

# Secure and reliable helium supply Go with a global leader, Air Products



Helium is a unique, multipurpose molecule.  
But it is a finite resource.  
And global demand for it is growing.

As a leading producer and supplier of helium, Air Products is in a unique position to help meet this increasing demand. More than five decades ago, we pioneered many of the helium extraction, production, distribution, and storage technologies still in use—including cryogenic equipment for most of the world's helium recovery plants. Today, we have access to a more diversified supply than any other industrial gas company.

Air Products helium customers can count on our global supply network, breadth of resources, world-class service, expert technical assistance, commitment to quality, and industry-recognized safety record. We understand your need for secure, reliable supply, coupled with attention to detail, supported by service—throughout the world.

## Our experience spans today's and tomorrow's applications

Entire industries depend on helium's unique and varied properties. No matter what your application, you'll benefit from our helium expertise.

- **Magnetic Resonance Imaging**— The majority of the MRI magnets in the United States and over half of those around the world count on Air Products' helium and cryogenic gases to keep them cold and superconducting. We pioneered the full-service approach, providing both cryogen supply and fill services. Today, through our °KeepCOLD® Services program, our highly trained technicians perform thousands of fills annually.
- **Lifting**— Air Products' helium puts the rise in party balloons, advertising blimps, and high-altitude scientific research balloons. We serve the world's current fleet of airships, not only with helium but also with mobile repurification systems. And our eyes are on the future as we help develop new airships that may transform global transportation and communications.

- **Breathing Atmospheres**—The diving industry relies on Air Products' helium supply for the pursuit of new, offshore energy sources, exploration, and mapping activities. And helium increases a patient's survivability when used in unique blood gas medical mixtures in clinical settings worldwide.

- **Analytical**—Providing helium with guaranteed specifications of <10 ppb of oxygen and <20 ppb of water, our patented BIP® cylinders have unique self-contained internal purifier systems. BIP cylinders provide the highest-purity helium available for use in analytical measurements and instrument carrier gas applications.

- **Pressurizing/Purging**—Defense, nuclear, and aerospace leaders use helium for detecting leaks in critical equipment, including rocket engines, and for purging and propellant transfer. Our liquid helium pump allows these industries to pressurize large on-site gaseous storage vessels at lower costs, with less energy and at faster rates.

- **Scientific**—Industrial, university, and government labs use our helium to ensure the low-temperature refrigeration necessary for energy, physics, and superconductor development. Also, the near-absolute zero environment that only helium can provide is used with nuclear magnetic resonance imaging.



- **Fiber Optics/Semiconductor Manufacturing**—Used by the global electronics industry for decades, helium enhances heat transfer and provides the stable inert atmosphere necessary for increased productivity in semiconductor manufacturing.

- **Leak Detection**—Many industries use mass spectrometers and helium to detect small holes or tears in equipment, preventing manufacturing defects from going unnoticed or even stopping impending failures before disaster strikes.

- **Metallurgy / Welding**—Helium is a vital component of our Ferromaxx® and other shielding gas products that provide faster, cleaner welds at less total cost. Helium is also used for state-of-the-art laser welding and cutting and for protective atmospheres for producing reactive metals such as titanium and zirconium and the rapid quench of tool steels.

- **Other Applications**—We continue to work with leading edge customers to commercialize new applications for helium.



## Look to an industry leader for secure, reliable helium supply

### Large production capacity

Because helium is rare in our atmosphere, it is too costly to recover by atmospheric separation like other industrial gases. The primary source is from certain natural gas fields; even then, it occurs at concentrations well below 2 percent. Also, there are only a few places in the world that have the composition of natural gas required to economically extract helium. And even fewer companies have the resources and expertise to keep a reliable supply of helium flowing to their customers.

Air Products designed and built the first cryogenic system for extracting helium from natural gas in the 1950s and first developed coiled wound heat exchangers for the industry in the 1960s. Today, we've built the majority of the helium plants in use around the world. We continue to supply innovative technology to keep the largest U.S. supply system in peak operation.



More importantly, no other industrial gas company has access to as much helium as Air Products, and no other supplier has as many owned and operated helium facilities.

Because we understand the need to conserve this nonrenewable resource, all of our facilities are designed with many levels of backup redundancy. Also, each facility is driven to operational excellence through Air Products' rigorous global improvement process. Together, these approaches provide the highest on-stream reliability in the industry.

## Distribution network around the globe

Because helium is a rare element, efficient distribution and storage for reliable backup are just as important as access to sources to ensure your supply. With a global network of storage and transfill facilities for refined liquid helium, Air Products can deliver the support and service that all customers require.

In fact, Gardner Cryogenics, a division of Air Products, is the recognized market leader in the manufacture of helium and hydrogen distribution and storage equipment. Gardner's state-of-the-art shipping containers, tankers, and stationary storage tanks provide the highest performance with the lowest heat leak and longest hold times available. This means liquid containers arrive with as much helium as is technically possible, whether the journey was right down the road or across many oceans.



## Variety of supply options

We offer a variety of helium distribution and storage options to match your needs and budget. Most of our customers with small demand receive liquid helium economically in engineered, vacuum-insulated dewars ranging in size from 30 to 500 liters. We transport larger quantities of liquid helium in containers and over-the-road tankers with capacities up to 64,000 liters (17,000 gallons).

Our strategically located transfill facilities also produce gaseous helium. Depending on the quantity you require, we ship and store helium gas in various high-pressure vessels.



## Our people make the difference

We have the entire infrastructure in place to get you the helium you need. From our extensively trained technicians to our highly skilled drivers, scheduling specialists and plant personnel—each is dedicated to flawless execution, 24 hours a day, 365 days a year. Our people are our most valuable asset because they deliver the difference that characterizes our helium products and services. And our exceptional level of service has earned us recognition—year after year—from customers of all sizes.

## Put our resources to work for you

Air Products' position as a leading helium producer and supplier, along with our world-class technology and engineering expertise, has earned the confidence of many forward-looking companies around the globe. Let us put those resources to work for you.

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