

Analytical Gases

Airgas offers a full line of gases tailored for analytical equipment, including unique *BIP*[®] Technology (an Air Products innovation, under license exclusively to Airgas) that provides premium-grade purity for argon, helium and nitrogen. Airgas also provides mixtures especially formulated for Flame Ionization Detectors,

Leak Detection, Electron Capture Detectors, and Nuclear Counting. Whether your lab is an industrial, medical, commercial, environmental, or academic research facility and our analytical gases provide the right characteristics to optimize your analytical performance.

ANALYTICAL GASES

BIP[®] Technology

Offering premium-grade benefits.

Quality gas is critical in delivering consistent analytical results. Until now finding consistent, affordable premium-grade gas had been a formidable challenge.

Laboratories have traditionally had to use external point-of-use purifiers to filter out contaminants. Now, you can rely on *BIP*[®] Technology (an Air Products innovation) with its patented built-in purifier to assure the gas stream leaves the cylinder with the purity to reduce baseline noise, improve sensitivity, extend column life and get more usable gas from every cylinder.

Airgas provides *BIP*[®] Gases in argon, helium and nitrogen, all with premium-grade purity. The *BIP*[®] Technology, with the purifier inside, is more efficient than traditional point-of-use purifiers, since the process takes place in the high-pressure, lower-velocity environment within the cylinder. That more thoroughly exposes the purifier medium to any impurities. Traditional in-line purifiers operate in low pressure, high-velocity conditions, which are less than ideal. External purifiers also introduce the potential for leaks and require constant maintenance.

All *BIP*[®] built-in purifiers use a 0.5 micron frit to filter particles. The purifiers go through rigorous testing and are guaranteed for the life of the cylinder.

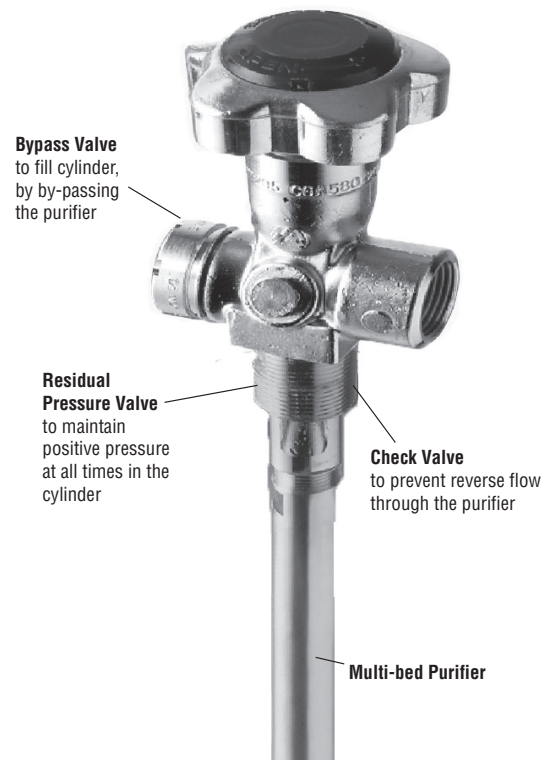
<i>BIP</i> Argon		
Analysis	Specifications	Applications
Batch Certificate of Conformance	O ₂ < 10 ppb	ICP-MS (non dewar) Atomic Absorption High-grade welding
	H ₂ O < 20 ppb	
	THC < 100 ppb	
	N ₂ < 5 ppm	
	CO + CO ₂ < 1 ppm	

<i>BIP</i> Helium		
Analysis	Specifications	Applications
Batch Certificate of Conformance	O ₂ < 10 ppb	Carrier Gas
	H ₂ O < 20 ppb	
	THC < 100 ppb	
	N ₂ < 3 ppm	
	CO + CO ₂ < 1 ppm	

<i>BIP</i> Nitrogen		
Analysis	Specifications	Applications
Batch Certificate of Conformance	O ₂ < 10 ppb	Carrier Gas ECD Make-up Gas
	H ₂ O < 20 ppb	
	THC < 100 ppb	
	CO + CO ₂ < 1 ppm	

A special valve design routs gas around the purifier during filling, protecting the purifier from back-flow contamination. This design which maintains a positive cylinder pressure of at least 60 psig, not only guards against outside impurities from entering into the cylinder, it also means you will find a higher volume of usable gas in every cylinder. If you currently change cylinders at 500 psig, you will get 17% more usable gas out of a *BIP*[®] gas cylinder when changed at 60 psig.

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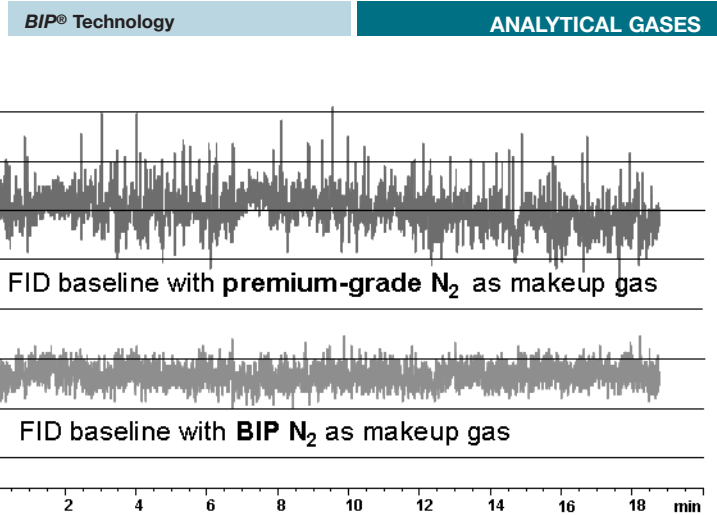
BIP[®] purifier technology.

Cont.

This chromatogram compares the baseline noise on an HP 5890 gas chromatograph with the column removed and the FID Detector inlet plugged. Using the same plumbing, flow rate and signal scale, the first baseline shows higher noise from a premium-grade nitrogen and the second baseline shows lower noise using *BIP*[®] Nitrogen – which improves sensitivity and allows analysis at lower levels.

BIP[®] Technology also can extend GC column life. One customer saved \$15,000 a year in column costs just by switching to *BIP*[®] Helium. Column life was extended more than 4 times, from 24.5 days to 104 days on average.

BIP[®] Technology is available in 12-cylinder pack, for laboratory settings that use a central gas supply for multiple analytical stations. The unique design of the *BIP*[®] Technology pack ensures you'll find the same precise *BIP*[®] Gases specifications coming from the 12-cylinder pack to meet or exceed your expectations.



Data from Prof. Larry Taylor, Virginia Tech, 2000

Column removed from HP 5890 GC FID and detector inlet plugged. First *BIP*[®] N₂ and then premium-grade N₂ served as makeup gas at 20 cc/min. flow rate. The same plumbing and the same signal scale for both gases used.

Product	Ordering Information					Equipment Recommendations		
	Cylinder Size	Contents ft ³	Standard Valve Outlet (CGA)	Product Number	Cylinder Pressure at 70°F (psig)	Description Product Number	Delivery Pressure Range (psig)	Page Number
<i>BIP</i>[®] Technology Argon	300	336	580	ARBIP300	2,640	Two-Stage Regulators Y12-N245 * 580 Y12-T265 * 580	A = 0-25 B = 0-50 D = 0-100 E = 0-150	E21 E23
	Certificate of Conformance included.							
<i>BIP</i>[®] Technology Helium	300	291	580	HEBIP300	2,640			
	Certificate of Conformance included.							
<i>BIP</i>[®] Technology Nitrogen	300	304	580	NIBIP300	2,640			
	Certificate of Conformance included.							

* Insert Delivery Pressure Range Code