



B-MAT-1010™ BTU Calibration Methane

Gas Data

Specific Gravity: 0.565
 Molecular Weight: 16.04

Shipping Information

UN Number: UN 1971
 DOT Proper Name: Methane, Compressed
 DOT Classification: 2.1 (Flammable Gas)
 DOT Label: FLAMMABLE GAS
 TC Proper Name: Methane, 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
1A	350	2,265	15,616	144	65

Gas Grade Specifications	Product Code	Cylinder Size	Content		Equipment Recommendations	Model No.	Page No.
			US	Metric			
BTU Calibration Methane	G1373801	1A	286 ft ³	8.10 m ³	Single Stage Non Corrosive Reg. Flash Arrestor Tee Purge	Series 3530 6103A-F 4753	313 434 423

Ideal BTU Value = 1010 @ 14.696 psia, 60F (GPA 2172)

B-MAT-1028™ Calorimetric Natural Gas Reference Standard

Gas Data

Specific Gravity: 0.641
 Molecular Weight: 18.45

Shipping Information

UN Number: UN 1954
 DOT Proper Name: Compressed Gas, Flammable, nos
(List of Components)
 DOT Classification: 2.1 (Flammable Gas)
 DOT Label: FLAMMABLE GAS
 TC Proper Name: Compressed Gas, Flammable, nos
(List of Components)
 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
1F	510	240	1,655	75	34

Mixture Specifications	Primary	Product Codes			Cylinder Size	Content*		Equipment Recommendations	Model No.	Page No.
		Gravimetric	Certified			US	Metric			
Methane	88.73%	G0852506	G0856306	G0850306	1F	68 ft ³	1.95 m ³	Single Stage Reg. Flash Arrestor Tee Purge	Series 3530 6103A-F 4753	313 434 423
Ethane	3.50%									
Propane	1.00%									
iso-Butane	0.40%									
n-Butane	0.40%									
iso-Pentane	0.15%									
n-Pentane	0.15%									
neoPentane	0.10%									
n-Hexane	0.05%									
n-Heptane	0.02%									
Carbon Dioxide	3.00%									
Nitrogen	2.50%									

BTU Value = 1028

NOTE: Can also be manufactured as a UniTherm™ or MaxiTherm™ blend. Please contact Matheson for more information.

*Contents and pressure will vary with hydrocarbon dewpoint temperature. Additional cylinder sizes are available.



B-MAT-1083™ Helium Enriched Reference Standard

This high helium concentration mixture is specifically blended for applications requiring the measurement of higher helium levels.

Gas Data

Specific Gravity: 0.628
 Molecular Weight: 17.83

Shipping Information

UN Number: UN 1954
 DOT Proper Name: Compressed Gas, Flammable, nos
 (List of Components)
 DOT Classification: 2.1 (Flammable Gas)
 DOT Label: FLAMMABLE GAS
 TC Proper Name: Compressed Gas, Flammable, nos
 (List of Components)
 TC Classification: 2.1
 TC Label: FLAMMABLE GAS

Cylinder Specifications				Approximate Ship Weight	
Cylinder Size	Valve Outlet CGA No.	Pressure* psig @ 70°F	Pressure kPa @ 21.1°C	lb	kg
1F	510	240	1,655	75	34

Mixture Specifications	Primary	Product Codes			Cylinder Size	Content*		Equipment Recommendations	Model No.	Page No.
		Gravimetric	Certified			US	Metric			
Methane	88.90%	G0853806	G0853706	G0853506	1F	68 ft ³	1.93 m ³	Single Stage Reg.	Series 3530	313
Ethane	3.00%							Flash Arrestor	6103A-F	434
Propane	1.70%							Tee Purge	4753	423
iso-Butane	1.00%									
n-Butane	1.00%									
iso-Pentane	0.30%									
n-Pentane	0.30%									
Carbon Dioxide	0.20%									
Helium	2.00%									
Nitrogen	1.60%									

BTU Value = 1083

NOTE: Can also be manufactured as a UniTherm™ or MaxiTherm™ blend. Please contact Matheson for more information.

*Contents and pressure will vary with hydrocarbon dewpoint temperature. Additional cylinder sizes are available.

Pipeline Natural Gas

The contents are directly filled at a natural pipeline. Concentrations are from analysis only. Batch quantities available.

Cylinder Specifications				Approximate Ship Weight	
Cylinder Size	Valve Outlet CGA No.	Pressure* psig @ 70°F	Pressure kPa @ 21.1°C	lb	kg
1R	350	2,000	13,790	59	27
1A	350	2,000	13,790	144	66

Typical Mixture		Product Code Certified Grade	Cylinder Size	Content*		Equipment Recommendations	Model No.	Page No.
				US	Metric			
Methane	94%	G1373501	1R	172 ft ³	4.87 m ³	Dual Stage Reg.	Series 1250	296
Ethane	4%	G1373201-1	1A	255 ft ³	7.22 m ³	Single Stage Reg.	18L-350	292
Propane	0.4%					LB Reg.	3320	302
iso-Butane	0.1%					Manual Control	52A-350	417
n-Butane	0.1%					LB Control	4313	416
iso-Pentane	0.03%					Flash Arrestor	6103A-F	434
n-Pentane	0.02%					Tee Purge	4753	423
Carbon Dioxide	0.6%							
Nitrogen	0.6%							
Methyl Mercaptan	4 ppm							

NOTE: If a stable methyl mercaptan concentration is desired, the 1R size is required.

*Contents and pressure will vary with hydrocarbon dewpoint temperature.



Gas Mixtures – Products for Specialty Gas Applications

Standard Natural Gas Mixtures Formulations

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B-MAT-1298™ GPA Reference Standard

This mix is recommended by the Gas Processors Association (GPA) for natural gas and similar gas mixtures for gas chromatography. Information pertaining to this mix can be found in GPA publication 2261-72. ASTM Method D-1945-62T also references this mixture for calibration and analysis.

Gas Data

Specific Gravity: 0.810
Molecular Weight: 22.55

Shipping Information

UN Number: UN 1954
DOT Proper Name: Compressed Gas, Flammable, nos
(List of Components)
DOT Classification: 2.1 (Flammable Gas)
DOT Label: FLAMMABLE GAS
TC Proper Name: Compressed Gas, Flammable, nos
(List of Components)
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
1F	510	100	690	75	34

Mixture Specifications	Primary	Product Codes			Cylinder Size	Content*		Equipment Recommendations	Model No.	Page No.
		Gravimetric	Certified			US	Metric			
Methane	70.50%	G0852306	G0856106	G0850106	1F	30 ft ³	0.85 m ³	Single Stage Reg.	Series 3530	313
Ethane	9.00%							Flash Arrestor	6103A-F	434
Propane	6.00%							Tee Purge	4753	423
iso-Butane	3.00%									
n-Butane	3.00%									
iso-Pentane	1.00%									
n-Pentane	1.00%									
Carbon Dioxide	1.00%									
Helium	0.50%									
Nitrogen	5.00%									

BTU Value = 1298

Please request Matheson Technical Bulletin 360 and 362 for more information.

*Contents and pressure will vary with hydrocarbon dewpoint temperature. Customers should provide Matheson Tri-Gas with a dewpoint temperature, and Matheson Tri-Gas will optimize fill pressure and contents.

B-MAT-1280™ High Ethane Reference Standard

Gas Data

Specific Gravity: 0.831
Molecular Weight: 23.16

Shipping Information

UN Number: UN 1954
DOT Proper Name: Compressed Gas, Flammable, nos
(List of Components)
DOT Classification: 2.1 (Flammable Gas)
DOT Label: FLAMMABLE GAS
TC Proper Name: Compressed Gas, Flammable, nos
(List of Components)
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
1F	510	100	690	75	34

Mixture Specifications	Primary	Product Codes			Cylinder Size	Content*		Equipment Recommendations	Model No.	Page No.
		Gravimetric	Certified			US	Metric			
Methane	64.00%	G0852906	G0856706	G0850706	1F	30 ft ³	0.85 m ³	Single Stage Reg.	Series 3530	313
Ethane	12.50%							Flash Arrestor	6103A-F	434
Propane	7.00%							Tee Purge	4753	423
iso-Butane	3.00%									
n-Butane	3.00%									
iso-Pentane	0.50%									
n-Pentane	0.50%									
Carbon Dioxide	0.50%									
Nitrogen	9.00%									

BTU Value = 1280 BTU/cubic foot

Please request Matheson Technical Bulletin 360 and 362 for more information.

*Contents and pressure will vary with hydrocarbon dewpoint temperature. Customers should provide Matheson Tri-Gas with a dewpoint temperature, and Matheson Tri-Gas will optimize fill pressure and contents.



B-MAT-193™ Reference Standard

Gas Data

Specific Gravity: 1.188
 Molecular Weight: 34.41

Shipping Information

UN Number: UN 1954
 DOT Proper Name: Compressed Gas, Flammable, nos
 (Carbon Dioxide, Carbon Monoxide)
 DOT Classification: 2.1 (Flammable Gas)
 DOT Label: FLAMMABLE GAS
 TC Proper Name: Compressed Gas, Flammable, nos
 (Carbon Dioxide, Carbon Monoxide)
 TC Classification: 2.1
 TC Label: FLAMMABLE GAS

Cylinder Specifications

Cylinder Size	Valve Outlet CGA No.	Pressure		Approximate Ship Weight	
		psig @ 70°F	kPa @ 21.1°C	lb	kg
1A	350	1,500	10,343	148	67
2	350	1,500	10,343	80	36
3	350	1,500	10,343	43	20

Mixture Specifications		Product Code	Cylinder Size	Content*		Equipment Recommendations	Model No.	Page No.
				US	Metric			
Carbon Dioxide	40%	G0828101	1A	185 ft ³	5.24 m ³	Dual Stage Reg.	Series 81-350	293
Carbon Monoxide	60%	G0828140	2	70 ft ³	1.98 m ³	Single Stage Reg.	Series 18-350	292
		G0828150	3	31 ft ³	0.88 m ³	Tee Purge	4753	423
						Flash Arrestor	6103A-F	434

BTU Value = 193

Please request Matheson Technical Bulletin 360 and 362 for more information.

*Cylinder fill pressure and contents will vary with customer specified CO₂ condensation temperature.

Hydrogen in Nitrogen Reference Standard

Shipping Information

For the mixtures listed below the shipping classifications are dependent on the concentration.

Cylinder Specifications

Cylinder Size	Valve Outlet CGA No.	Pressure		Approximate Ship Weight	
		psig @ 70°F	kPa @ 21.1°C	lb	kg
1A	350	2,000	13,790	150	68
2	350	2,000	13,790	80	36
3	350	2,000	13,790	40	18

Mixture Specifications		Cylinder Size	Contents		Equipment Recommendations	Model No.	Page No.
			US	Metric			
Hydrogen in Nitrogen		1A	213 ft ³	6.03 m ³	Dual Stage Reg.	Series 81-350	293
Hydrogen	0.5% to 10%	2	83 ft ³	2.35 m ³	Single Stage Reg.	Series 18-350	292
Nitrogen	Balance	3	35 ft ³	0.99 m ³			

BTU value will vary depending on hydrogen concentration.

Please request Matheson Technical Bulletin 360 and 362 for more information.

Model HQ2015 Series Thermal-Cal™ Gas Cylinder Warmers

Description

Matheson's Thermo-Cal™ Gas Cylinder Warmer combines the function of a heating element and an insulating blanket. The cylinder blanket maintains a temperature a few degrees warmer on the lower third of the cylinder than on the upper third of the cylinder for ambient temperatures greater than 45°F (10°C).

Specifications

Models	Power Rating	Description
HQ2015A-1R	36 Watts	Fits 1R Cylinder (8" x 48")
HQ2015A-1A	45 Watts	Fits 1A Cylinder (9" x 51")
HQ2015A-1F	70 Watts	Fits 1F Cylinder (15" x 43")

* The blanket performs best when used with an insulator between the cylinder and the floor.

