



# Hydrogen

<b>Description</b>	
Formula:	H <sub>2</sub>
<b>Gas Data</b>	
Molecular Weight:	2.02
Density:	0.08235 kg/m <sup>3</sup> @ 25°C, 101.325 kPa 0.00521 lb/ft <sup>3</sup> @ 77°F, 14.696 psia
Specific Volume:	12.0 m <sup>3</sup> /kg @ 21.1°C, 101.325 kPa 192 ft <sup>3</sup> /lb @ 70°F, 14.696 psia
<b>Safety Information</b>	
LFL in Air:	4%
UFL in Air:	74%
<b>Shipping Information</b>	
CAS Registry Number:	1333-74-0
UN Number:	UN 1049
ECCN Number:	1C980
DOT Proper Shipping Name:	Hydrogen, Compressed
DOT Classification:	2.1 (Flammable Gas)
DOT Label:	FLAMMABLE GAS
TC Shipping Name:	Hydrogen, Compressed
TC Classification:	2.1
TC Label:	FLAMMABLE GAS

Cylinder Specifications					
Cylinder Size	Valve Outlet CGA No.	Pressure psig @ 70°F	Pressure kPa @ 21.1°C	Approximate Ship Weight	
				lb	kg
1H	695	3,500	24,132	198	90
1L	350	2,400	16,547	148	67
1A	350	2,200	15,168	132	60
2	350	2,000	13,790	74	34
3	350	2,000	13,790	39	18
4	350	2,000	13,790	22	10
6	350	1,585	10,928	20	9
7B	350	1,650	11,376	6	3
7A	350	825	5,688	6	3
7	350	225	1,551	6	3
LB	170	1,775	12,238	6	3

Gas Grade Purity Specifications	Product Code	Cylinder Size	Content US	Content Metric	Equipment Recommendations	Model No.	Page No.
<b>Hydrogen, Research Purity 99.9999%</b>	G2146101	1A	213 ft <sup>3</sup>	6.03 m <sup>3</sup>	Dual Stage Reg.	Consult Factory	
<i>Guaranteed Specifications</i>	G2146140	2	76 ft <sup>3</sup>	2.15 m <sup>3</sup>	Single Stage Reg.	Consult Factory	
Carbon Dioxide < 0.1 ppm	G2146150	3	30 ft <sup>3</sup>	0.85 m <sup>3</sup>	Cross Purge	Consult Factory	
Carbon Monoxide < 0.1 ppm	G2146165	4	10 ft <sup>3</sup>	0.28 m <sup>3</sup>	Flash Arrestor	6104A	434
Nitrogen < 0.5 ppm	G2146178	6	3.53 ft <sup>3</sup>	100 L	Personal Monitor	IQ250	398
Oxygen < 0.1 ppm	G2146183	7B	1.77 ft <sup>3</sup>	50 L	Leak Detector	8057	402
THC < 0.1 ppm	G2146182	7A	0.88 ft <sup>3</sup>	25 L	Leak Detector	8066	406
Water < 0.5 ppm	G2146181	7	0.25 ft <sup>3</sup>	7 L	Leak Detector	8081A	404
					Detector Tube	8014-137U	392
					Cyl. Valve Wrench	TW-5	430

A Certificate of Analysis is available on request at a nominal charge.

<b>Hydrogen, Matheson Purity 99.9995%</b>	G1851112	1L	258 ft <sup>3</sup>	7.31 m <sup>3</sup>	Dual Stage Reg.	Series 3810-350	318
<i>Guaranteed Specifications</i>	G1851101	1A	213 ft <sup>3</sup>	6.03 m <sup>3</sup>	Single Stage Reg.	Series 3610A-350	316
Argon < 2 ppm	G1851140	2	76 ft <sup>3</sup>	2.15 m <sup>3</sup>	Cross Purge	4774-350	422
Carbon Dioxide < 1 ppm	G1851150	3	30 ft <sup>3</sup>	0.85 m <sup>3</sup>	Flash Arrestor	6104A	434
Carbon Monoxide < 1 ppm	G1851165	4	10 ft <sup>3</sup>	0.28 m <sup>3</sup>	Personal Monitor	IQ250	398
Nitrogen < 3 ppm					Leak Detector	8057	402
Oxygen < 1 ppm					Leak Detector	8066	406
THC < 0.5 ppm					Leak Detector	8081A	404
Water < 1 ppm					Detector Tube	8014-137U	392
					Cyl. Valve Wrench	TW-5	430

A Certificate of Analysis is available on request at a nominal charge.

<b>Hydrogen, UHP Enable 99.999%</b>	G2671453	1L	258 ft <sup>3</sup>	7.31 m <sup>3</sup>	Dual Stage Reg.	Series 3810-350	318
<i>Guaranteed Specifications</i>	G2671092	1A	213 ft <sup>3</sup>	6.03 m <sup>3</sup>	Single Stage Reg.	Series 3610A-350	316
CO + CO <sub>2</sub> < 1 ppm					Cross Purge	4774-350	422
Nitrogen < 4 ppm					Flash Arrestor	6104A	434
Oxygen < 1 ppm					Personal Monitor	IQ250	398
THC < 1 ppm					Leak Detector	8057	402
Water < 1 ppm					Leak Detector	8066	406
					Leak Detector	8081A	404
					Detector Tube	8014-137U	392
					Cyl. Valve Wrench		

A Certificate of Analysis is available on request at a nominal charge.



## Hydrogen (continued)

Gas Grade Purity Specifications	Product Code	Cylinder Size	Content US	Content Metric	Equipment Recommendations	Model No.	Page No.
<b>Hydrogen, Ultra High Purity 99.999%</b>	G1939112	1L	258 ft <sup>3</sup>	7.31 m <sup>3</sup>	Dual Stage Reg.	Series 3810-350	318
<i>Guaranteed Specifications</i>	G1939101	1A	213 ft <sup>3</sup>	6.03 m <sup>3</sup>	Single Stage Reg.	Series 3610A-350	316
Nitrogen < 7 ppm	G1939140	2	76 ft <sup>3</sup>	2.15 m <sup>3</sup>	LB Regulator	Series 3570-170	314
Oxygen < 2 ppm	G1939150	3	30 ft <sup>3</sup>	0.85 m <sup>3</sup>	Cross Purge	4774-350	422
THC < 0.5 ppm	G1939165	4	10 ft <sup>3</sup>	0.28 m <sup>3</sup>	Flash Arrestor	6104A	434
Water < 3 ppm	G1939175	LB	2 ft <sup>3</sup>	56 L	Personal Monitor	IQ250	398
					Leak Detector	8057	402
					Leak Detector	8066	406
					Leak Detector	8081A	404
					Detector Tube	8014-137U	392
					Cyl. Valve Wrench	TW-5	430
<i>A Certificate of Conformance will be provided on request. A lot analysis is available at a nominal charge.</i>							
<b>Hydrogen, Zero Gas 99.99%</b>	G2040112	1L	258 ft <sup>3</sup>	7.31 m <sup>3</sup>	Dual Stage Reg.	Series 3120-350	299
<i>Guaranteed Specifications</i>	G2040101	1A	213 ft <sup>3</sup>	6.03 m <sup>3</sup>	Single Stage Reg.	Series 3530-350	313
Oxygen < 5 ppm	G2040140	2	76 ft <sup>3</sup>	2.15 m <sup>3</sup>	LB Regulator	Series 3550-170	314
THC < 0.5 ppm	G2040150	3	30 ft <sup>3</sup>	0.85 m <sup>3</sup>	Tee Purge	4753-350	423
Water < 10 ppm	G2040165	4	10 ft <sup>3</sup>	0.28 m <sup>3</sup>	Flash Arrestor	6103A-F	434
	G2040175	LB	2 ft <sup>3</sup>	56 L	Personal Monitor	IQ250	398
	G2040244	1Lx12	3096 ft <sup>3</sup>	87.67 m <sup>3</sup>	Leak Detector	8057	402
	G2040338	1Lx6	1548 ft <sup>3</sup>	43.83 m <sup>3</sup>	Leak Detector	8066	406
	G2040139	1Lx4	1032 ft <sup>3</sup>	29.22 m <sup>3</sup>	Leak Detector	8081A	404
					Detector Tube	8014-137U	392
					Cyl. Valve Wrench	TW-5	430
<i>A lot analysis is available on request. Please inquire for individual cylinder analysis.</i>							
<b>Hydrogen, Prepurified 99.99%</b>	G1150112	1L	258 ft <sup>3</sup>	7.31 m <sup>3</sup>	Dual Stage Reg.	Series 3120-350	299
	G1150101	1A	213 ft <sup>3</sup>	6.03 m <sup>3</sup>	Single Stage Reg.	Series 3530-350	313
	G1150140	2	76 ft <sup>3</sup>	2.15 m <sup>3</sup>	LB Regulator	Series 3550-170	314
	G1150150	3	30 ft <sup>3</sup>	0.85 m <sup>3</sup>	Tee Purge	4753-350	423
	G1150165	4	10 ft <sup>3</sup>	0.28 m <sup>3</sup>	Flash Arrestor	6103A-F	434
	G1150175	LB	2 ft <sup>3</sup>	56 L	Personal Monitor	IQ250	398
					Leak Detector	8057	402
					Leak Detector	8066	406
					Leak Detector	8081A	404
					Detector Tube	8014-137U	392
					Cyl. Valve Wrench	TW-5	430
<i>A Certificate of Conformance will be provided on request.</i>							
<b>Hydrogen, Extra Dry 99.9%</b>	G1150212	1L	258 ft <sup>3</sup>	7.31 m <sup>3</sup>	Dual Stage Reg.	Series 1250-350	296
	G1150201	1A	213 ft <sup>3</sup>	6.03 m <sup>3</sup>	Single Stage Reg.	Series 3530-350	313
	G1150240	2	76 ft <sup>3</sup>	2.15 m <sup>3</sup>	LB Regulator	Series 3550-170	314
	G1150250	3	30 ft <sup>3</sup>	0.85 m <sup>3</sup>	Tee Purge	4753-350	423
	G1150265	4	10 ft <sup>3</sup>	0.28 m <sup>3</sup>	Flash Arrestor	6103A-F	434
	G1150275	LB	2 ft <sup>3</sup>	56 L	Personal Monitor	IQ250	398
					Leak Detector	8057	402
					Leak Detector	8066	406
					Leak Detector	8081A	404
					Detector Tube	8014-137U	392
					Cyl. Valve Wrench	TW-5	430
<i>A Certificate of Conformance will be provided on request.</i>							
<b>Hydrogen, 3500 psig 99.95%</b>	G1150308	1H	322 ft <sup>3</sup>	9.12 m <sup>3</sup>	Single Stage Reg.	Series 3060-695	298
					Personal Monitor	IQ250	398
					Leak Detector	8057	402
					Leak Detector	8066	406
					Leak Detector	8081A	404
					Detector Tube	8014-137U	392
<i>A Certificate of Conformance will be provided on request.</i>							



# Hydrogen (continued)

Gas Grade Purity Specifications	Product Code	Cylinder Size	Content US	Content Metric	Equipment Recommendations	Model No.	Page No.
Hydrogen, CP Grade 99.0%	G1362012	1L	258 ft <sup>3</sup>	7.31 m <sup>3</sup>	Dual Stage Reg.	Series 81-350	293
	G1362138	1Lx6	1548 ft <sup>3</sup>	43.83 m <sup>3</sup>	Single Stage Reg. Tee Purge Flash Arrestor Personal Monitor Leak Detector Leak Detector Leak Detector Detector Tube Cyl. Valve Wrench	Series 18-350 4753-350 6103A-F IQ250 8057 8066 8081A 8014-137U TW-5	292 423 434 398 402 406 404 392 430