

# Secure and reliable helium supply for different applications



Helium is widely used in different applications and its global demand is growing. Air Products' leading helium supply and applications technologies can help customers fully utilize this finite resource.

Air Products designed and built the first cryogenic system for extracting helium from natural gas in the 1950s. More than six 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.

You 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.

## Helium applications



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

Different industries depend on helium's unique and varied properties. Whatever your application, you'll benefit from our helium expertise.

- **Magnetic Resonance Imaging—** The majority of the MRI magnets 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.
- **Semiconductor Manufacturing—** Helium enhances heat transfer and provides the stable inert atmosphere necessary for increased productivity in semiconductor manufacturing. With the most diverse array of helium sources and the largest fleet in the industry, Air Products offers the most reliable helium supply for electronics manufacturing applications.
- **Metallurgy/Welding—** Helium is a vital component of our Linx® and other shielding gas products that provide faster, cleaner welds at lower total cost. It is also used in state-of-the-art laser welding and cutting, as well as protective atmospheres for producing reactive metals such as titanium and zirconium and the rapid quench of tool steels.

- **Analytical**—Providing the highest-purity helium available with guaranteed specifications of <10 ppb of oxygen and <20 ppb of water, our BIP® cylinders have unique self-contained internal purifier systems.
- **Breathing Atmospheres**—Air Products has one of the world's largest and safest offshore delivery systems, and therefore is pre-qualified in many offshore welding gas protocols.
- **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.
- **Scientific**—Industrial, university, and government labs use our helium to ensure the low-temperature refrigeration necessary for nuclear magnetic resonance (NMR), energy, physics, and superconductor development.
- **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.
- **Other Applications**—We continue to work with leading-edge customers to commercialize new applications for helium.



Application	Helium characteristics	Air Products' solution
Magnetic Resonance Imaging	Lowest boiling point among cryogenic gases	°KeepCOLD Services keeps your MRI equipment cold and minimizes losses
Semiconductor	Inert and protective atmosphere	Helium supply from a diverse array of sources for stable and reliable supply of high quality helium
Metallurgy/Welding	Inert and protective atmosphere; strong heat and thermal conductivity for high speed of weld	Linx shielding gases improves welding speed and quality, as well as lower total cost
Analytical/Scientific	Inert and protective atmosphere; high permeability; small molecular size	BIP Helium (Built-In-Purifier) is the highest-purity helium available for industrial applications. Water and oxygen impurities down to ppb level
Offshore Diving	Low solubility in water; low blood toxicity	One of the world's largest and safest offshore delivery systems for safe and fast helium delivery
Lifting	Low density	Mobile helium repurification services
Leak Detection	Small molecular size; high permeability	Helium recovery systems

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