



GAS INNOVATIONS[®]

HIGH PURITY HYDROCARBONS & SPECIALTY GASES

CYLINDER PACKAGING | BULK SUPPLY | ENGINEERING | SPECIAL PROJECTS



ABOUT GAS INNOVATIONS

Gas Innovations specializes in high purity hydrocarbons for LNG liquefaction projects for both start-ups and ongoing supply; high purity hydrocarbons as diluents, solvents, refrigerants, and co-monomers, as well as for use in producing electronics, specialty fine chemicals, and pharmaceuticals. These gaseous products consist of Methane (CH₄), Ethane (C₂H₆), Ethylene (C₂H₄), Propane (C₃H₈), Propylene (C₃H₆), n-Butane (C₄H₁₀), Isobutane (iso-C₄H₁₀), Butene(s) (1-C₄H₈) | (cis-2-C₄H₈) | (trans-2-C₄H₈), Isobutylene (iso-C₄H₈), Pentane(s) (C₅H₁₂) | (iso-C₅H₁₂), Hexane (C₆H₁₄), Hexene (C₆H₁₂), Anhydrous Hydrogen Chloride (HCl), Hydrogen (H₂), Helium (He), and Carbon Monoxide (CO). Cryogenic liquids are also offered for Methane (LNG), Ethane, and Ethylene.

CAPABILITIES

Gas Innovations has successfully provided our services worldwide for an array of applications. In addition to supplying high purity hydrocarbons, we also have the largest fleet of cryogenic trailers, LP transports, tube trailers and ISO containers. Gas Innovations provides technical consultation, turnkey logistics, and additional equipment that is necessary to ensure the success of your project.

PACKAGING

Gas Innovations offers a wide variety of packaging options which include cryogenic trailers, tube trailers, international shipping containers, LP transports, traditional cylinders and disposable cylinders. Whether your project is small, large, domestic or international, Gas Innovations has a large fleet of assets to accommodate any size project.

SERVICES

At Gas Innovations, we truly believe that our success depends on yours. Gas Innovations has an impressive worldwide resume for successfully supplying high purity hydrocarbons worldwide for a vast array of applications and services. We are also a supplier of KOBELCO flux-core and hard welding wire, propylene MACH 1 cutting and heating apparatus and the largest single supplier of WORTHINGTON cylinders. We also offer high purity hydrocarbon sales and safety training programs. Please contact Gas Innovations today so we may assist you with your project needs.

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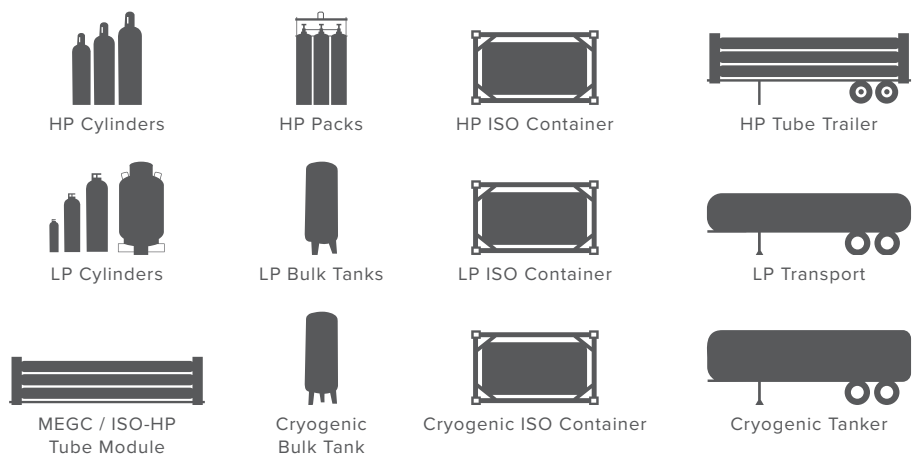
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Packaging Icons



GAS INNOVATIONS®

High Purity Hydrocarbons & Specialty Gases

High Pressure



Carbon Monoxide	99.5% to 99.99% +	
CNG	94.0% +	R-50
Ethane	99.0% to 99.9995% +	R-170
Ethylene	99.5% to 99.9995% +	R-1150
HCL Anhydrous	99.0% to 99.999%	
Helium	99.999% +	
Hydrogen	99.5% to 99.999%	
Methane	99.5% to 99.9995% +	R-50

Low Pressure



Butene-1	99.0% to 99.99%	
Cis-2-Butene	99.0% to 99.5%	
Isobutane	99.0% to 99.99% +	R-600a
Isobutylene	99.5% +	
Iso-Pentane	99.0% to 99.5%	R-601a
Mixed-2-Butenes	99.0% to 99.5%	
n-Butane	94.0% to 99.99%	R-600
n-Hexane	95% +	
n-Pentane	94.0% to 99.5%	R-601
Propane	99.0% to 99.999%	R-290
Propylene	99.0% to 99.99%	R-1270
R-290 (UL Classified)	99.5% +	
R-600a (UL Classified)	99.5% +	
R-600	99.5% +	
trans-2-Butene	99.0% to 99.5%	

Other Gases on Request

Cryogenic Liquids



Ethane	95% to 99.5%+	R-170
Ethylene	99.5% to 99.95%+	R-1150
Methane	98% to 99.5%+	R-50

Carbon Monoxide (CO)

UN1016 Carbon Monoxide, Compressed

A colorless, odorless, flammable toxic gas which is compressed to high pressure. It has no warning properties although it is toxic.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.5%	300/265AL	238 scf	1650/2000	350
	200	175 scf	1650	350
	AL150	141 scf	2000	350
	80/80AL	66/75 scf	1650/2000	350
UHP 99.9%	300/265AL	238 scf	1650/2000	350
	200	175 scf	1650	350
	AL150	141 scf	2000	350
	80/80AL	66/75 scf	1650/2000	350
Research 99.995%	300/265AL	238 scf	1650/2000	350/724
	200	175 scf	1650	350/724
	AL150	141 scf	2000	350/724
	80/80AL	66/75 scf	1650/2000	350/724

Product Data

Molecular Weight	28.01
Specific Volume	13.8 cf / lb @ 70F
Compressed Density	0.0725 lb / cf @ 70F
Flammability in Air	12.5-74% in Air
U.S. D.O.T. Hazard Class	2.3
U.S. D.O.T. Label	Flammable Gas



Odorized Compressed Natural Gas (CNG)/(LNG)

UN1971 Natural Gas Compressed / UN1972 Natural Gas Refrigerated Liquid (Also see Methane Cryogenic)

A flammable, colorless hydrocarbon gas mixture consisting primarily of Methane. CNG is shipped in high pressure containers and may be odorized to make it detectable. LNG is stored and transported as a cryogenic refrigerated liquid at -259F.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CNG 94.0%-99.9%	300	360 scf	2400	350
	200	300 scf	2265	350
LNG 94.0%-99.9%	20 ft ISO	15,898 lb	N/A	LNG 300
	40 ft ISO	34,785 lb	N/A	LNG 300

Product Data

Molecular Weight	16.04
Specific Volume CNG	24.1 cf / lb @ 70F-83 cf / gal
Specific Volume LNG	3.552 lb / gal @ -259F
Flammability in Air	5.0-15% in Air
U.S. D.O.T. Name CNG	Natural Gas, Compressed
U.S. D.O.T. Name LNG	Natural Gas, Refrigerated Liquid
U.S. D.O.T. Hazard Class Label CNG	2.1 Flammable Gas
U.S. D.O.T. Hazard Class Label LNG	2.1 Flammable Liquid
Refrigerant Number	R-50



Ethane (C₂H₆)

UN1035 Ethane Compressed UN1961 Ethane, Refrigerated Liquid

A flammable, colorless, odorless gas which is shipped as liquefied gas at its vapor pressure of 544 psig at 70F. Ethane may also be shipped as a cryogenic refrigerated liquid at -128F.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.0%	300	37 lb	544	350
	200	32 lb	544	350
Instr 99.5%	300	37 lb	544	350
	200	32 lb	544	350
99.99%	300	37 lb	544	350
	200	32 lb	544	350
99.999%	300	37 lb	544	350
	200	32 lb	544	350
99.9995%	300	37 lb	544	350
	200	32 lb	544	350

Product Data

Molecular Weight	30.07
Specific Volume	12.8 cf / lb @ 70F
Compressed Density	2.996 lb / gal @ 60F
Density at Boiling Point	4.56 lb / gal @ -128F
Flammability in Air	3.0-12.4% in Air
U.S. D.O.T. Hazard Class	2.1
U.S. D.O.T. Label	Flammable Gas
Refrigerant Number	R-170



Ethylene (C₂H₄)

UN1962 Ethylene, Compressed UN1038 Ethylene, Refrigerated Liquid

A colorless, flammable gas with a faint odor that is sweet and musty. Ethylene is compressed to high pressure, but may also be present as a liquid depending on cylinder pressure and ambient temperature. Ethylene may also be shipped as a cryogenic liquid at -154.8F.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.5%	300	37 lb	1200	350
	200	30 lb	1200	350
Polymer 99.9%	300	37 lb	1200	350
	200	30 lb	1200	350
99.99%	300	37 lb	1200	350
	200	30 lb	1200	350
99.999%	300	37 lb	1200	350
	200	30 lb	1200	350
99.9995%	300	37 lb	1200	350
	200	30 lb	1200	350

Product Data

Molecular Weight	28.05
Specific Volume	13.7 cf / lb @ 70F
Compressed Density @ 1 atm and 70F	0.0725 lb / ft ³
Density at Boiling Point	4.71 lb / gal @ -154.8F
Flammability in Air	2.7-36% in Air
U.S. D.O.T. Hazard Class	2.1
U.S. D.O.T. Label	Flammable Gas
Refrigerant Number	R-1150



Hydrogen Chloride (HCL)

UN1050 Hydrogen Chloride

A colorless, corrosive, nonflammable liquefied gas with a sharp, suffocating odor. Severely irritating to the upper respiratory tract and corrosive to eyes, skin and mucous membranes. Hydrogen Chloride is shipped at its vapor pressure of 613 psig.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
99.5%	Ton (Y)	600 lb	613	330
	300	65 lb	613	330
	200	60 lb	613	330
99.9%	Ton (Y)	600 lb	613	330
	300	65 lb	613	330
	200	60 lb	613	330
99.995%	Ton (Y)	600 lb	613	330
	300	65 lb	613	330
	200	60 lb	613	330
99.999%	Ton (Y)	600 lb	613	330/DISS 634
	300	65 lb	613	330/DISS 634
	200	60 lb	613	330/DISS 634

Product Data

Molecular Weight	36.46
Specific Volume	10.6 cf / lb @ 70F
Flammability in Air	Nonflammable
U.S. D.O.T. Hazard Class	2.3, 8
U.S. D.O.T. Label	Hydrogen Chloride Anhydrous
Inhalation Hazard	Corrosive



Methane (CH₄)

UN1971 Methane, Compressed UN1972 Methane, Refrigerated Liquid

A flammable, colorless, odorless compressed gas. Methane may be shipped as a non-liquefied compressed gas in high pressure containers or as a (Cryogenic) Refrigerated Liquid.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.5%	300	360 scf	2400	350
	200	300 scf	2265	350
UHP 4.0 99.99%	300	360 scf	2400	350
	200	300 scf	2265	350
99.999%	300	360 scf	2400	350
	200	300 scf	2265	350
	50 L	445 scf	2940	350
99.9995%	300	360 scf	2400	350
	200	300 scf	2265	350
	50 L	445 scf	2940	350

Product Data

Molecular Weight	16.04
Specific Volume	24.1 cf / lb @ 70F
Compressed Density @ 1 atm and 70F	0.0415 lb / ft ³
Density at Boiling Point	3.552 lb / gal @ -259F
Flammability in Air	5.0-15% in Air
U.S. D.O.T. Hazard Class	2.1
U.S. D.O.T. Hazard Label	Flammable Gas
Refrigerant Number	R-50



Helium (He)

UN1046 Helium Compressed UN1963 Helium Liquid

A colorless, odorless, nonflammable inert gas that can be shipped as a non-liquified compressed gas or as a liquid.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
99.999% +	300	291 scf	2,640 psi	580
	200	223 scf	2,265 psi	580
	Bulk	115,000–180,000 scf	2,800 psi	1340

Product Data

Molecular Weight	4.00260
Specific Volume	96.6 cf / lb @ 70F
Compressed Density	0.169 kg / m ³
Density at Boiling Point	7.62 lb / ft ³ @ -452F
Flammability in Air	3.0-12.4% in Air
U.S. D.O.T. Hazard Class	2.2
U.S. D.O.T. Label	Non Flammable Gas



Hydrogen (H₂)

UN1049 Compressed

A colorless, odorless, tasteless, non-toxic, and highly combustible gas. It is the lightest element and the most abundant chemical substance in the universe.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
99.95%	200	216 scf	2,400 psi	350
	300	260 scf	2,400 psi	350
	Bulk	125,000	2,700 psi	1350
99.999%	200	216 scf	2,400 psi	350
	300	260 scf	2,400 psi	350
	Bulk	125,000	2,700 psi	1350

Product Data

Molecular Weight	2.016
Specific Volume	191.3 ft ³ / lb
Compressed Density	0.00523 lb / ft ³ @ 70F
Boiling Point	-423F
Flammability in Air	4.0-75% in Air
U.S. D.O.T. Hazard Class	2.1
U.S. D.O.T. Label	Flammable Gas



Nitrogen (N₂)

UN1066 Nitrogen Compressed

A colorless, nonflammable, odorless, and compressed gas.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
UHP 99.999%	300 200	304 scf 210 scf	2,640 psi 2,200 psi	580 580

Product Data

Molecular Weight	28.01
Specific Volume	13.81 cf / lb @ 70F
Compressed Density	1.185 kg / m ³ @ 70F
Flammability in Air	Non Flammable Gas
U.S. D.O.T. Hazard Class	2.2
U.S. D.O.T. Label	Non Flammable Gas



1-Butene (1-C₄H₈)

UN1012 1-Butene

A flammable, colorless gas which is shipped as a liquefied gas at its vapor pressure of 23.5 psig at 70F.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.0%	LP 1000 LP 239	540 lb 128 lb	23.5 23.5	510 510
Instr 99.5%	LP 1000 LP 239	540 lb 128 lb	23.5 23.5	510 510
99.99%	LP 1000 LP 239	540 lb 128 lb	23.5 23.5	510 510

Product Data

Molecular Weight	56.11
Specific Volume	6.7 cf / lb @ 70F
Liquid Density	5.004 lb / gal
Flammability in Air	1.6-9.38% in Air
U.S. D.O.T. Hazard Class	2.1
U.S. D.O.T. Label	Flammable Gas / Butylene
Fill Density	54%



cis-2-Butene (iso-C₄H₈)

UN1012 Butylene

A flammable, colorless gas which is shipped as a liquefied gas at its vapor pressure of 15.2 psig at 70F.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.0%	LP 239 LP 48	125 lb 20 lb	15.2 15.2	510 510
Instr 99.5%	LP 239 LP 48	125 lb 20 lb	15.2 15.2	510 510

Product Data

Molecular Weight	56.11
Specific Volume	6.9 cf / lb @ 70F
Liquid Density	5.004 lb / gal
Flammability in Air	1.8-9.7% in Air
U.S. D.O.T. Hazard Class	2.1
U.S. D.O.T. Label	Flammable Gas / Butylene
Fill Density	54%



Isobutane (iso-C₄H₁₀)

UN1969 Isobutane

A flammable, colorless gas which is shipped as a liquefied gas at its vapor pressure of 31 psig at 70F.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.0%	LP 1000 LP 239	490 lb 116 lb	31 31	510 510
Instr 99.5%	LP 1000 LP 239	490 lb 116 lb	31 31	510 510
99.9%	LP 1000 LP 239	490 lb 116 lb	31 31	510 510
99.99%	LP 1000 LP 239	490 lb 116 lb	31 31	510 510

Product Data

Molecular Weight	58.12
Specific Volume	6.5 cf / lb @ 70F
Liquid Density	4.686 lb / gal
Flammability in Air	1.8-8.4% in Air
U.S. D.O.T. Hazard Class	2.1
U.S. D.O.T. Label	Flammable Gas / Isobutane
Refrigerant Number	R-600a
Fill Density	49%



Isobutylene (iso-C₄H₈)

UN1055 Isobutylene

A flammable, colorless gas which has an unpleasant odor. It is shipped as a liquefied gas at its vapor pressure of 24 psig at 70F.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.0%	LP 1000 LP 239	530 lb 126 lb	24 24	510 510
Instr 99.5%	LP 1000 LP 239	530 lb 126 lb	24 24	510 510
99.9%	LP 1000 LP 239	530 lb 126 lb	24 24	510 510
99.99%	LP 1000 LP 239	530 lb 126 lb	24 24	510 510

Product Data

Molecular Weight	58.12
Specific Volume	6.7 cf / lb @ 70F
Liquid Density	4.686 lb / gal
Flammability in Air	1.8-8.4% in Air
U.S. D.O.T. Hazard Class	2.1
U.S. D.O.T. Label	Flammable Gas / Isobutylene
Fill Density	53%



IsoPentane (iso-C₅H₁₂)

UN1265 IsoPentane

A flammable, colorless liquid which is shipped at its vapor pressure of 1 psig at 70F.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.0%	LP 1000 LP 239	560 lb 140 lb	1 1	510 510
Instr 99.5%	LP 1000 LP 239	560 lb 140 lb	1 1	510 510

Product Data

Molecular Weight	72.15
Specific Volume	5.3 cf / lb @ 70F
Liquid Density	5.194 lb / gal
Flammability in Air	1.4-7.6% in Air
U.S. D.O.T. Hazard Class	3
U.S. D.O.T. Label	Flammable Gas / Isopentane
Refrigerant Number	R-601a
Fill Density	56%



n-Butane (C₄H₁₀)

UN1011 n-Butane

A flammable, colorless gas which is shipped as a liquefied gas at its vapor pressure of 16 psig at 70F.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.0%	LP 1000 LP 239	510 lb 120 lb	16 16	510 510
Instr 99.5%	LP 1000 LP 239	510 lb 120 lb	16 16	510 510
99.99%	LP 1000 LP 239	510 lb 120 lb	16 16	510 510

Product Data

Molecular Weight	58.12
Specific Volume	6.4 cf / lb @ 70F
Liquid Density	4.865 lb / gal
Flammability in Air	1.8-8.4% in Air
U.S. D.O.T. Hazard Class	2.1
U.S. D.O.T. Label	Flammable Gas / Butane
Refrigerant Number	R-600
Fill Density	51%



n-Pentane (C₅H₁₂)

UN1265 n-Pentane

A flammable, colorless liquid which is shipped at its vapor pressure of 1 psig at 70F.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.0%	LP 1000	560 lb	1	510
	LP 239	140 lb	1	510
Instr 99.5%	LP 1000	560 lb	1	510
	LP 239	140 lb	1	510

Product Data

Molecular Weight	72.15
Specific Volume	5.3 cf / lb @ 70F
Liquid Density	5.255 lb / gal
Flammability in Air	1.4-8% in Air
U.S. D.O.T. Hazard Class	3
U.S. D.O.T. Label	Flammable Liquid / Pentane
Refrigerant Number	R-601
Fill Density	56%



Propane (C₃H₈)

UN1978 Propane

A flammable, colorless gas which is shipped as liquefied gas at its vapor pressure of 110 psig at 70F.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.0%	LP 1000 LP 239	420 lb 100 lb	110 110	510 510
Instr 99.5%	LP 1000 LP 239	420 lb 100 lb	110 110	510 510
99.99%	LP 1000 LP 239	420 lb 100 lb	110 110	510 510

Product Data

Molecular Weight	44.096
Specific Volume	8.5 cf / lb @ 70F
Liquid Density	4.235 lb / gal @ 60F
Flammability in Air	2.2-9.5% in Air
U.S. D.O.T. Hazard Class	2.1
U.S. D.O.T. Label	Flammable Gas / Propane
Refrigerant Number	R-290 (also available as UL Classified)
Fill Density	42%



Propane HD-5

UN1978 Propane

A flammable, colorless gas, odorized delivered on a Bobtail route for industrial end users.

Product & Packaging Information

Purity	Cylinder Size	Service Pressure	Valve
99.5%	33 lb 43 lb	240 240	Quick Fill Quick Fill

Product Data

Molecular Weight	44.096
Specific Volume	8.5 cf / lb @ 70F
Liquid Density	4.235 lb / gal @ 60F
Flammability in Air	2.2-9.5% in Air
U.S. D.O.T. Hazard Class	2.1
U.S. D.O.T. Label	Flammable Gas / Propane
Refrigerant Number	R-290 (also available as UL Classified)
Fill Density	42%



Propylene (C₃H₆)

UN1077 Propylene

A flammable, colorless gas which is shipped as liquefied gas at its vapor pressure of 133 psig at 70F.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.0%	LP 1000 LP 239	435 lb 105 lb	133 133	510 510
Polymer 99.5%	LP 1000 LP 239	435 lb 105 lb	133 133	510 510
99.99%	LP 1000 LP 239	435 lb 105 lb	133 133	510 510

Product Data

Molecular Weight	42.08
Specific Volume	8.9 cf / lb @ 70F
Liquid Density	4.325 lb / gal @ 60F
Flammability in Air	2.4-11% in Air
U.S. D.O.T. Hazard Class / Label	2.1
U.S. D.O.T. Label	Flammable Gas / Propylene
Refrigerant Number	R-1270
Fill Density	44%



Trans-2-Butene (trans-2-C₄H₈)

UN1012 Butylene

A flammable, colorless gas which is shipped as a liquefied gas at its vapor pressure of 15.2 psig at 70F.

Product & Packaging Information

Purity	Cylinder Size	Contents	Cylinder Pressure 70F	Standard Valve Outlet (CGA)
CP 99.0%	LP 239 LP 48	125 lb 20 lb	15.2 15.2	510 510
Instr 99.5%	LP 239 LP 48	125 lb 20 lb	15.2 15.2	510 510

Product Data

Molecular Weight	56.11
Specific Volume	6.9 cf / lb @ 70F
Liquid Density	5.004 lb / gal
Flammability in Air	1.8-9.7% in Air
U.S. D.O.T. Hazard Class	2.1
U.S. D.O.T. Label	Flammable Gas / Butylene
Fill Density	54%



High Pressure Cylinder Packaging

Gas Innovations D.O.T. approved high pressure cylinders are ISO certified, stocked on site and available in cylinders and packs. Gas Innovations services include cylinder inspection, certifications, painting, valving and installation of safety reliefs. Our high pressure cylinders are used worldwide in a variety of industries. Contact Gas Innovations for your high pressure cylinder requirements.

- ✓ ISO Certified Cylinders
- ✓ Worldwide Acceptance
- ✓ D.O.T. Approved
- ✓ No Shipping Limitations

Size 300 (T)	Size 200 (K)
49 Liter	44 Liter
108 lb WC*	96 lb WC*

*Water capacity



CGA 350

- Leaded safeties for CO and Methane
- Unleaded safeties for Ethane and Ethylene
- Safeties rated at 5/3 of the working pressure of the cylinder

CGA 330 or 634 (valves offered in Aluminum Silicon Bronze or Stainless Steel)

- Non hydrocarbon packages (ex. CO, HCl or mixtures)

High Pressure Tubes

Gas Innovations has High Pressure Tube Modules to meet your requirements. Available for rental, lease or purchase. Contact Gas Innovations. **Long term and short term leases available.**



Package Options:

- Trailer chassis
- Front & rear stainless manifolds
- Liquid or Gas withdrawal
- Complete drawings upon request
- Quantity discounts available

**Long and short term
leases available.**

Services

- Pipeline interruption
- Short term project
- Temporary supply
- On-site storage
- Flare testing
- Refrigerants

MEGC / ISO HIGH PRESSURE TUBE MODULE



D.O.T. 3T MODEL

TUBE TRAILER



D.O.T. 3AAX MODEL

TUBE TRAILER OR GROUND STORAGE



D.O.T. 107A



3T / UN11120 / 6 tubes

High Pressure Tube Modules

D.O.T. 3T 2600 psi. / UN ISO 11120 Specifications 2900 psi.	
Tare Weight	8 tube unit 39,994 lb + 7,000 lb for chassis
Water Volume	83.55 cu.ft. / tube-668.4 total
Tube Length & Diameter	Seamless D.O.T. Tubes 36 ft. long × 22 in. diameter
Trailer Length	40 ft.
Service @ 70°F	cu.ft. @ 2900 psi / 8 Tubes / Unit MAWP
Air	129,000 cu.ft.
Argon	139,000 cu.ft.
Carbon Monoxide	91,240 cu.ft.
Ethane	12,000 lb total (w/overweight permit 14,500)
Ethylene	12,000 lb total (w/overweight permit 14,500)
Helium	121,049 cu.ft.
Hydrogen Chloride	Nominal 20,000 lbs
Methane	168,657 cu.ft.
Nitrogen	124,870 cu.ft.

Note: 3T tubes are not allowed in Hydrogen or Odorized Natural Gas service

D.O.T. 3AAX 2600 Specifications	
Tare Weight	6 tube unit 35,000 lb + 7,000 lb for chassis
Water Volume	80.00 cu.ft. / tube-480 total
Tube Length & Diameter	Tubes 36 ft. long × 22 in. diameter
Trailer Length	40 ft.
Air*	@ 10% overfill-2871 psi @ 70°F = 91,971 cu.ft.
Argon*	@ 10% overfill-2871 psi @ 70°F = 99,552 cu.ft.
Carbon Monoxide	@ 1950 psi = 63,986 cu.ft.
Ethane	12,000 lb total
Ethylene	12,000 lb total
Helium*	@ 10% overfill-2871 psi @ 70°F = 86,136 cu.ft.
Hydrogen	@ 2600 psi = 76,778 cu.ft.
Methane	@ 2600 psi = 110,194 cu.ft.
Nitrogen*	@ 10% overfill-2871 psi @ 70°F = 89,611 cu.ft.
Non-odorized Natural Gas 99.5%+	@ 2000 psi = 110,194 cu.ft.
Oxygen**	** Contact us for more details

* Inert gases can be overfilled by 10%

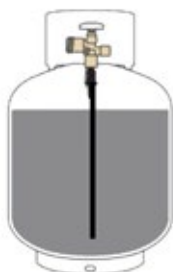
D.O.T. 107A Specifications	
Tare Weight	8 tube unit 45,000 lb + 7,000 lb for chassis
Water Volume	44.5 cu.ft. / tube-356 cf.
Tube Length & Diameter	Seamless D.O.T. tubes 33 ft. long × 18 in. OD
Service	cu.ft. @ 3,000 psi / 8 tubes / unit *
Helium	66,496 cu.ft.
Nitrogen	69,032 cu.ft.
Argon	77,003 cu.ft.
Air	70,832 cu.ft.

NOTE: Some modular tubes can be filled beyond 3,000 psi

Low Pressure Cylinder Packaging

Gas Innovations low pressure cylinders are free of any residual oil & particulate that accumulates during the cylinder manufacturing process. Cylinders are available in a variety of sizes for both liquid and vapor withdrawal applications. Each cylinder package is equipped with a CGA 510/555 diaphragm valve preventing contamination during vacuum / fill procedures. Cylinders are refillable and D.O.T. compliant.

Cylinder rentals available.



Liquid Withdrawal



Vapor Withdrawal



CGA 510/555 Diaphragm Valve
(Repressurization model also available)

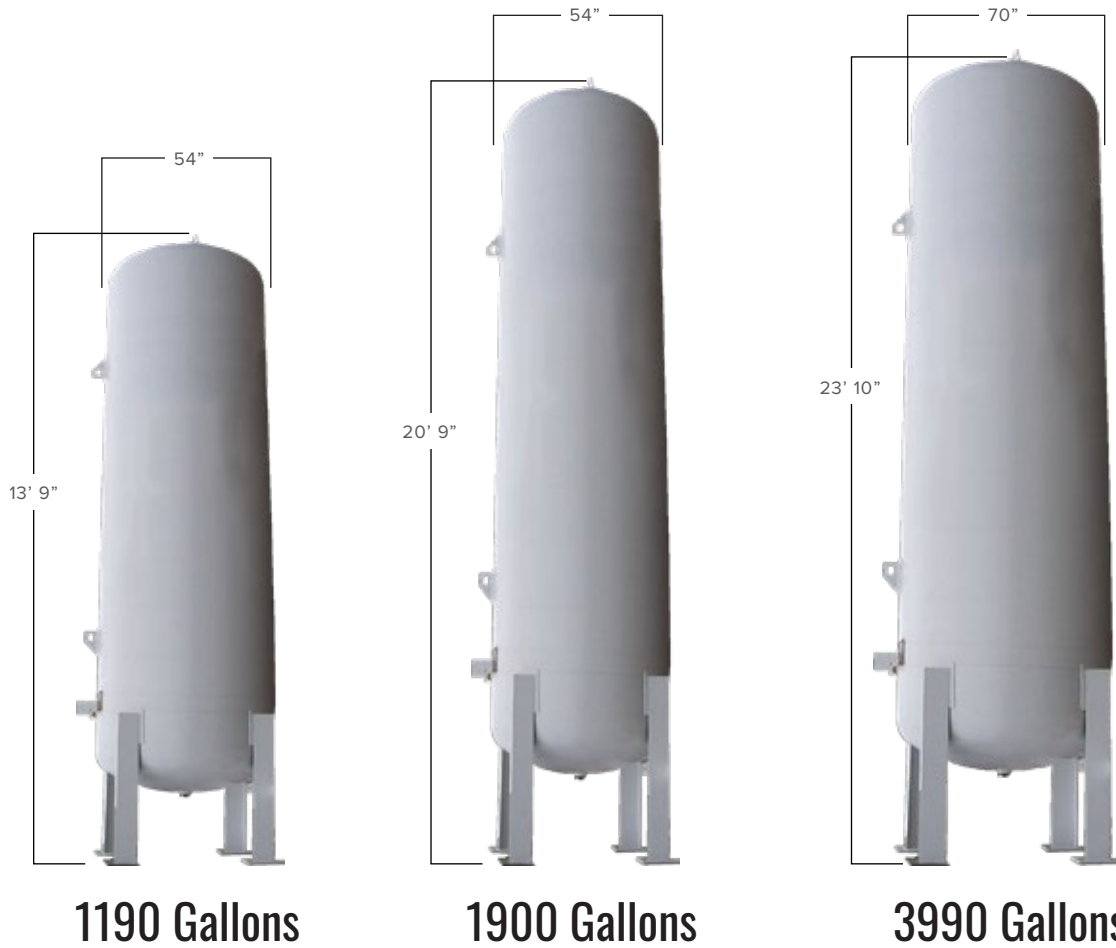
- ✓ D.O.T. Approved
- ✓ Proprietary internal cylinder wash
- ✓ Specialized filling procedures
- ✓ Liquid or Vapor Withdrawal
- ✓ CGA 510/555 Diaphragm Valve

(Dip Tube / Syphon Tube)



Model	LP 48	LP 143	LP 239	LP 239SS	LP 1,000
Height (in)	17.2	44.1	48.7	48.8	57.3
Water Capacity (lb)	47.6	143	239	239	1,000
Nominal Tare Weight (lb)	17	48.1	68	69	334
Cylinder Diameter (in)	12.3	12	14.7	14.7	30
Cylinder Volume (cu in)	1318	3955	6515	6606	27461
Collar Diameter (in)	6.5	6.5	11.4	11.4	16
Collar Height (in)	4	5.1	6.4	6.4	6.9
Footring Diameter (in)	7.8	12	14.5	13.8	22
Valve	CGA 510/555	CGA 510/555	CGA 510/555	CGA 510/555	CGA 510/555
Standard Specification	D.O.T. 4BW-240	D.O.T. 4BW-240/260	D.O.T. 4BW-240/260	DOT-SP 123531 240	D.O.T. 4BW-240/260

Low Pressure Vertical Bulk Tanks



1190 Gallons

1900 Gallons

3990 Gallons

Volume	1190 Gallons	1900 Gallons	3990 Gallons
Dimensions	54" X 13' 10"	54" x 20' 3"	70" x 23' 10"
Design Pressure	250 psig	250 psig	250 psig
Orientation	Vertical	Vertical	Vertical
Contents	LPG Vapor	LPG Vapor	LPG Vapor
Service	Storage	Storage	Storage
Material Of Construction	Carbon Steel	Carbon Steel	Carbon Steel
Empty Weight	3700	4500	8150
Lining	Unpainted & Dehydrated	Unpainted & Dehydrated	Unpainted & Dehydrated
Exterior	Prime	Prime	Prime
Insulation	None	None	None

Low Pressure Horizontal Bulk Tanks



LP Bulk Tanks

Tanks are designed with NPT fittings and fabricated in accordance with the latest edition and addendum of the ASME Code Section VIII Division 1 and NFPA 58.

Available sizes: 1,000, 12,000, 18,000, and 30,000 gallon tanks. (Larger sizes and skid packages also available)

Design Data

Design Pressure	250 psi
Design Temperature	125°F
Corrosion Allowance	0 in.
Radiography	RT-4
Hydro-test Pressure	325 psi

LP Bulk Tank Specifications

	1,000 gal	12,000 gal	18,000 gal	30,000 gal
Water Capacity	1,000 gal	12,000 gal	18,000 gal	30,000 gal
Diameter	41 in. OD	84 in. OD	108 in. ID	108 in. ID
Overall Length	16 ft.	45 ft.	41 ft.	66 ft.
Approximate Weight	1,800 lb	18,000 lb	26,900 lb	49,450 lb
Ship Dimensions (W×H)	4.1 ft. × 5.0 ft.	7.60 ft. × 7.0 ft.	9.65 ft. × 9.07 ft.	9.65 ft. × 9.07 ft.

(Actual sizes or dimensions may differ from those shown)
(Other sizes available upon request)

LP Gas ISO Containers

Low Pressure ISO's

Water Volume	6579 gal	24900 L
MAWP	362.59 psig	25 BAR
Tar Weight	16490 lb	7480 KG
Max Gross Weight	79366 lb	36000 KG



Approximate net capacity of T50 ISO container

Product	D.O.T. fill density %	lb / gallon	Typical gal / ISO	approx. lb / ISO
n-Butane (all grades)	51%	4.865 lb	5,753 net gallons	27,990 net lb
Butene-1 (all grades)	54%	5.004 lb	5,922 net gallons	29,635 net lb
Isobutane (all grades)	49%	4.686 lb	5,739 net gallons	26,891 net lb
Isobutylene (all grades)	53%	4.996 lb	5,822 net gallons	29,086 net lb
Propane (all grades)	42%	4.232 lb	5,462 net gallons	23,050 net lb
Propylene (all grades)	44%	4.343 lb	5,560 net gallons	24,147 net lb
n-Pentane (all grades)	56%	5.255 lb	5,848 net gallons	30,737 net lb
Isopentane (all grades)	56%	5.194 lb	5,915 net gallons	30,733 net lb

Portable Cryogenic ISO Containers

LNG, Ethane, Ethylene, Nitrogen and Argon

Short & long term lease or purchase options available. Other sizes available.

Cryogenic ISO's Container Specifications

Water Volume	5396 gal	20424 KG
MAWP	143 psig	9.73 BAR
Tar Weight	17000 lb	7711 KG
Max Gross Weight	7500 lb	94000 KG



Product	lb / gallon	Max. gallon	approx. lb / ISO
LNG	3.55 lb	4444 gallons	15777 lb
Ethylene	4.73 lb	4471 gallons	21150 lb
Ethane	4.53 lb	4563 gallons	20672 lb
Argon	11.63 lb	4467 gallons	51950 lb
Nitrogen	6.74 lb	4277 gallons	28830 lb

LNG Refrigerants & Packaging

Gas Innovations can meet your LNG Refrigerant requirements.

- On site storage to meet large delivery demands for high purity refrigerants, hydrocarbons, copolymers and diluents to serve new and existing LNG facilities, polyethylene production, refinery and chemical plants worldwide.
- Gas Innovations maintains a significant fleet of refrigerant containers to supply large volume requirements.
- Quality control expertise related to refrigerant production and packaging.
- Experienced operational and project management support, complete with turnkey logistics.

Strategically located at the entrance of the Houston Ship Channel in La Porte, Texas. Gas Innovations is positioned to efficiently supply high purity refrigerants to the global market.

Gas Innovations has shipping experience to multiple points through-out the world.

View our LNG high purity refrigerant capabilities video. Visit the Gas Innovations YouTube channel: www.gasinnovations.com/LNGRefrigerants

This video describes Gas Innovations ability to supply high purity bulk refrigerants to the large scale LNG terminals

Ph: 281-471-2200



**D.O.T. Cryogenic Transport
Ethane, Ethylene & LNG**



**LP Transports
Propane, Isobutane, Propylene & Butane**



MEGC / ISO High Pressure Tube Modules



Hydrocarbon Storage Facility

Services

Gas Innovations has successfully provided our services worldwide for an array of applications. In addition to supplying high purity hydrocarbons, we also have the largest fleet of cryogenic trailers, LP transports, tube trailers and ISO containers. Gas Innovations provides technical consultation, turnkey logistics, and additional equipment that is necessary to ensure the success of your project. A few examples of the applications we service are shown below.

Typical Applications:

- LNG liquefaction
- Interim gas flow outages
- Plant startups
- Boiler / heating applications
- Flare testing / support
- Incinerators
- Enhanced oil recovery
- Pipeline curtailment



**Interim gas flow outages utilizing
2-80 K vaporizers**



**Turnkey supply for
pipeline curtailment**



Innovative offloading designs



Residential utility pipeline support

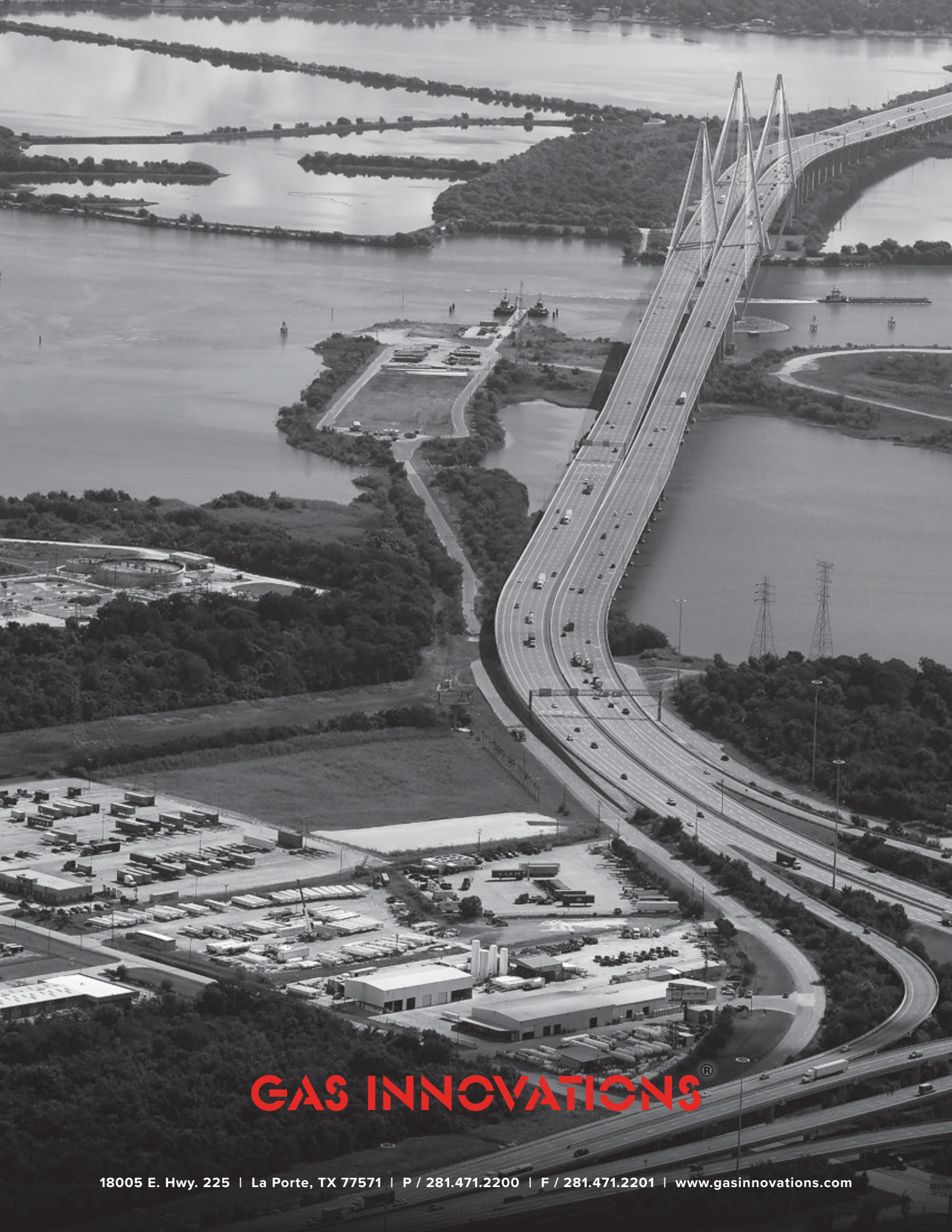
Contact Gas Innovations

All Inquiries / Order Desk:

sales@gasinnovations.com

281-471-2200





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