

Introduction to Pure Gases

GTS' many years of experience in the production and purification of specialty gases assures you of a reliable supply of high purity products. Our comprehensive line of pure gases ensures the proper purity for your specific application.

GTS' pure gases are classified by grade and purity since common purity designations such as Prepurified and High Purity vary among suppliers:

GTS Grade	Total Impurities
6	1 ppm
5.5	5 ppm
5	10 ppm
4.8	20 ppm
4.5	50 ppm
4	100 ppm
3.5	500 ppm
3	1000 ppm

Quality Control

Our stringent quality control procedures ensure that our products meet or exceed published specifications. Our technical staff can answer any questions you have regarding our products, procedures, or specific applications.

Equipment Recommendations

Each pure gas listing includes a recommendation of the proper regulator or control valve. Gas regulating or dispensing equipment has been selected on the basis of compatibility with the physical and chemical properties of the gas as well as its level of purity. A comprehensive listing of our Specialty Gas Equipment line can be found in the last section of this catalog.

Material Safety Data Sheet (MSDS)

A Material Safety Data Sheet is a technical document that serves as the primary vehicle providing information about the potential hazards of a substance. The purpose of the MSDS is to provide our customers and their employees with all the necessary information needed to handle our products safely.

MSDS' have been developed for our products providing detailed information on health hazards, fire, explosion, reactivity, personal protection equipment, and other special precautions.

We urge all of our customers and their employees to become thoroughly familiar with the products they use by regularly reviewing the appropriate MSDS. They are issued to all of our customers upon purchasing any of our gas products.

MSDS' are readily available from any of our sales & distribution facilities, from our Technical Service Group at 1-800-638-6360, or by calling our Specialty Gas Customer Service Center at 1-800-942-1148.

Material Safety Data Sheets are also available electronically from our website at www.specialtygas.com.

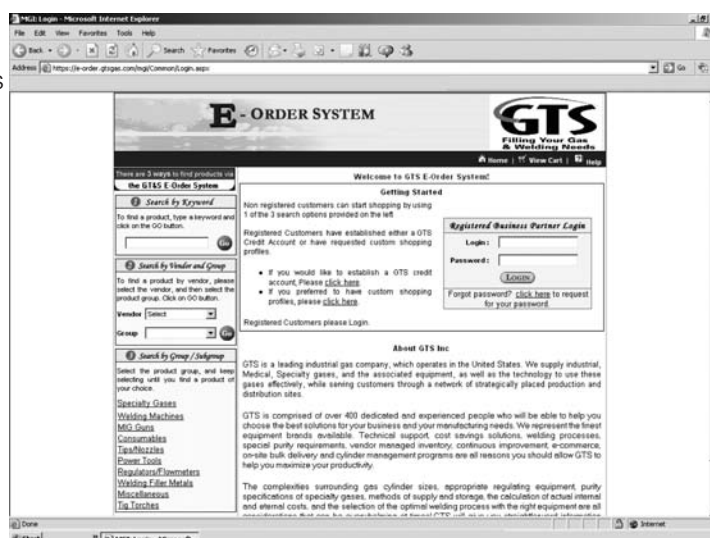
How To Order Pure Gases

The GTS E-Order program is a web based order application process that allows customers the freedom to place accurate orders at their convenience.

The E-Order system has the following benefits:

- A secure Internet site that you access via a personalized password specific to you and your company
- An order form that is customized to the specific products and pricing you order
- Confirmation that your order has been received and is being processed, including the next scheduled delivery day
- The ability to search for additional products that GTS distributes
- A unique tool that allows the customer to "build their own specialty gas" and then request a quote and delivery time for the product
- Adaptable to other ordering platforms such as Oracle and Ariba
- Allows the user to pay for the product(s) using a variety of methods, including daily billing, monthly billing or via credit card. The site actually allows the user to pay online and pick which invoices to approve to be paid by credit card.
- The ability to 'tag' an order as a rush order
- Provides a variety of reports, including current orders (in both summary and detail), past orders, favorite products ordered, a summary invoice report, a purchase history report and payment reports for any Web based transactions. All reports are available online in either PDF or Excel format.

If you need additional information, please call 1-800-942-1148, email us at info@gtsgas.com or contact your local GTS location.



ACETYLENE C₂H₂

A colorless, flammable gas dissolved in acetone

PURIFIED

2.6 Min. Purity 99.6%

PH₃ < 10 ppm

Total Sulfur < 10 ppm

Arsine < 10 ppm

*Contents and pressure can vary.

NOTE: Purified Grade Acetylene is recommended for Atomic Absorption Spectrophotometers.

CAUTION — Delivery Pressure should not exceed 15 PSIG

TECHNICAL INFORMATION

Molecular Weight	26.04
Specific Volume of Gas	14.7CF/lb, 0.919m ³ /kg
Flammability Limits	2.5 - 80% in Air
DOT Name	Acetylene, Dissolved
ID No.	UN1001
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	74-86-2

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
380	330*/9.34	250	1000-380	510
140	130*/3.68	250	1000-140	510

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATOR:	S150-1	184
Flash Arrestor	S796-B1	271

AIR**ULTRA ZERO**

THC < 0.1 ppm

CO₂ < 1 ppm

CO < 1 ppm

H₂O < 1 ppm

NO_x < 0.1 ppm

TECHNICAL INFORMATION

Molecular Weight	28.98
Specific Volume of Gas	13.3CF/lb, 0.831m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Air, Compressed
ID No.	UN1002
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	N/A

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	310/8.78	2640	1001-300	590
200	232/6.57	2200	1001-200	590
150A	152/4.30	2000	1001-150A	590
80	88/2.49	2200	1001-80	590
35	38/1.08	2200	1001-35	590
DM3	8.1/0.229	260	1001-DM3	165

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178

AIR (cont.)

A colorless, odorless, non-flammable mixture

VEHICLE EMISSION ZERO

THC < 1 ppm	CO < 1 ppm
CO ₂ < 400 ppm	NO _x < 0.1 ppm
H ₂ O < 3 ppm	SO ₂ < 0.1 ppm

TECHNICAL INFORMATION

Molecular Weight	28.98
Specific Volume of Gas	13.3CF/lb, 0.831m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Air, Compressed
ID No.	UN1002
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	N/A

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	310/8.78	2640	1002-300	590
200	232/6.57	2460	1002-200	590
150A	152/4.30	2000	1002-150A	590
80	88/2.49	2200	1002-80	590
35	38/1.08	2200	1002-35	590

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
Two Stage	S420	180

Meets Federal Register Specification Title 40 CFR 86. 114-78

ZERO

THC < 1 ppm

TECHNICAL INFORMATION

Molecular Weight	28.97
Specific Volume	13.3CF/lb, 0.831m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Air, Compressed
ID No.	UN1002
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	N/A

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	310/8.78	2640	1003-300	590
200	232/6.57	2490	1003-200	590
150A	165/4.67	2000	1003-150A	590
80	88/2.49	2200	1003-80	590
35	38/1.08	2200	1003-35	590
LB	2/0.057	1800	1003-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178
LB	S900	190

CO₂ FREE

Total Carbon
Dioxide Equivalent
< 5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	310/8.78	2640	1004-300	590
200	232/6.57	2200	1004-200	590
80	88/2.49	2200	1004-80	590

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178
LB	S900	190

AIR (cont.)

A colorless, odorless, non-flammable mixture

DRY

H₂O < 8 ppm

Dew Point - 80°F

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	310/8.78	2640	1005-300	590
200	232/6.57	2490	1005-200	590
80	88/2.49	2200	1005-80	590
35	38/1.08	2200	1005-35	590
LB	2/0.057	1800	1005-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
Two Stage	S120	179
LB	S900	190

AMMONIA NH₃

A colorless, pungent, toxic gas shipped as a liquefied gas under its own vapor pressure

SEMICONDUCTOR

5.0 Min. Purity 99.999%

(Liquid phase)

O₂ < 2 ppm

CO < 1 ppm

H₂O < 5 ppm

N₂ < 5 ppm

THC < 1 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	50/22.68	114	1007-200	660
80	15/6.80	114	1007-80	660
35	5/2.27	114	1007-35	660

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATOR:		
Single Stage	S450	183
Cross Purge	S503	269

ANHYDROUS GRADE

4.0 Min. Purity 99.99%

(Liquid phase)

Oil < 30 ppm

H₂O < 100 ppm

TECHNICAL INFORMATION

Molecular Weight	17.031
Specific Volume of Gas	20.78CF/lb, 1.30m ³ /kg
Flammability Limits	15.5 - 25% in Air
DOT Name	Ammonia, Anhydrous
ID No.	UN1005
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	7664-41-7

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
400	150/68	114	1006-400	705
200	50/22.68	114	1006-200	
80	15/6.8	114	1006-80	
10	2/0.91	114	1006-10	
LB	0.4/0.18	114	1006-LB	

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S220	185
Single Stage	S300, S450	175, 183
LB	S960	189
LB Control Valve	S411	248

ARGON Ar

A colorless, odorless, tasteless, inert gas

RESEARCH

5.5 Min. Purity 99.9995%

O₂ < 0.5 ppm

H₂O < 1 ppm

N₂ < 4 ppm

THC < 0.5 ppm

CO < 0.5 ppm

CO₂ < 0.5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	336/9.51	2640	1009-300	580
200	278/7.87	2490	1009-200	580
150A	152/4.30	2000	1009-150A	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300	175
Two Stage	S320	176

SPUTTERING (ELECTRONIC GRADE)

5.5 Min. Purity 99.9995%

H₂ < 1 ppm

O₂ < 0.2 ppm

H₂O < 1 ppm

THC < 0.5 ppm

N₂ < 4 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
200	278/7.87	2490	1014-200	580
150A	152/4.30	2000	1014-150A	580
80A	73/2.07	2000	1014-80A	580
33A	28/0.028	2000	1014-33A	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300	175
Two Stage	S320	176

ARGON LIQUID ULTRA HIGH PURITY

5.0 Min. Purity 99.999%

O₂ < 1 ppm

N₂ < 5 ppm

H₂O < 1 ppm

THC < 1 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
180H	5300/150	N/A	1010-180H	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATOR:		
Single Stage	S315	177

TECHNICAL INFORMATION

Molecular Weight	39.95
Specific Volume of Gas	9.71CF/lb, 0.606m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Argon, Compressed
ID No.	UN1006
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	7440-37-1

ARGON Ar (cont.)

A colorless, odorless, tasteless, inert gas

ULTRA HIGH PURITY

5.0 Min. Purity 99.999%

O₂ < 1 ppm

N₂ < 5 ppm

H₂O < 1 ppm

THC < 1 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	336/9.51	2640	1010-300	580
200	278/7.87	2490	1010-200	580
80	88/2.49	2200	1010-80	580
35	38/1.08	2200	1010-35	580
LB	2/0.057	1800	1010-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178

PREPURIFIED

4.8 Min. Purity 99.998%

O₂ < 5 ppm

H₂O < 5 ppm

THC < 2 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	336/9.51	2640	1012-300	580
200	278/7.87	2490	1012-200	580
80	88/2.49	2200	1012-80	580
35	38/1.08	2200	1012-35	580
LB	2/0.057	1800	1012-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178
LB	S900	190

ZERO

4.8 Min. Purity 99.998%

THC < 0.5ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	336/9.51	2640	1011-300	580
200	278/7.87	2490	1011-200	580
80	88/2.49	2200	1011-80	580
35	38/1.08	2200	1011-35	580
LB	2/0.057	1800	1011-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
Two Stage	S420	180

HIGH PRESSURE

4.8 Min. Purity 99.998%

O₂ < 10 ppm

H₂O < 5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
3HP	575/16.3	6000	1013-3HP	677
2HP	395/11.2	3500	1013-2HP	680

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
6000 PSIG	S145, S360	188, 187
3500 PSIG	S145	188

TECHNICAL INFORMATION

Molecular Weight	39.95
Specific Volume of Gas	9.71CF/lb, 0.606m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Argon, Compressed
ID No.	UN1006
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	7440-37-1

BORON TRICHLORIDE BCl_3

A colorless, toxic, corrosive gas shipped as a liquid under its own vapor pressure

ELECTRONIC

5.0 Min. Purity 99.999%

(Liquid Phase)

Free Chlorine < 10 ppm

COCl_2 < 1 ppm

Air < 100 ppm

HCL < 1 ppm

Si < 1 ppm (wt)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
80	40/18.12	4.4	1017-80	660
35	10/4.53	4.4	1017-35	660
LX	1/0.453	4.4	1017-LX	660

CHEMICALLY PURE

3.0 Min. Purity 99.9%

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	100/453	4.4	1019-200	660
80	40/18.12	4.4	1019-80	660
35	10/4.53	4.4	1019-35	660
LB	1/0.453	4.4	1019-LB	

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Control Valve	S402	248
LB	S411	248

TECHNICAL INFORMATION

Molecular Weight	117.17
Specific Volume of Gas	3.3CF/lb, 0.206m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Boron Trichloride
ID No.	UN1741
DOT Class	2.3
DOT Label	Poison Gas, Corrosive
CAS Registry	10294-34-5

BORON TRIFLUORIDE BF_3

A nonflammable, toxic and corrosive gas

CHEMICALLY PURE

2.5 Min. Purity 99.5%

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	60/27.2	1800	1020-200	330
35	5.5/2.49	1800	1020-35	330
LB	0.4/0.181	1600	1020-LB	180

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S210	186
LB	S960	189

TECHNICAL INFORMATION

Molecular Weight	67.81
Specific Volume of Gas	5.6CF/lb, 0.350m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Boron Trifluoride, Compressed
ID No.	UN1008
DOT Class	2.3
DOT Label	Poison Gas
CAS Registry	7637-07-2

1,3-BUTADIENE C₄H₆

A colorless, flammable gas shipped as a liquid under its own vapor pressure

CHEMICALLY PURE

2.0 Min. Purity 99.0%

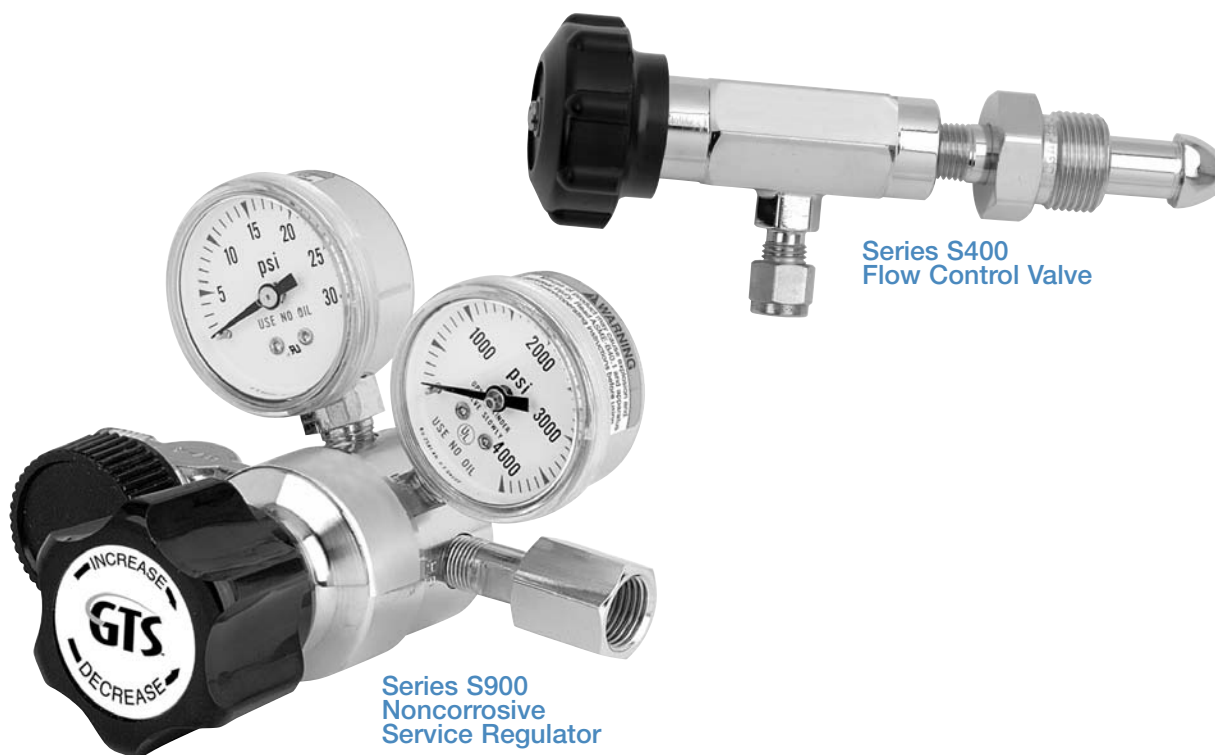
(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350	135/61.2	21	1021-350	510
25	17/7.70	21	1021-25	510
LB	0.4/0.181	21	1021-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S150	184
LB	S900	190
Control Valve	S400	248
LB Control	S410	248

TECHNICAL INFORMATION

Molecular Weight	54.09
Specific Volume of Gas	6.9CF/lb, 0.431m ³ /kg
Flammability Limits	2.0 - 11.5% in Air
DOT Name	Butadienes, Inhibited
ID No.	UN1010
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	106-99-0



Series S900
Noncorrosive
Service Regulator

Series S400
Flow Control Valve

n-BUTANE C₄H₁₀

A colorless, flammable gas shipped as a liquid under its own vapor pressure

SCIENTIFIC

3.5 Min. Purity 99.95%

(Liquid Phase)

O₂ < 10 ppm

N₂ < 40 ppm

H₂O < 5 ppm

CO₂ < 20 ppm

Other Hydrocarbons < 400 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
LX	0.4/0.181	16	1022-LX	510

RECOMMENDED EQUIPMENT	MODEL	PAGE
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REGULATORS:

Single Stage	S315	177
Control Valve	S400	248

INSTRUMENT

2.5 Min. Purity 99.5%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350	120/54.4	16	1023-350	510
25	17/7.70	16	1023-25	510
10	2/0.906	16	1023-10	510
LB	0.4/0.181	16	1023-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
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REGULATORS:

Single Stage	S315	177
Control Valve	S400	248

CHEMICALLY PURE

2.0 Min. Purity 99.0%

(Liquid Phase)

Provided with Eductor Tube for

Liquid Withdrawal on Request

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350	120/54.4	16	1024-350	510
25	17/7.70	16	1024-25	510
LB	0.4/0.181	16	1024-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
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REGULATORS:

Single Stage	S100	179
LB	S900	190
Control Valve	S400	248
LB Control	S410	248

TECHNICAL INFORMATION

Molecular Weight	58.12
Specific Volume of Gas	6.34CF/lb, 0.396m ³ /kg
Flammability Limits	1.8 - 8.4% in Air
DOT Name	Butane
ID No.	UN1011
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	106-97-8

ISOBUTANE C₄H₁₀

A colorless, flammable gas shipped as a liquid under its own vapor pressure

SCIENTIFIC

3.5 Min. Purity 99.95%

(Liquid Phase)

O₂ < 10 ppm

N₂ < 40 ppm

H₂O < 5 ppm

CO₂ < 10 ppm

Other HC < 500 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
LX	0.4/0.181	31	1085-LX	510

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Tee Purge	S502-B	269

INSTRUMENT

2.5 Min. Purity 99.5%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350	116/52.6	31	1086-350	510
25	17/7.72	31	1086-25	510
LB	0.4/0.181	31	1086-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S150	184
LB	S900	190
Control Valve	S400	248

CHEMICALLY PURE

2.0 Min. Purity 99.0%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350	116/52.6	31	1087-350	510
25	17/7.72	31	1087-25	510
LB	0.4/0.181	31	1087-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S150	184
Tee Purge	S502-B	269
LB	S900	190
Control Valve	S400	248
LB Control	S410	248

TECHNICAL INFORMATION

Molecular Weight	58.12
Specific Volume of Gas	6.34CF/lb, 0.396m ³ /kg
Flammability Limits	1.8 - 8.4% in Air
DOT Name	Isobutane
ID No.	UN1969
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	75-28-5

1-BUTENE C₄H₈

A colorless, flammable gas shipped as a liquid under its own vapor pressure

SCIENTIFIC

2.7 Min. Purity 99.7%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (gm)	PRESSURE PSIG	PRODUCT CODE	CGA
LX	0.4/0.081	23	1025-LX	510

RECOMMENDED EQUIPMENT**REGULATORS:**

MODEL	PAGE
Single Stage	S315 177
Control Valve	S400 248

CHEMICALLY PURE

2.0 Min. Purity 99.0%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350	128/60.0	23	1026-350	510
25	17/7.70	23	1026-25	510
10	2/0.906	23	1026-10	510
LB	0.4/0.181	23	1026-LB	170

RECOMMENDED EQUIPMENT**REGULATORS:**

MODEL	PAGE
Single Stage	S150 184
LB	S900 190
Control Valve	S400 248
LB Control	S410 248

TECHNICAL INFORMATION

Molecular Weight	56.11
Specific Volume of Gas	6.55CF/lb, 0.409m ³ /kg
Flammability Limits	1.6 - 10% in Air
DOT Name	Liquid Petroleum Gas (Butene)
ID No.	UN1012
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	106-98-9

CIS-2-BUTENE C₄H₈

A colorless, flammable gas shipped as a liquid under its own vapor pressure

CHEMICALLY PURE

2.0 Min. Purity 99.0%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
25	17/7.70	13	1027-25	510
10	2.5/1.13	13	1027-10	510
LB	0.4/0.181	13	1027-LB	170

RECOMMENDED EQUIPMENT**REGULATORS:**

MODEL	PAGE
Single Stage	S150 184
LB	S900 190
Control Valve	S400 248
LB Control	S410 248

TECHNICAL INFORMATION

Molecular Weight	56.11
Specific Volume of Gas	6.52CF/lb, 0.407m ³ /kg
Flammability Limits	1.6 - 9.7% in Air
DOT Name	Liquid Petroleum Gas (CIS-2-Butene)
ID No.	UN1012
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	590-18-1

TRANS-2-BUTENE C₄H₈

A colorless, flammable gas shipped as a liquid under its own vapor pressure

CHEMICALLY PURE

2.0 Min. Purity 99.0%

(Liquid Phase)

TECHNICAL INFORMATION

Molecular Weight	56.11
Specific Volume of Gas	6.53CF/lb, 0.407m ³ /kg
Flammability Limits	1.6 - 9.7% in Air
DOT Name	Liquid Petroleum Gas (Trans-2-Butene)
ID No.	UN1012
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	624-64-6

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
25	17/7.70	15	1028-25	510
10	2.5/1.13	15	1028-10	510
LB	0.4/0.181	15	1028-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S150	184
LB	S900	190
Control Valve	S400	248
LB Control	S410	248

CIS AND TRANS-2-BUTENE C₄H₈

A colorless, flammable gas shipped as a liquid under its own vapor pressure

CHEMICALLY PURE

2.0 Min. Purity 99.0%

(Liquid Phase)

TECHNICAL INFORMATION

Molecular Weight	56.11
Specific Volume of Gas	6.54CF/lb, 0.408m ³ /kg
Flammability Limits	1.8 - 9.6% in Air
DOT Name	Liquid Petroleum Gas (CIS-Trans-2-Butene)
ID No.	UN1055
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	115-11-7

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
25	17/7.70	15	1029-25	510
10	2.5/1.13	15	1029-10	510
LB	0.4/0.181	15	1029-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S150	184
LB	S900	190
Control Valve	S400	248
LB Control	S410	248

ISOBUTYLENE C₄H₈

A colorless, flammable gas shipped as a liquid under its own vapor pressure

CHEMICALLY PURE

2.0 Min. Purity 99.0%

(Liquid Phase)

TECHNICAL INFORMATION

Molecular Weight	56.11
Specific Volume of Gas	6.55CF/lb, 0.409m ³ /kg
Flammability Limits	1.8 - 9.6% in Air
DOT Name	Isobutylene
ID No.	UN1055
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	115-11-7

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350	126/57.1	24	1088-350	510
25	17/7.70	24	1088-25	510
LB	0.4/0.181	24	1088-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S150	184
Tee Purge	S502-B	269
LB	S900	190
Control Valve	S400	248
LB Control	S410	248

CARBON DIOXIDE CO₂

A colorless, odorless, nonflammable, slightly acidic gas shipped as a liquid under its own vapor pressure

SCIENTIFIC

4.8 Min. Purity 99.998%

Ar + O₂ < 2 ppm

H₂O < 3 ppm

CO < 1 ppm

N₂ < 8 ppm

THC < 1 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	50/22.7	838	1030-200	320
LX	50 lt	830	1030-LX	320

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300	175
Two Stage	S320	176

COLEMAN

4.0 Min. Purity 99.99%

(Liquid Phase)

Ar + O₂ < 9 ppm

THC < 4 ppm

CO < 5 ppm

Provided with eductor tube for liquid withdrawal on request

H₂O < 10 ppm

N₂ < 50 ppm

H₂ < 4 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
300	70/31.7	838	1032-300	320
200	50/22.7	838	1032-200	320
80	24/10.9	838	1032-80	320

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
Two Stage	S120	179

ANAEROBIC

3.0 Min. Purity 99.9%

Ar + O₂ < 10 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
300	70/31.7	838	1033-300	320
200	50/22.7	838	1033-200	320
80	24/10.9	838	1033-80	320

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178
LB	S900	190
CO ₂ Heater	S798-2	271

BONE DRY

2.8 Min. Purity 99.8%

(Liquid Phase)

Provided with eductor tube for liquid withdrawal on request

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
300	70/31.7	838	1034-300	320
200	50/22.7	838	1034-200	320
80	24/10.9	838	1034-80	320
LB	0.5/0.227	838	1034-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
Two Stage	S420	180
LB	S900	190
CO ₂ Heater	S798-2	271

TECHNICAL INFORMATION

Molecular Weight	44.01
Specific Volume of Gas	8.74CF/lb, 0.546m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Carbon Dioxide
ID No.	UN1013
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	124-38-9

CARBON DIOXIDE CO₂ (cont.)**SFE GRADE
SUPERCRITICAL FLUID EXTRACTION****5.0 Min. Purity 99.999%**

(Liquid Phase)

Equipped with a full length eductor tube for liquid withdrawal. Pressurized with Helium on request.

Ar + O₂ < 1 ppm N₂ < 4 ppmH₂O < 2 ppm C₁ - C₆ < 0.5 ppmCO < 1 ppm H₂ < 0.5 ppm

	CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
Without Helium Headspace	150A	38/17.2	838	1146-150A	320
1000 PSIG Helium Headspace*	150A	38/17.2	1838	1145-150A	320

*Higher pressures available. Please inquire.

**SFC GRADE
SUPERCRITICAL FLUID CHROMATOGRAPHY****4.8 Min. Purity 99.998%**

(Liquid Phase)

Equipped with a full length eductor tube for liquid withdrawal. Pressurized with Helium on request.

Ar + O₂ < 2 ppm N₂ < 10 ppmH₂O < 2 ppm C₁ - C₆ < 2 ppmCO < 2 ppm H₂ < 2 ppm

	CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
Without Helium Headspace	150A	38/17.2	838	1148-150A	320
1000 PSIG Helium Headspace	150A	38/17.2	1838	1147-150A	320

TECHNICAL INFORMATION

Molecular Weight	44.01
Specific Volume of Gas	8.74CF/lb, 0.546m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Carbon Dioxide
ID No.	UN1013
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	124-38-9

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300	175
Two Stage	S320	176
Control Valve	S402	248



Series S325
High Purity Brass -
Two Stage Regulator



Series S798
N₂O/CO₂/LAR Heater

CARBON MONOXIDE CO

SCIENTIFIC

4.7 Min. Purity 99.997%

O₂ < 5 ppmN₂ < 5 ppmH₂O < 3 ppmH₂ < 1 ppm

THC < 2 ppm

Ar < 15 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
200	175/4.96	1650	1035-300	350
80	66/1.87	1650	1035-80	350
LX	50 lt	1500	1035-LX	350

RECOMMENDED EQUIPMENT

MODEL

PAGE

REGULATORS:

Single Stage

S300

175

Two Stage

S320

176

UHP

3.0 Min. Purity 99.9%

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	260/7.36	1650	1036-300	350
200	175/4.96	1650	1036-200	350
150A	141/3.99	2000	1036-150A	350
80	66/1.87	1650	1036-80	350
35	26/0.736	1650	1036-35	350
LB	1/0.028	1550	1036-LB	170

RECOMMENDED EQUIPMENT

MODEL

PAGE

REGULATORS:

Single Stage

S300

175

Two Stage

S320

176

TECHNICAL INFORMATION

Molecular Weight

28.01

Specific Volume of Gas

13.8CF/lb, 0.862m³/kg

Flammability Limits

12.5 - 74% in Air

DOT Name

Carbon Monoxide, compressed

ID No.

UN1016

DOT Class

2.3

DOT Label

Poison Gas, Flammable Gas

CAS Registry

630-08-0



Series S320
High Purity Stainless Steel -
Two Stage Regulator

CARBON MONOXIDE CO (cont.)

A colorless, odorless, toxic, flammable gas

CHEMICALLY PURE

2.5 Min. Purity 99.5%

CH₄ < 200 ppm

Air < 4800 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	260/7.36	1650	1037-300	350
200	175/4.96	1650	1037-200	350
80	66/1.87	1650	1037-80	350
35	26/0.736	1650	1037-35	350
LB	1/0.028	1500	1037-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178
LB	S900	190

TECHNICAL

2.0 Min. Purity 99.0%

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	260/7.36	1650	1038-300	350
200	175/4.96	1650	1038-200	350

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178
LB	S900	190

TECHNICAL INFORMATION

Molecular Weight	28.01
Specific Volume of Gas	13.8CF/lb, 0.862m ³ /kg
Flammability Limits	12.5 - 74% in Air
DOT Name	Carbon Monoxide
ID No.	UN1016
DOT Class	2.3
DOT Label	Inhalation Hazard, Flammable Gas
CAS Registry	630-08-0



Series S325
High Purity Brass -
Two Stage Regulator

CHLORINE Cl₂

A greenish-yellow, toxic, corrosive gas with an extremely disagreeable odor, shipped as a liquid under its own vapor pressure

ELECTRONIC

4.0 Min. Purity 99.99%

(Liquid Phase)

O₂ < 4 ppm

N₂ < 20 ppm

H₂O < 3 ppm

CO₂ < 10 ppm

CO < 1 ppm

THC < 1 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
80	40/18.1	85	1040-80	660
35	15/6.8	85	1040-35	660
10	5/2.27	85	1040-10	660

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300, S450	175, 183
Cross Purge	S503	269

ULTRA HIGH PURITY

3.0 Min. Purity 99.9%

(Liquid Phase)

H₂O < 10 ppm

THC < 10 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
80	40/18.1	85	1041-80	660
35	15/6.80	85	1041-35	660
10	5/2.27	85	1041-10	660
LB	1/0.453	85	1041-LB	180

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S450	183
Single Stage	S210	186
Cross Purge	S503	269
LB	S960	189
Control Valves	S402	248
LB Control	S411	248

HIGH PURITY

2.5 Min. Purity 99.5%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
160	150/70.0	85	1042-160	660
200	95/43.0	85	1042-200	660
80	40/18.1	85	1042-80	660
35	15/6.80	85	1042-35	660
10	5/2.27	85	1042-10	660
LB	1/0.453	85	1042-LB	180

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S450	183
Single Stage	S210	186
Cross Purge	S503	269
LB	S960	189
Control Valves	S402	248
LB Control	S411	248

TECHNICAL INFORMATION

Molecular Weight	70.91
Specific Volume of Gas	5.40CF/lb, 0.336m ³ /kg
Flammability Limits	Oxidizer
DOT Name	Chlorine
ID No.	UN1017
DOT Class	2.3
DOT Label	Inhalation Hazard, Corrosive
CAS Registry	7782-50-5

CHLORODIFLUOROMETHANE CHClF_2

See Halocarbon 22, page 35

CHLOROTRIFLUOROMETHANE CClF_3

See Halocarbon 13, page 33

CHLOROPENTAFLUOROETHANE C_2ClF_5

See Halocarbon 115, page 36

DEUTERIUM D_2

A colorless, odorless, flammable gas; it is a stable isotope of Hydrogen

ULTRA HIGH PURITY**4.5 Min. Purity 99.995% (excludes HD and H_2)** $\text{N}_2 < 5 \text{ ppm}$ $\text{HD} < 5000 \text{ ppm}$ $\text{H}_2\text{O} < 5 \text{ ppm}$ $\text{H}_2 < 100 \text{ ppm}$ $\text{O}_2 < 5 \text{ ppm}$ $\text{CH}_4 < 1 \text{ ppm}$ $\text{CO} + \text{CO}_2 < 2 \text{ ppm}$

CYLINDER SIZE	CONTENTS (lb)	PRESSURE PSIG	PRODUCT CODE	CGA
200	5000	1760	1043-200	350
80	1000	890	1043-80	350
35	500	1090	1043-35	350
10	100	630	1043-10	350
LX	50	1740	1043-LX	350

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S325	178
Single Stage	S315	177
LB	S900	190

TECHNICAL INFORMATION

Molecular Weight	4.03
Specific Volume of Gas	95.9CF/lb, 5.99m ³ /kg
Flammability Limits	4.9 - 75% in Air
DOT Name	Deuterium, Compressed
ID No.	UN1957
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	7782-39-0

DICHLOROSILANE SiH₂Cl₂

A highly flammable, toxic, corrosive liquid

ELECTRONIC

1.8 Min. Purity 98.0%

(Liquid Phase)

Resistivity > 50 ohm/cm

N₂ < 10 ppm

THC < 1 ppm

O₂ + Ar < 1 ppm

H₂ < 100 ppm

CO < 1 ppm

CO₂ < 1%

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	50/22.7	9	1044-200	678
35	10/4.53	9	1044-35	678
10	5/2.27	9	1044-10	678

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300, S450	175, 183
Cross Purge	S503	269

TECHNICAL INFORMATION

Molecular Weight	101.0
Specific Volume of Gas	3.83CF/lb, 0.239m ³ /kg
Flammability Limits	4.1 - 98.8% in Air
DOT Name	Dichlorosilane
ID No.	UN2189
DOT Class	2.3
DOT Label	Inhalation Hazard, Flammable Gas, Corrosive
CAS Registry	4109-96-0

DIMETHYLAMINE (CH₃)₂NH

A colorless, flammable, potentially harmful, alkaline gas shipped as a liquid under its own vapor pressure

ANHYDROUS

2.0 Min. Purity 99.0%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350	140/63.4	11	1045-350	705
80	17/7.72	11	1045-80	705
LB	0.4/0.181	11	1045-LB	180

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S220	185
LB	S960	189
Control Valve	S402	248
LB Control	S411, S412	248

TECHNICAL INFORMATION

Molecular Weight	45.08
Specific Volume of Gas	8.6CF/lb, 0.537m ³ /kg
Flammability Limits	2.8 - 14.4% in Air
DOT Name	Dimethylamine, Anhydrous
ID No.	UN1032
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	124-40-3

DIMETHYL ETHER (CH₃)₂O

A colorless, flammable, gas shipped as a liquid under its own vapor pressure

CHEMICALLY PURE

2.8 Min. Purity 99.8%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
65	70/31.7	60	1046-65	510
80	17/7.70	60	1046-80	510
10	2/0.906	60	1046-10	510
LB	0.5/0.227	60	1046-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S150	184
LB	S900	190
Control Valve	S400, S401	248, 249
LB Control	S411	248

TECHNICAL INFORMATION

Molecular Weight	46.07
Specific Volume of Gas	8.4CF/lb, 0.524m ³ /kg
Flammability Limits	3.4 - 27% in Air
DOT Name	Dimethyl Ether
ID No.	UN1033
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	115-10-6

DINITROGEN TETROXIDE N₂O₄

A brownish colored, highly toxic, corrosive gas shipped as a liquid under its own vapor pressure

CHEMICALLY PURE

2.5 Min. Purity 99.5%

(Liquid Phase)

*Cylinder is pressurized to 100 psi with N₂ and equipped with a full length eductor tube for liquid withdrawal

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	120/54.4	100*	1110-200	660
35	10/4.53	100*	1110-35	660

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S320	176
Single Stage	S300	175
Cross Purge	S503	269
Control Valve	S402	248

TECHNICAL INFORMATION

Molecular Weight	92.02
Specific Volume of Gas	4.7CF/lb, 0.293m ³ /kg
Flammability Limits	Oxidizer
DOT Name	Dinitrogen Tetroxide, Liquefied
ID No.	UN1067
DOT Class	2.3
DOT Label	Inhalation Hazard, Oxidizer, Corrosive
CAS Registry	10102-44-0

ETHANE C₂H₆

A colorless, odorless, flammable gas shipped as a liquid under its own vapor pressure

SCIENTIFIC

3.5 Min. Purity 99.95%

(Liquid Phase)

O₂ < 10 ppm

N₂ < 40 ppm

H₂O < 5 ppm

CO₂ < 10 ppm

Other HC < 400 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
DX1	1/0.453	543	1047-DX1	350
DX2	.05/0.023	543	1047-DX2	350

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Control Valve	S400, S401	248, 249

CHEMICALLY PURE

2.0 Min. Purity 99.0%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	32/14.5	543	1048-200	350
80	12/5.44	543	1048-80	350
35	3/1.36	543	1048-35	350
LB	0.3/0.136	543	1048-LB	170

TECHNICAL INFORMATION

Molecular Weight	30.07
Specific Volume of Gas	12.5CF/lb, 0.781m ³ /kg
Flammability Limits	3.0 - 12.4% in Air
DOT Name	Ethane, Compressed
ID No.	UN1035
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	74-84-0

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S158	182
Single Stage	S150	184
LB	S900	190
Control Valves	S400, S401	248, 249
LB Control	S411	248

ETHYL CHLORIDE C₂H₅Cl

A colorless, odorless, flammable, irritating gas shipped as a liquid under its own vapor pressure

CHEMICALLY PURE

2.7 Min. Purity 99.7%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350	175/79.3	5	1049-350	510
25	20/9.06	5	1049-25	510
LB	0.5/0.023	5	1049-LB	180

TECHNICAL INFORMATION

Molecular Weight	64.52
Specific Volume of Gas	6.0CF/lb, 0.375m ³ /kg
Flammability Limits	3.8 - 15.4% in Air
DOT Name	Ethyl Chloride
ID No.	UN1037
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	75-00-3

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Control Valve	S400, S401	248, 249
Tee Purge	S411	248

ETHYLENE C₂H₄

A colorless, flammable gas

SCIENTIFIC

3.5 Min. Purity 99.95%

O ₂ < 10 ppm	H ₂ < 10 ppm
H ₂ O < 2 ppm	CO < 5 ppm
CO ₂ < 25 ppm	N ₂ < 50 ppm
Sulfur < 1 ppm	Other HC < 200 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
LX	0.3/0.136	1200	1050-LX	350

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S320	176
Single Stage	S300	175

UHP

3.0 Min. Purity 99.9%

O ₂ < 10 ppm	H ₂ O < 5 ppm
Other HC < 1000 ppm	

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	30/13.6	1200	1051-200	350
80	11/4.98	1200	1051-80	350
LB	0.3/0.136	1200	1051-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S325	178
Single Stage	S315	177
Tee Purge	S502-B	269

CHEMICALLY PURE

2.5 Min. Purity 99.5%

O ₂ < 25 ppm	H ₂ O < 100 ppm
Other HC < 5000 ppm	

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
300	37/16.8	1200	1052-300	350
200	30/13.6	1200	1052-200	350
80	11/4.98	1200	1052-80	350
10	2/0.906	1200	1052-10	350
LB	0.3/0.136	1200	1052-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S158	182
Single Stage	S150	184
LB	S900	191
LB Control	S410	248

TECHNICAL INFORMATION

Molecular Weight	28.05
Specific Volume of Gas	12.7CF/lb, 0.793m ³ /kg
Flammability Limits	2.7 - 36% in Air
DOT Name	Ethylene, Compressed
ID No.	UN1962
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	74-85-1

ETHYLENE OXIDE C₂H₄O

A colorless, flammable, toxic liquefied gas shipped as a liquid under its own vapor pressure

GTS PURITY

2.7 Min. Purity 99.7%

(Liquid Phase)

Ethylene Oxide may polymerize on storage,
we recommend use within three months.

**Note: Ethylene Oxide is classified as a restricted use
pesticide in some states. Licensing may be required.**

TECHNICAL INFORMATION

Molecular Weight	44.05
Specific Volume of Gas	8.78CF/lb, 0.548m ³ /kg
Flammability Limits	3.1 - 100% in Air
DOT Name	Ethylene Oxide, or Ethylene Oxide with Nitrogen
ID No.	UN1040
DOT Class	2.3
DOT Label	Inhalation Hazard, Flammable Gas
CAS Registry	75-21-8

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
10	1/0.453	7	1053-10	510
LB	0.5/0.227	7	1053-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Control Valve	S402	248
LB Control	S411, S412	248

FLUOROFORM CHF₃

See Halocarbon 23, page 35

HALOCARBON-13 CClF₃

Chlorotrifluoromethane. A colorless, nonflammable gas shipped as a liquid under its own vapor pressure

GTS PURITY

2.8 Min. Purity 99.8%

(Liquid Phase)

TECHNICAL INFORMATION

Molecular Weight	104.45
Specific Volume of Gas	3.66CF/lb, 0.288m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Chlorotrifluoromethane
ID No.	UN1022
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	75-72-9

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	80/36.2	459	1056-200	660
35	15/6.80	459	1056-35	660
LB	0.5/0.227	459	1056-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
Control Valve	S400	248
LB Control	S410	248

HALOCARBON-14 CF₄

Tetrafluoromethane. A colorless, nonflammable gas shipped under its own vapor pressure

ETCHING

3.5 Min. Purity 99.95%

O₂ < 50 ppm CO < 1 ppm
H₂O < 1 ppm N₂ < 200 ppm
CO₂ < 1 ppm
Purity exceeds SEMI Standard C3 STD. 21-85

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	70/31.7	2000	1059-200	320
80	6/2.72	500	1059-80	320
35	2.5/1.13	500	1059-35	320

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300	175
Two Stage	S320	176
Tee Purge	S502-S	269

GTS PURITY

3.0 Min. Purity 99.9%

O₂ < 100 ppm CO < 5 ppm
H₂O < 5 ppm N₂ < 250 ppm
CO₂ < 5 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	70/31.7	2000	1058-200	320
80	6/2.72	500	1058-80	320
35	2.5/1.04	500	1058-35	320
LB	0.1/0.045	500	1058-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S325	178
Single Stage	S315	177
LB	S900	190
Control Valve	S400	248
LB Control	S410	248

TECHNICAL INFORMATION

Molecular Weight	88.01
Specific Volume of Gas	4.38CF/lb, 0.274m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Tetrafluoromethane, Compressed
ID No.	UN1982
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	75-73-0

HALOCARBON-22 CHClF₂

Chlorodifluoromethane. A colorless, nearly odorless, nonflammable gas shipped as a liquid under its own vapor pressure

GTS PURITY

3.0 Min. Purity 99.9%

(Liquid Phase)

TECHNICAL INFORMATION

Molecular Weight	86.48
Specific Volume of Gas	4.41CF/lb, 0.275m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Chlorodifluoromethane
ID No.	UN1018
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	75-45-6

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
65	125/56.8	123	1060-65	660
DM3	30/13.6	123	1060-DM3	165

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
LB	S900	190
Control Valve	S401	248
LB Control	S410	248

HALOCARBON-23 CHF₃

Fluoroform. A colorless, nearly odorless, nonflammable gas shipped as a liquid under its own vapor pressure

ETCHING

4.5 Min. Purity 99.995%

(Liquid Phase)

H₂O < 5 ppm

Air < 20 ppm

CO₂ < 10 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
150A	51/24.0	635	1062-150A	660
33A	9/4.09	635	1062-33A	660

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300	175
Two Stage	S320	176

GTS PURITY

3.5 Min. Purity 99.95%

(Liquid Phase)

TECHNICAL INFORMATION

Molecular Weight	70.01
Specific Volume of Gas	5.5CF/lb, 0.343m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Trifluoromethane
ID No.	UN1984
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	75-46-7

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	70/31.7	635	1061-200	660
10	3/1.36	635	1061-10	660
LB	0.5/0.227	635	1061-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S120	179
Single Stage	S100	179
LB	S900	190

HALOCARBON-115 C₂ClF₅

Chloropentafluoroethane

ETCHING**2.5 Min. Purity 99.5%**

(Liquid Phase)

TECHNICAL INFORMATION

Molecular Weight	115.48
Specific Volume of Gas	2.47CF/lb, 0.154m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Chloropentafluoroethane
ID No.	UN1020
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	76-15-3

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
150A	74/33.5	102	1063-150A	660
80A	39/17.7	102	1063-80A	660
33A	10/4.53	102	1063-33A	660

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S150	184
Control Valve	S400	248
LB Control	S410	248

HALOCARBON-116 C₂F₆

Hexafluoroethane

ETCHING**3.5 Min. Purity 99.95%**

(Liquid Phase)

H₂O < 10 ppm**GTS PURITY****3.0 Min. Purity 99.9%**

(Liquid Phase)

TECHNICAL INFORMATION

Molecular Weight	138.01
Specific Volume of Gas	2.8CF/lb, 0.175m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Hexafluoromethane
ID No.	UN2193
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	76-16-4

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
150A	60/32.6	430	1065-150A	660
33A	9/6.34	430	1065-33A	660

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300	175
Two Stage	S320	176

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	95/43.0	430	1064-200	660
35	9/4.08	430	1064-35	660
LB	0.5/0.227	430	1064-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S158	182
Single Stage	S150	184
LB	S900	190
Control Valve	S401	248
LB Control	S410	248

HELIUM He

A colorless, odorless, tasteless, inert gas

SCIENTIFIC

6.0 Min. Purity 99.9999%

O₂ < 0.5 ppm

N₂ < 0.5 ppm

H₂O < 0.5 ppm

H₂ < 0.5 ppm

CO + CO₂ < 0.1 ppm

THC < 0.1 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	293/8.30	2640	1067-300	580
200	245/6.94	2490	1067-200	580
80	85/2.41	2200	1067-80	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S320, S325	176, 178
Single Stage	S300, S315	175, 177

ULTRA CARRIER

5.5 Min. Purity 99.9995%

N₂ < 2 ppm

H₂O < 1 ppm

O₂ < 1 ppm

THC < 0.4 ppm

Ne < 2.0 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	293/8.30	2640	1068-300	580
200	245/6.94	2490	1068-200	580
80	85/2.41	2200	1068-80	580
10	10/0.283	2000	1068-10	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S325	178
Single Stage	S315	177
LB	S900	190

TECHNICAL INFORMATION

Molecular Weight	4.003
Specific Volume of Gas	97.09CF/lb, 6.061m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Helium, Compressed or Refrigerated Liquid
ID No.	UN1046 or UN1963
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	7440-59-7



Series S325
High Purity Brass -
Two Stage Regulator

HELIUM He (cont.)

A colorless, odorless, tasteless, inert gas

ULTRA HIGH PURITY

5.0 Min. Purity 99.999%

O₂ < 1 ppm

H₂O < 1 ppm

THC < 0.5 ppm

N₂ < 5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	293/8.30	2640	1069-300	580
200	245/6.94	2490	1069-200	580
150A	142/4.01	2000	1069-150A	580
80	85/2.41	2200	1069-85	580
35	35/0.991	2000	1069-35	580
LB	2/0.057	1800	1069-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S420	180
Single Stage	S100	179
LB	S900	190

ZERO

4.8 Min. Purity 99.998%

THC < 0.5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	293/8.30	2640	1070-300	580
200	245/6.94	2490	1070-200	580
80	85/2.41	2200	1070-80	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S420	180
Single Stage	S100	179
LB	S900	190

HIGH PURITY

4.7 Min. Purity 99.997%

O₂ < 5 ppm

H₂O < 5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	293/8.30	2640	1071-300	580
200	245/6.94	2490	1071-200	580
80	85/2.41	2200	1071-80	580
LB	2/0.057	1800	1071-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S120	179
Single Stage	S100	179
LB	S900	190

TECHNICAL INFORMATION

Molecular Weight	4.003
Specific Volume of Gas	97.09CF/lb, 6.061m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Helium, Compressed or Refrigerated Liquid
ID No.	UN1046 or UN1963
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	7440-59-7

HELIUM He (cont.)

A colorless, odorless, tasteless, inert gas

LIQUID

5.0 Min. Purity 99.999%

CYLINDER SIZE	CONTENTS (lt.)	PRESSURE PSIG	PRODUCT CODE	CGA
30L	30	0.5	1143-30L	580
60L	60	0.5	1143-60L	580
100L	100	0.5	1143-100L	580
250L	250	0.5	1143-250L	580

HIGH PRESSURE

4.5 Min. Purity 99.995%

O₂ < 10 ppm

H₂O < 5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
3HP	513/14.5	6000	1072-3HP	677
2HP	329/9.32	3500	1072-2HP	680

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Regulator	S360	187
Regulator	S145	188

TECHNICAL INFORMATION

Molecular Weight	4.003
Specific Volume of Gas	97.09CF/lb, 6.061m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Helium, Compressed or Refrigerated Liquid
ID No.	UN1046 or UN1963
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	7440-59-7

HEXAFLUOROETHANE C₂F₆

See Halocarbon 116, page 36



HYDROGEN H₂

A colorless, odorless, flammable gas

SCIENTIFIC

6.0 Min. Purity 99.9999%

O₂ < 0.5 ppm

N₂ < 0.5 ppm

H₂O < 0.5 ppm

CO + CO₂ < 0.1 ppm

THC < 0.1 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	286/8.10	2640	1074-300	350
200	216/6.12	2490	1074-200	350
80	75/2.12	2200	1074-80	350

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300, S315	175, 177
Two Stage	S320, S325	176, 178
Flash Arrestor	S796	271

ULTRA HIGH PURITY

5.0 Min. Purity 99.999%

O₂ < 1 ppm

N₂ < 5 ppm

H₂O < 2 ppm

THC < 0.5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	286/8.10	2400	1075-300	350
200	216/6.12	2200	1075-200	350
80	75/2.12	2000	1075-80	350
10	10/0.283	2000	1075-10	350

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178
Flash Arrestor	S796	271

TECHNICAL INFORMATION

Molecular Weight	2.016
Specific Volume of Gas	192.0CF/lb, 11.99m ³ /kg
Flammability Limits	4.0 - 75% in Air
DOT Name	Hydrogen, Compressed
ID No.	UN1049
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	1333-74-0



Series S320
High Purity Stainless Steel -
Two Stage Regulator

HYDROGEN H₂ (cont.)

A colorless, odorless, flammable gas

ZERO

4.5 Min. Purity 99.995%

THC < 0.5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	286/8.10	2400	1076-300	350
200	216/6.12	2200	1076-200	350
80	75/2.12	2000	1076-80	350

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S420	180
Single Stage	S100	179
Flash Arrestor	S796	271

PREPURIFIED

4.0 Min. Purity 99.99%

O₂ < 5 ppm

H₂O < 10 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	286/8.10	2400	1077-300	350
200	216/6.12	2200	1077-200	350
80	75/2.12	2000	1077-80	350
LB	2/0.057	1800	1077-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S120	179
Single Stage	S100	179
LB	S900	190
Flash Arrestor	S796	271

HIGH PRESSURE

4.0 Min. Purity 99.99%

O₂ < 30 ppm

H₂O < 15 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
3HP	483/13.68	6000	1078-3HP	703
2HP	322/9.12	3500	1078-2HP	695

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Regulator	S360	187
Regulator	S145	188

TECHNICAL INFORMATION

Molecular Weight	2.016
Specific Volume of Gas	192.0CF/lb, 11.99m ³ /kg
Flammability Limits	4.0 - 75% in Air
DOT Name	Hydrogen, Compressed
ID No.	UN1049
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	1333-74-0

HYDROGEN BROMIDE HBr

A colorless, corrosive, irritating, toxic gas shipped as a liquid under its own vapor pressure

CHEMICALLY PURE

2.8 Min. Purity 99.8%

(Liquid Phase)

TECHNICAL INFORMATION

Molecular Weight	80.91
Specific Volume of Gas	4.76CF/lb, 0.297m³/kg
Flammability Limits	Nonflammable
DOT Name	Hydrogen Bromide, Anhydrous
ID No.	UN1048
DOT Class	2.3
DOT Label	Inhalation Hazard, Corrosive
CAS Registry	10035-10-6

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
80	30/13.6	320	1079-80	330
35	10/4.53	320	1079-35	330
10	4/0.113	320	1079-10	330
LB	1/0.453	320	1079-LB	180

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S210, S450	186, 183
Cross Purge	S503	269
Control Valve	S402	248
LB Control	S411	248

HYDROGEN CHLORIDE HCl

A colorless, corrosive, irritating, toxic gas shipped as a liquid under its own vapor pressure

VLSI

5.0 Min. Purity 99.999%

(Liquid Phase)

O ₂ + Ar < 1 ppm	N ₂ < 4 ppm
H ₂ O < 1 ppm	THC < 1 ppm
CO ₂ < 5 ppm	

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	60/27.18	613	1081-200	330
80	20/9.06	613	1081-80	330
35	8/3.62	613	1081-35	330

SEMICONDUCTOR

4.5 Min. Purity 99.995%

(Liquid Phase)

O ₂ + Ar < 5 ppm	N ₂ < 20 ppm
H ₂ O < 15 ppm	THC < 2 ppm
CO ₂ < 10 ppm	

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	60/27.18	613	1080-200	330
80	20/9.06	613	1080-80	330
35	8/3.62	613	1080-35	330

TECHNICAL

2.0 Min. Purity 99.0%

(Liquid Phase)

TECHNICAL INFORMATION

Molecular Weight	36.46
Specific Volume of Gas	10.6CF/lb, 0.662m³/kg
Flammability Limits	Nonflammable
DOT Name	Hydrogen Chloride, Anhydrous
ID No.	UN1050
DOT Class	2.3
DOT Label	Inhalation Hazard, Corrosive
CAS Registry	7647-01-0

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	60/27.18	613	1082-200	330
35	8/9.06	613	1082-35	330
10	2.5/1.13	613	1082-10	330
LB	0.5/0.227	613	1082-LB	180

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S450-VCR	183
Cross Purge	S503	269
Control Valve	S403	248
LB Control	S411	248

HYDROGEN SULFIDE H₂S

A colorless, flammable, toxic gas with the odor of rotten eggs. Shipped as a liquid under its own vapor pressure

CHEMICALLY PURE

2.5 Min. Purity 99.5%

(Liquid Phase)

N₂ < 500 ppm

CO₂ < 500 ppm

H₂O < 500 ppm

THC < 3000 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	60/27.2	252	1083-200	330
80	20/9.06	252	1083-80	330
35	9/4.08	252	1083-35	330
10	3/1.35	252	1083-10	330
LB	0.5/0.227	252	1083-LB	180

TECHNICAL

2.0 Min. Purity 99.0%

(Liquid Phase)

TECHNICAL INFORMATION

Molecular Weight	34.08
Specific Volume of Gas	11.2CF/lb, .070m ³ /kg
Flammability Limits	4.0 - 44% in Air
DOT Name	Hydrogen Sulfide, Liquefied
ID No.	UN1053
DOT Class	2.3
DOT Label	Inhalation Hazard, Flammable Gas
CAS Registry	7783-06-4

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	60/27.2	252	1084-200	330
80	20/9.06	252	1084-80	330
35	9/4.08	252	1084-35	330
10	3/1.35	252	1084-10	330
LB	0.5/0.227	252	1084-LB	180

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S220, S450	185, 183
LB	S960	189
Cross Purge	S503	269
Control Valve	S402	248
LB Control	S411	248

ISOBUTANE C₄H₁₀

See page 20

ISOBUTYLENE C₄H₈

See page 22

KRYPTON Kr

A colorless, odorless, inert, rare gas

SCIENTIFIC - HALOGEN FREE

5.0 Min. Purity 99.999% N₂ < 4 ppm

O₂ < 0.5 ppm

Xe < 3 ppm

H₂O < 1 ppm

THC < 0.5 ppm

Ar < 0.5 ppm

N₂ < 4 ppm

CO + CO₂ < 0.5 ppm

CF₄ < 0.1 ppm

TECHNICAL INFORMATION

Molecular Weight	83.80
Specific Volume of Gas	4.604CF/lb, 0.287m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Krypton, Compressed
ID No.	UN1056
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	7439-90-0

CYLINDER SIZE	CONTENTS (lb)	PRESSURE PSIG	PRODUCT CODE	CGA
200	5000	1400	1089-200	580
80	1000	725	1089-80	580
35	500	825	1089-35	580
LX	50	1325	1089-LX	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300	175
Two Stage	S320	176
Tee Purge	S502	269

KRYPTON Kr (cont.)

A colorless, odorless, inert, rare gas

ULTRA HIGH PURITY

4.8 Min. Purity 99.998% N₂ < 4 ppm

O₂ < 2 ppm

Xe < 5 ppm

H₂O < 2 ppm

THC < 1 ppm

N₂ < 8 ppm

CYLINDER SIZE	CONTENTS (lt)	PRESSURE PSIG	PRODUCT CODE	CGA
200	5000	1400	4263-200	580
80	1000	725	4263-80	580
35	500	825	4263-35	580
LX	50	1325	4263-LX	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300	175
Two Stage	S320	176
Tee Purge	S502	269

TECHNICAL INFORMATION

Molecular Weight	83.80
Specific Volume of Gas	4.604CF/lb, 0.287m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Krypton, Compressed
ID No.	UN1056
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	7439-90-0

METHANE CH₄

A colorless, odorless, tasteless, flammable gas

SCIENTIFIC

5.5 Min. Purity 99.9995%

O₂ < 0.5 ppm

CO₂ < 0.1 ppm

N₂ < 2 ppm

H₂O < 2 ppm

H₂ < 0.1 ppm

Other HC < 0.1 ppm

CYLINDER SIZE	CONTENTS (lt)	PRESSURE PSIG	PRODUCT CODE	CGA
DX1	125	1764	1144-DX1	350
DX2	60	882	1144-DX2	350

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300	175
Two Stage	S320	176
LB	S960	189

TECHNICAL INFORMATION

Molecular Weight	16.04
Specific Volume of Gas	23.61CF/lb, 1.474m ³ /kg
Flammability Limits	5.0 - 15.0% in Air
DOT Name	Methane, Compressed
ID No.	UN1971
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	74-82-8

METHANE CH₄

A colorless, odorless, tasteless, flammable gas

RESEARCH

4.5 Min. Purity 99.995%

Air < 20 ppm

CO < 1 ppm

CO₂ < 1 ppm

H₂O < 5 ppm

O₂ < 5 ppm

N₂ < 15 ppm

C₂H₆ < 20 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	360/10.19	2400	1090-300	350
200	300/8.50	2265	1090-200	350

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S325	178
Single Stage	S315	177
LB	S900	190

ULTRA HIGH PURITY

4.0 Min. Purity 99.99%

O₂ < 10 ppm

N₂ < 100 ppm

H₂O < 5 ppm

C₃H₈ < 50 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	360/10.19	2400	1091-300	350
200	300/8.50	2265	1091-200	350
LB	2/0.057	1800	1091-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S420	180
Single Stage	S315	177
LB	S900	190

CHEMICALLY PURE

2.0 Min. Purity 99.0%

H₂O < 30 ppm

Air < 8000 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	360/10.19	2400	1092-300	350
200	300/8.50	2265	1092-200	350
80	100/2.83	2000	1092-80	350
35	40/1.13	2000	1092-35	350
LB	2/0.057	1800	1092-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S120	179
Single Stage	S100	179
LB	S900	190
Control Valve	S400	248

TECHNICAL INFORMATION

Molecular Weight	16.04
Specific Volume of Gas	23.61CF/lb, 1.474m ³ /kg
Flammability Limits	5.0 - 15.0% in Air
DOT Name	Methane, Compressed
ID No.	UN1971
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	74-82-8

METHANE CH₄ (cont.)

A colorless, odorless, tasteless, flammable gas

TECHNICAL

1.8 Min. Purity 98.0%

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	360/10.2	2400	1093-300	350
200	300/8.50	2265	1093-200	350
80	100/2.83	2000	1093-80	350

RECOMMENDED EQUIPMENT**REGULATORS:**

MODEL	PAGE
Two Stage	S158 182
Single Stage	S100 179
Control Valve	S400 248

COMMERCIAL

1.3 Min. Purity 93.0

(Natural Gas)

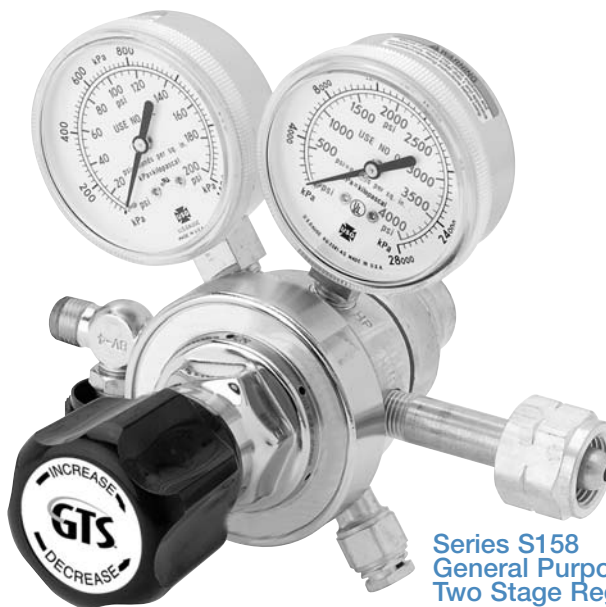
CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	360/10.2	2400	1094-300	350
200	300/8.50	2265	1094-200	350

RECOMMENDED EQUIPMENT**REGULATORS:**

MODEL	PAGE
Two Stage	S158 182
Single Stage	S150 184
Control Valve	S400 248

TECHNICAL INFORMATION

Molecular Weight	16.04
Specific Volume of Gas	23.61 CF/lb, 1.474 m ³ /kg
Flammability Limits	5.0 - 15.0% in Air
DOT Name	Methane, Compressed
ID No.	UN1971
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	74-82-8



Series S158
General Purpose Brass -
Two Stage Regulator

METHYL BROMIDE CH₃Br

A colorless, flammable, toxic, liquefied gas

CHEMICALLY PURE

2.5 Min. Purity 99.5%

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
10 LB	7.5/3.40 1.5/0.680	13 13	1095-10 1095-LB	330 180

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Control Valve	S402	248
LB Control	S411	248

TECHNICAL INFORMATION

Molecular Weight	99.94
Specific Volume of Gas	4.031CF/lb, 0.252m ³ /kg
Flammability Limits	10 - 16% in Air
DOT Name	Methyl Bromide
ID No.	UN1062
DOT Class	2.3
DOT Label	Poison Gas
CAS Registry	74-83-9

METHYL CHLORIDE CH₃Cl

A colorless, flammable, potentially harmful, liquefied gas

CHEMICALLY PURE

2.5 Min. Purity 99.5%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
65	100/45.3	59	1096-65	510
80	25/11.3	59	1096-80	510
35	6/2.72	59	1096-35	510
LB	0.5/0.227	59	1096-LB	180

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
LB	S900	190
Control Valve	S400	248
LB Control	S410	248

TECHNICAL INFORMATION

Molecular Weight	50.49
Specific Volume of Gas	7.5CF/lb, 0.47m ³ /kg
Flammability Limits	8.1 - 17% in Air
DOT Name	Methyl Chloride
ID No.	UN1063
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	74-87-3

METHYL MERCAPTAN CH₃SH

A colorless, flammable, potentially harmful, liquefied gas

CHEMICALLY PURE

2.5 Min. Purity 99.5%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
35	6/2.72	15	1097-35	330
10	3/1.36	15	1097-10	330
LB	0.5/0.227	15	1097-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S170	189
LB	S960	189
Control Valve	S402	248

TECHNICAL INFORMATION

Molecular Weight	48.10
Specific Volume of Gas	8.0CF/lb, 0.499m ³ /kg
Flammability Limits	3.9 - 21.8% in Air
DOT Name	Methyl Mercaptan
ID No.	UN1064
DOT Class	2.3
DOT Label	Flammable Gas
CAS Registry	74-93-1

MONOMETHYLAMINE CH₃NH₂

A colorless, toxic, flammable, alkaline, liquefied gas

CHEMICALLY PURE

2.5 Min. Purity 99.5%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350	125/56.6	29	1098-350	705
35	5/2.27	29	1098-35	705
10	2/0.906	29	1098-10	705
LB	0.5/0.227	29	1098-LB	180

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S220	185
LB	S960	189
Control Valve	S402	248
LB Control	S412	248

TECHNICAL INFORMATION

Molecular Weight	31.06
Specific Volume of Gas	12.1CF/lb, 0.755m ³ /kg
Flammability Limits	4.9 - 20% in Air
DOT Name	Methylamine, Anhydrous
ID No.	UN1061
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	74-89-5

NEON Ne

A colorless, odorless, inert gas

SCIENTIFIC

5.0 Min. Purity 99.999%

O₂ < 0.5 ppm

N₂ < 2 ppm

H₂O < 1 ppm

THC < 0.5 ppm

He < 5 ppm

CO + CO₂ < 0.5 ppm

CYLINDER SIZE	CONTENTS (lt)	PRESSURE PSIG	PRODUCT CODE	CGA
300	7500	2400	1099-300	580
200	6000	2200	1099-200	580
80	1000	860	1099-80	580
35	500	1000	1099-35	580
LX	25	820	1099-LX	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300	175
Two Stage	S320	176
LB	S960	189

ULTRA HIGH PURITY

4.5

Min. Purity 99.995%

O₂ < 1 ppm

N₂ < 4 ppm

H₂O < 1 ppm

THC < 0.5 ppm

He < 30 ppm

CO + CO₂ < 0.5 ppm

CYLINDER SIZE	CONTENTS (lt)	PRESSURE PSIG	PRODUCT CODE	CGA
300	7500	2400	1100-300	580
200	6000	2200	1100-200	580
80	1000	860	1100-80	580
35	500	1000	1100-35	580
LX	25	820	1100-LX	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178
LB	S900	190

TECHNICAL INFORMATION

Molecular Weight	20.18
Specific Volume of Gas	19.18CF/lb, 1.197m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Neon, Compressed
ID No.	UN1065
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	7440-01-9

NITRIC OXIDE NO

A colorless, nonflammable, toxic gas

CHEMICALLY PURE

2.0 Min. Purity 99.0%

N₂ < 3000 ppm N₂O < 250 ppm

H₂O < 20 ppm CO₂ < 1000 ppm

NO₂ < 250 ppm

TECHNICAL INFORMATION

Molecular Weight	30.006
Specific Volume of Gas	13CF/lb, 0.87m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Nitric Oxide, Compressed
ID No.	UN1660
DOT Class	2.3
DOT Label	Inhalation Hazard, Oxidizer, Corrosive
CAS Registry	10102-43-9

CYLINDER SIZE	CONTENTS (cf/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	56/1.95	500	1101-200	660
80	20/0.9	500	1101-80	660
LX	0.5/0.021	500	1101-LX	660

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S320	176
Single Stage	S300	175
Cross Purge	S503	269
Control Valve	S402	248

NITROGEN N₂

A colorless, odorless, chemically inert gas

SCIENTIFIC

5.5 Min. Purity 99.9995%

O₂ < 0.5 ppm H₂O < 1 ppm

CO + CO₂ < 2 ppm THC < 0.1 ppm

H₂ < 1 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
200	257/7.28	2490	1102-200	580
80	81/2.29	2200	1102-80	580
10	11/0.312	2000	1102-10	580

SEMICONDUCTOR

5.0 Min. Purity 99.999%

O₂ < 0.2 ppm THC < 0.2 ppm

CO₂ < 0.2 ppm H₂O < 1 ppm

CO < 0.5 ppm H₂ < 2 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	300/8.50	2640	1104-300	580
200	257/7.28	2490	1104-200	580
150A	149/4.22	2000	1104-150A	580
80	80/2.27	2200	1104-80	580
35	37/1.05	2000	1104-35	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300	175
Two Stage	S320	176

TECHNICAL INFORMATION

Molecular Weight	28.01
Specific Volume of Gas	13.89CF/lb, 0.867m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Nitrogen, Compressed
ID No.	UN1066
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	7727-37-9

NITROGEN N₂ (cont.)

A colorless, nonflammable, toxic gas

EMISSION MONITORING ZERO

5.5 Min. Purity 99.9995%

O₂ < 0.5 ppm

H₂O < 5 ppm

THC < 0.1 ppm

CO < 0.5 ppm

CO₂ < 1 ppm

SO₂ < 0.1 ppm

NO_x ≤ 0.1 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
200	257/7.28	2000	2225-200	580
150A	149/4.22	2000	2225-150A	580
80A	77/2.18	2000	2225-80A	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325, S420	178, 180
LB	S900	190

ULTRA HIGH PURITY

5.0 Min. Purity 99.999%

O₂ < 2 ppm

H₂O < 1 ppm

THC < 0.5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	300/8.50	2640	1103-300	580
200	257/7.28	2490	1103-200	580
150A	149/4.22	2000	1103-150A	580
80	80/2.27	2200	1103-80	580
35	37/1.05	2200	1103-35	580
10	11/0.312	2200	1103-10	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315, S100	177, 179
Two Stage	S325, S420	178, 180
LB	S900	190

ZERO

4.8 Min. Purity 99.998%

THC < 0.5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	300/8.5	2640	1105-300	580
200	257/7.28	2490	1105-200	580
80	80/2.27	2200	1105-80	580
35	37/1.05	2200	1105-35	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
Two Stage	S420	180
LB	S900	190

TECHNICAL INFORMATION

Molecular Weight	28.01
Specific Volume of Gas	13.89CF/lb, 0.867m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Nitrogen, Compressed
ID No.	UN1066
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	7727-37-9

NITROGEN N₂ (cont.)

A colorless, nonflammable gas

PREPURIFIED

4.8 Min. Purity 99.998%

H₂O < 5 ppmO₂ < 5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	300/8.50	2640	1107-300	580
200	257/7.28	2490	1107-200	580
80	80/2.27	2200	1107-80	580
35	37/1.05	2200	1107-35	580
10	11/0.312	2200	1107-10	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S120	179
Two Stage	S100	179
LB	S900	190

OXYGEN FREE

4.8 Min. Purity 99.998%

Certified oxygen content < 0.5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
200	257/7.28	2490	1106-200	580
80	80/2.27	2200	1106-80	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S120	179
Two Stage	S100	179
LB	S900	190

HIGH PRESSURE

4.8 Min. Purity 99.998%

O₂ < 5 ppmH₂O < 5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
3HP	494/14.0	6000	1108-3HP	677
2HP	338/9.57	3500	1108-2HP	680

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
3500 PSI	S145	188
6000 PSI	S360	187

TECHNICAL INFORMATION

Molecular Weight	28.01
Specific Volume of Gas	13.89CF/lb, 0.867m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Nitrogen, Compressed
ID No.	UN1066
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	7727-37-9

NITROGEN DIOXIDE NO₂

A brownish colored, toxic, corrosive, liquefied gas

CHEMICALLY PURE

2.5 Min. Purity 99.5%

(Liquid Phase)

See Dinitrogen Tetroxide on page 30

for liquid withdrawal applications.

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	100/45.4	0	1109-200	660
35	10/4.53	0	1109-35	660
LX	0.5/0.227	0	1109-LX	660

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS: Control Valve	S402	248

TECHNICAL INFORMATION

Molecular Weight	46.01
Specific Volume of Gas	4.7CF/lb, 0.293m ³ /kg
Flammability Limits	Oxidizer
DOT Name	Dinitrogen Tetoxide, Liquefied
ID No.	UN1067
DOT Class	2.3
DOT Label	Inhalation Hazard, Oxidizer, Corrosive
CAS Registry	10102-44-0

NITROGEN TRIFLUORIDE NF₃

A toxic, colorless, odorless, nonflammable gas

ELECTRONIC

2.7 Min. Purity 99.7%

CF ₄ < 1500 ppm	CO < 25 ppm
CO ₂ < 25 ppm	N ₂ < 700 ppm
N ₂ O < 50 ppm	SF ₆ < 5 ppm
H ₂ O < 1 ppm	HF < 3000 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	17/7.70	1450	1111-200	330
35	8/3.62	1450	1111-35	330
LX	3/1.36	1450	1111-LX	330

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS: Single Stage	S450	183
Two Stage	S452	183
Cross Purge	S503	269

TECHNICAL INFORMATION

Molecular Weight	71.00
Specific Volume of Gas	5.043CF/lb, 0.337m ³ /kg
Flammability Limits	Oxidizer
DOT Name	Nitrogen Trifluoride, Compressed
ID No.	UN2451
DOT Class	2.2
DOT Label	Nonflammable Gas, Oxidizer
CAS Registry	7783-54-2

NITROUS OXIDE N₂O

A colorless, sweet tasting, oxidizing liquefied gas

ELECTRONIC

5.0 Min. Purity 99.999%

O₂ < 2 ppm

H₂O < 3 ppm

THC < 1 ppm

N₂ < 10 ppm

Permit required in some states

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	60/27.2	745	1112-200	326
80	20/9.06	745	1112-80	326

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S450	183
Tee Purge	S502-S	269

ULTRA HIGH PURITY

4.0 Min. Purity 99.99%

(Liquid Phase)

N₂ < 50 ppm

O₂ < 10 ppm

H₂O < 10 ppm

Permit required in some states

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	60/27.2	745	1113-200	326
80	20/9.06	745	1113-80	326

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300	175
N ₂ O Heater	S502-S	271

CHEMICALLY PURE

2.6 Min. Purity 99.6%

(Liquid Phase)

O₂ + N₂ < 2000 ppm

H₂O < 30 ppm

NOT FOR DRUG USE

Permit required in some states

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	60/27.2	745	1114-200	326
80	20/9.06	745	1114-80	326
LB	0.5/0.227	745	1114-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
Two Purge	S158	182
LB	S900	190
Control Valve	S400	248
LB Control	S410	248
N ₂ O Heater	S798-S	271

TECHNICAL INFORMATION

Molecular Weight	44.01
Specific Volume of Gas	8.538CF/lb, 0.533m ³ /kg
Flammability Limits	Oxidizer
DOT Name	Nitrous Oxide
ID No.	UN1070
DOT Class	2.2
DOT Label	Nonflammable Gas, Oxidizer
CAS Registry	10024-97-2

OCTAFLUOROPROPANE C₃F₈

Perfluoropropane. A colorless, relatively non-reactive gas shipped as a liquid under its own vapor pressure

CHEMICALLY PURE

2.0 Min. Purity 99.0%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
65	50/22.7	100	1122-65	660
DM3	10/4.53	100	1122-DM3	165
10	5/2.27	100	1122-10	660
LB	1/0.453	100	1122-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
LB	S900	190
Control Valve	S400	248
LB Control	S410	248

TECHNICAL INFORMATION

Molecular Weight	188.0
Specific Volume of Gas	2.02CF/lb, 0.126m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Octafluoropropane
ID No.	UN2424
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	76-19-7

OCTAFLUOROCYCLOBUTANE C₄F₈

Perfluorocyclobutane

CHEMICALLY PURE

2.8 Min. Purity 99.8%

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
80	15/6.80	25	1115-80	660
35	6/2.72	25	1115-35	660
LB	0.5/0.227	25	1115-LB	180

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S450-VCR	183

TECHNICAL INFORMATION

Molecular Weight	200.0
Specific Volume of Gas	1.85CF/lb, 0.116m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Octafluorocyclobutane
ID No.	UN1976
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	115-25-3

OXYGEN O₂

A colorless, odorless, tasteless, oxidizing gas

SCIENTIFIC

5.0 Min. Purity 99.999%

Ar ₂ < 5 ppm	N ₂ < 5 ppm
H ₂ O < 1 ppm	CO ₂ < 1 ppm
THC < 0.5 ppm	CO < 1 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
200	282/7.99	2490	1116-200	540
80	97/2.75	2200	1116-80	540
10	10/0.283	2200	1116-10	540
LX	50 lt	1800	1116-LX	540

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S320	176
Single Stage	S300	175

ULTRA HIGH PURITY

4.4 Min. Purity 99.994%

H ₂ O < 2 ppm	CO < 1 ppm
THC < 0.5 ppm	N ₂ < 20 ppm
CO ₂ < 1 ppm	

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	337/9.54	2640	1117-300	540
200	282/7.99	2490	1117-200	540
80	97/2.75	2200	1117-80	540
35	39/1.10	2200	1117-35	540

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178

ELECTRONIC GRADE

4.0 Min. Purity 99.99%

N ₂ < 50 ppm	THC < 1 ppm
H ₂ O < 3 ppm	CO ₂ < 1 ppm
CO < 1 ppm	

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	337/9.54	2640	1120-300	540
200	282/7.99	2490	1120-200	540

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
Two Stage	S420	180

ZERO

2.8 Min. Purity 99.8%

THC < 0.5 ppm

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	337/9.54	2640	1118-300	540
200	282/7.99	2490	1118-200	540
80	97/2.75	2200	1118-80	540
35	39/1.10	2200	1118-35	540

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300, S450	175, 183
Two Stage	S320, S452	176, 183

TECHNICAL INFORMATION

Molecular Weight	32.00
Specific Volume of Gas	12.08CF/lb, 0.754m ³ /kg
Flammability Limits	Oxidizer
DOT Name	Oxygen, Compressed
ID No.	UN1072
DOT Class	2.2
DOT Label	Oxygen or Nonflammable Gas, Oxidizer
CAS Registry	7782-44-7

OXYGEN O₂ (cont.)

A colorless, odorless, tasteless, oxidizing gas

EXTRA DRY GRADE

2.8 Min. Purity 99.8%

H₂O < 3.5 ppm

Dew Point -90°F

CYLINDER SIZE	CONTENTS (cf/m ³)	PRESSURE PSIG	PRODUCT CODE	CGA
300	337/9.54	2640	1119-300	540
200	282/7.99	2490	1119-200	540
80	97/2.75	2200	1119-80	540
35	39/1.10	2200	1119-35	540
LB	2/0.057	1800	1119-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Two Stage	S120	179
Single Stage	S100	179
LB	S900	190

TECHNICAL INFORMATION

Molecular Weight	32.00
Specific Volume of Gas	12.08CF/lb, 0.754m ³ /kg
Flammability Limits	Oxidizer
DOT Name	Oxygen, Compressed
ID No.	UN1072
DOT Class	2.2
DOT Label	Oxygen or Nonflammable Gas, Oxidizer
CAS Registry	7782-44-7

PERFLUOROPROPANE C₃F₈

See Octafluoropropane, page 55

PHOSGENE COCl₂

A colorless, toxic, corrosive, liquefied gas

TECHNICAL GRADE

2.0 Min. Purity 99.0%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
10	5/2.27	11	1123-10	660
LX	1/0.453	11	1123-LX	660

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Control Valve	S403	248

TECHNICAL INFORMATION

Molecular Weight	98.92
Specific Volume of Gas	3.9CF/lb, 0.24m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Phosgene
ID No.	UN1076
DOT Class	2.3
DOT Label	Inhalation Hazard, Corrosive
CAS Registry	75-44-5

PHOSPHINE PH₃

A colorless, highly toxic and flammable liquefied gas with the odor of decaying fish

VLSI

3.8 Min. Purity 99.98%

H₂ < 100 ppm

N₂ < 50 ppm

O₂ < 5 ppm

CO₂ < 10 ppm

THC < 4 ppm

H₂O < 2 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
35	5/2.27	593	1124-35	350
10	1.5/0.680	593	1124-10	350
LX	17 gm	593	1124-LX	350

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S450-VCR	183
Cross Purge	S503	269

TECHNICAL INFORMATION

Molecular Weight	34.00
Specific Volume of Gas	11.4CF/lb, 0.712m ³ /kg
Flammability Limits	Pyroporic
DOT Name	Phosphine
ID No.	UN2199
DOT Class	2.3
DOT Label	Inhalation Hazard, Flammable Gas
CAS Registry	7803-51-2

PROPANE C₃H₈

A colorless, flammable, liquefied, hydrocarbon gas

SCIENTIFIC

3.5 Min. Purity 99.95%

O₂ < 10 ppm

N₂ < 40 ppm

H₂O < 5 ppm

CO₂ < 10 ppm

Other HC < 400 ppm

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
DX1	1/0.453	109	1125-DX1	510
DX2	0.5/0.227	109	1125-DX2	510

INSTRUMENT GRADE

2.5 Min. Purity 99.5%

(Liquid Phase)

O₂ < 100 ppm

N₂ < 400 ppm

H₂O < 5 ppm

CO₂ < 100 ppm

Other HC < 4000 ppm

**Available with full length dip tube on request

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350**	100/0.453	109	1126-350	510
25	20/9.06	109	1126-25	510
LB	0.4/0.181	109	1126-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
Flash Arrestor	S796	271

TECHNICAL INFORMATION

Molecular Weight	44.10
Specific Volume of Gas	8.5CF/lb, 0.528m ³ /kg
Flammability Limits	2.2 - 9.5% in Air
DOT Name	Propane
ID No.	UN1978
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	74-98-6

PROPANE C₃H₈ (cont.)

A colorless, flammable, liquefied, hydrocarbon gas

CHEMICALLY PURE

2.0 Min. Purity 99.0%

(Liquid Phase)

**Available with full length dip tube on request

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350**	100/45.3	109	1127-350	510
25	20/9.06	109	1127-25	510
LB	0.4/0.181	109	1127-LB	170

NATURAL GRADE

1.6 Min. Purity 96.0%

(Liquid Phase)

**Available with full length dip tube on request

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350**	100/45.3	109	1128-350	510
25	20/9.06	109	1128-25	510

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S100	179
LB	S900	190
Flash Arrestor	S796	271

TECHNICAL INFORMATION

Molecular Weight	44.10
Specific Volume of Gas	8.45CF/lb, 0.528m ³ /kg
Flammability Limits	2.2 - 9.5% in Air
DOT Name	Propane
ID No.	UN1978
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	74-98-6



Series S100
General Purpose Brass -
Single Stage Regulator

PROPYLENE C₃H₆

A colorless, flammable, liquefied, hydrocarbon gas

SCIENTIFIC

3.5 Min. Purity 99.95%

N ₂ < 20 ppm	CH ₄ < 5 ppm
C ₂ H ₆ < 50 ppm	C ₃ H ₈ < 200 ppm
C ₄ H ₁₀ < 5 ppm	C ₄ H ₈ < 5 ppm
C ₄ H ₆ < 5 ppm	H ₂ O < 20 ppm
O ₂ < 10 ppm	

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
LX	0.4/0.181	137	1129-LX	510

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS: Single Stage	S315	177

POLYMER GRADE

2.5 Min. Purity 99.5%

(Liquid Phase)

O ₂ < 10 ppm	H ₂ O < 20 ppm
C ₂ H ₆ < 5000 ppm	

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350	105/158.6	137	1130-350	510
25	20/9.06	137	1130-25	510
LB	0.4/0.181	137	1130-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS: Single Stage	S150	184

CHEMICALLY PURE

2.0 Min. Purity 99.0%

(Liquid Phase)

O ₂ < 10 ppm	H ₂ O < 20 ppm
C ₂ H ₆ < 5000 ppm	

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350	105/158.6	137	1131-350	510
25	20/9.06	137	1131-25	510
LB	0.4/0.181	137	1131-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS: Single Stage	S150	184

TECHNICAL INFORMATION

Molecular Weight	42.08
Specific Volume of Gas	8.88CF/lb, 0.554m ³ /kg
Flammability Limits	1.9 - 11.1% in Air
DOT Name	Propylene
ID No.	UN1077
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	115-07-1

SILANE SiH₄

A colorless, pyrophoric gas

VLSI GRADE

4.7 Min. Purity 99.997%

H₂ < 150 ppm

N₂ < 5 ppm

Ar + He < 5 ppm

CO < 1 ppm

THC < 1 ppm

Chlorosilane < 1 ppm

Resistivity > 2500 ohm/cm

CYLINDER SIZE	CONTENTS (gm)	PRESSURE PSIG	PRODUCT CODE	CGA
200	10000	1050	1133-200	350
200	5000	780	1133-200	350
80	1000	360	1133-80	350
35	600	625	1133-35	350

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S450-VCR	183
Two Stage	S452-VCR	183
Cross Purge	S503	269

SEMICONDUCTOR

4.0 Min. Purity 99.99%

H₂ < 500 ppm

N₂ < 25 ppm

Ar + He < 40 ppm

CO < 5 ppm

THC < 5 ppm

Resistivity > 500 ohm/cm

CYLINDER SIZE	CONTENTS (gm)	PRESSURE PSIG	PRODUCT CODE	CGA
200	10000	1050	1132-200	350
200	5000	780	1132-200	350
80	1000	360	1132-80	350
35	600	625	1132-35	350

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S450-VCR	183
Two Stage	S452-VCR	183
Cross Purge	S503	269

TECHNICAL INFORMATION

Molecular Weight	32.12
Specific Volume of Gas	12.0CF/lb, 0.749m ³ /kg
Flammability Limits	Pyrophoric
DOT Name	Silane, Compressed
ID No.	UN2203
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	7803-62-5



Series S450
Ultra High Purity Stainless Steel -
Two Stage Regulator

SILICON TETRAFLUORIDE SiF₄

A colorless, toxic, corrosive gas

ELECTRONIC GRADE

3.7 Min. Purity 99.97%

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	50/22.7	1000	1134-200	330
80	20/9.06	1000	1134-80	330
35	7.5/3.40	1000	1134-35	330
LX	0.12/0.54	400	1134-LX	330

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S450	183
Two Stage	S452	183
Cross Purge	S503	269

TECHNICAL INFORMATION

Molecular Weight	104.1
Specific Volume of Gas	3.7CF/lb, 0.231m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Silicon Tetrafluoride, Compressed
ID No.	UN1859
DOT Class	2.3
DOT Label	Inhalation Hazard, Corrosive
CAS Registry	7783-61-1

SULFUR DIOXIDE SO₂

A colorless, irritating, nonflammable, toxic, liquefied gas

ANHYDROUS

3.8 Min. Purity 99.98%

(Liquid Phase)

H₂O < 100 ppm

Residue < 60 ppm (WT)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
65	150/68.0	34	1135-65	660
35	15/6.80	34	1135-35	660
LB	1/0.453	34	1135-LB	180

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S220	185
LB	S960	189
Control Valve	S402	248
LB Control	S411	248

TECHNICAL INFORMATION

Molecular Weight	64.06
Specific Volume of Gas	5.99CF/lb, 0.368m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Sulfur Dioxide, Liquefied
ID No.	UN1079
DOT Class	2.3
DOT Label	Inhalation Hazard, Corrosive
CAS Registry	7446-09-5

SULFUR HEXAFLUORIDE SF₆

A colorless, odorless, liquefied gas

ELECTRONIC**4.0** Min. Purity 99.99%

Air < 50 ppm (WT)

H₂O < 5 ppm (WT)CF₄ < 10 ppm (WT)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	115/52.1	320	1139-200	590
80	35/15.9	320	1139-80	590
35	10/4.53	320	1139-35	590
LX/LB	0.5/0.227	320	1139-LX/LB	590/170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S300, S450	175, 183
Two Stage	S320, S452	176, 183

INSTRUMENT GRADE**3.8** Min. Purity 99.98%

(Liquid Phase)

Air < 100 ppm (WT)

H₂O < 8 ppm (WT)CF₄ < 25 ppm (WT)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	115/52.1	320	1136-200	590
80	35/15.9	320	1136-80	590
35	10/4.53	320	1136-35	590
LB	0.5/0.227	320	1136-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178
LB	S900	190
Control Valve	S400	248
LB Control	S410	248

TECHNICAL INFORMATION

Molecular Weight	146.1
Specific Volume of Gas	2.5CF/lb, 0.156m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Sulfur Hexafluoride
ID No.	UN1080
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	2551-62-4

SULFUR HEXAFLUORIDE SF₆ (cont.)

A colorless, odorless, liquefied gas

CHEMICALLY PURE

3.0 Min. Purity 99.9%

(Liquid Phase)

Air < 500 ppm (WT)

CF₄ < 25 ppm (WT)

H₂O < 8 ppm (WT)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
200	115/52.1	320	1138-200	590
80	35/15.9	320	1138-80	590
35	10/4.53	320	1138-35	590
LB	0.5/0.227	320	1138-LB	170

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178
LB	S900	190
Control Valve	S400	248
LB Control	S410	248

TECHNICAL INFORMATION

Molecular Weight	146.1
Specific Volume of Gas	2.5CF/lb, 0.156m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Sulfur Hexafluoride
ID No.	UN1080
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	2551-62-4

TRIMETHYLAMINE (CH₃)₃N

A colorless, toxic, flammable gas

ANHYDROUS GRADE

2.0 Min. Purity 99.0%

(Liquid Phase)

CYLINDER SIZE	CONTENTS (lbs/kg)	PRESSURE PSIG	PRODUCT CODE	CGA
350	125/56.6	13	1140-350	510
LB	0.5/0.227	13	1140-LB	180

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S220	185
LB	S960	189
Control Valve	S402	248
LB Control	S411	248

TECHNICAL INFORMATION

Molecular Weight	59.11
Specific Volume of Gas	6.4CF/lb, 0.40m ³ /kg
Flammability Limits	2.0 - 11.6% in Air
DOT Name	Trimethylamine, Anhydrous
ID No.	UN1083
DOT Class	2.1
DOT Label	Flammable Gas
CAS Registry	75-50-3

XENON Xe

A colorless, odorless, nontoxic, inert gas

SCIENTIFIC - HALOGEN FREE

5.0 Min. Purity 99.999%

$O_2 < 0.5$ ppm	$N_2 < 4$ ppm
$H_2O < 1$ ppm	THC < 0.5 ppm
Kr < 3 ppm	Ar < 0.5 ppm
CO + CO ₂ < 0.5 ppm	CF ₄ < 0.1 ppm

CYLINDER SIZE	CONTENTS (lt)	PRESSURE PSIG	PRODUCT CODE	CGA
200	5000	900	1141-200	580
80	2500	930	1141-80	580
80	1000	680	1141-80	580
35	500	680	1141-35	580
LX	50	900	1141-LX50	580
LX	25	680	1141-LX25	580

RECOMMENDED EQUIPMENT	MODEL	PAGE
REGULATORS:		
Single Stage	S315	177
Two Stage	S325	178

TECHNICAL INFORMATION

Molecular Weight	131.3
Specific Volume of Gas	2.927CF/lb, 0.183m ³ /kg
Flammability Limits	Nonflammable
DOT Name	Xenon, Compressed
ID No.	UN2036
DOT Class	2.2
DOT Label	Nonflammable Gas
CAS Registry	7440-63-3



Series S325
High Purity Brass -
Two Stage Regulator

