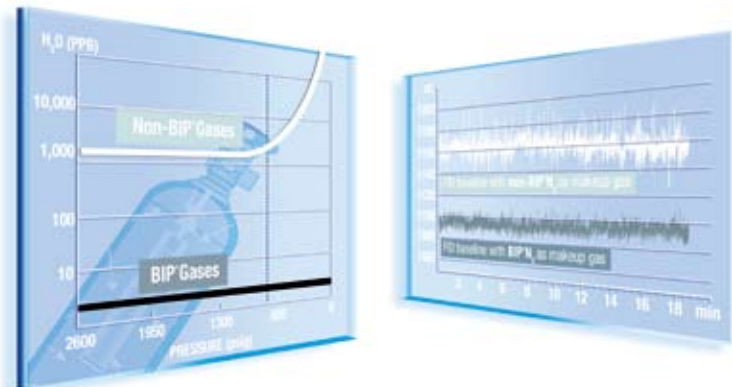




BIP® Technology. Setting the Standard in High Purity Gases.



- The Problem** In gas chromatography, surveys have shown that more than 70% of problems with GC analysis come from the impurities in the carrier gas used. Specifically, levels of Oxygen and Moisture in carrier gases can cause significant damage to expensive columns, and the damage is usually done before being detected.
- Requirement** In today's competitive process and analytical markets, there is constant pressure to increase productivity, optimize processes and improve quality while minimizing costs. Add in ongoing environmental requirements, and you have an increased demand for more accurate and reliable analyses of a wide range of complex chemical compounds. Until now, finding a consistent, premium-grade gas at affordable prices was a formidable challenge.
- The Process** In-cylinder purification offers you the very highest purity levels for the most demanding laboratory applications. We start with our ultra high purity gas, which is filled into our BIP® cylinders. With total control over the cylinder condition and its contents, Linde is able to guarantee that the gas leaving the BIP® system will remain consistent, cylinder after cylinder, from start to finish.
- The Solution** Linde BIP® Grade Helium, Nitrogen, and Argon have a patented delivery system where the gas purification is built into each cylinder. BIP®, allows total control over the cylinder condition and its contents, and lets Linde guarantee that the gas leaving each BIP® cylinder contains less than 10ppb oxygen and 20ppb water. With BIP® cylinders, no special equipment is required, allowing continued use of your current Specialty Gas supply systems.



Benefits

- Each cylinder has an individual internal purifier system to guarantee purity. No rogue cylinder contamination.
- Reduces levels of Oxygen and Moisture to ppb levels.
- Reduces baseline noise
- Allows better peak separation
- Extends the life of expensive GC columns
- Purification processes are proven much more efficient at higher gas pressures. As BIP® is always at cylinder pressure, it is much more efficient than downstream external in-line purifiers.
- External Filter Systems are costly to maintain, and reduce productivity by taking the focus away from the GC. BIP® removes the requirement, and the expense.

BIP® Specifications

Grade	Argon		Hélium		Azote	
	5.3	BIP ^{MD}	5.3	BIP ^{MD}	5.3	BIP ^{MD}
CO	-	-	-	-	< 1 ppm	-
CO ₂	-	-	< 1 ppm	-	< 1 ppm	-
H ₂ O	< 1 ppm	< 20 ppb	< 1 ppm	< 20 ppb	< 1 ppm	< 20 ppb
N ₂	< 8 ppm	< 5 ppm	< 5 ppm	< 5 ppm	-	-
O ₂	< 2 ppm	< 10 ppb	< 1 ppm	< 10 ppb	< 2 ppm	< 10 ppb
THC*	< 0.5 ppm	< 100 ppb	< 0.5 ppm	< 100 ppb	< 0.5 ppm	< 100 ppb

*THC as CH₄

Certificate of conformance on source material provided

Note: These specifications are for the product gas after it has passed through the BIP® purifier system.

BIP® Equipment Recommendation

High purity dual stage cylinder regulator with tee purge

Model C200/2B100A580C4-TPURGE in brass

Model C200/2S100A580C4-TPURGE in Stainless Steel

High purity dual stage panel with tee purge

Model D202B100FH1580C4 in brass

Model D202S100FH1580C4 in Stainless Steel

High purity semi-automatic switchover with tee purge and final line regulator

Model A208B200FH2580C4/F100 in brass

Model A208S200FH2580C4/F100 in Stainless Steel



A cross-section of a BIP® cylinder

Linde

Specialty Gas and Equipment, 5860 Chedworth Way, Mississauga, Ontario L5R 0A2

Phone (866) 385-5349, Fax (866) 385-5347, www.lindecana.com, service@lindecana.com