Land Management (BLM) has been the primary source of U.S. helium for years, and is now under a directive to privatize the industry.
- Trade between Qatar (one of main sources of helium) and surrounding countries is apparently restricted, limiting the supply of helium.
- There are very few retail vendors of helium in the U.S., and many labs have communicated severe reductions in supply and/or significant increases in cost.
- The number of medical facilities, research laboratories, military applications, etc. are all competing for a restricted national supply. These applications are all priority services as well.

The only practical alternative to helium for GC carrier gas use is hydrogen. Hydrogen does have obvious safety concerns, and planning is critical. Items to consider when switching to hydrogen:

- Proactive ventilation is needed to remove gas exhaust.
- Hydrogen generators (currently ~\$8,000-\$10,000 plus regular maintenance) are preferred over hydrogen gas tanks (significant hazard).
- While peak resolution may improve, some labs report a loss of sensitivity with hydrogen in GC/MS methods.
- Many methods may require different gas plumbing (e.g. stainless steel lines vs. copper lines) and instrumental changes. Mass spectral results may also change and need re-validation.
- Hydrogenation of double bonds may be an issue in certain analytical applications.
- Some labs have reported issues with chlorinated analytes.

Given the uncertainty of helium availability in the next few years, and the wide use of the gas in crime laboratories, ASCLD is encouraging laboratories to examine their usage, study whether alternatives are feasible, and plan accordingly in future purchases.

Citations

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