FIRST-Mate℠ for Natural Gas Standards

"Experience the Matheson Tri-Gas Commitment to Supply Chain Excellence"

The accuracy of the Natural Gas Cylinder Standard used to calibrate BTU analyzers can have a significant impact on your company's bottom line. Inaccurately measured BTU content can add up to tens of thousands of dollars in lost revenue when applied to millions of cubic feet of natural gas.

The **Matheson Tri-Gas FIRST-Mate℠ Program for Natural Gas** will maximize your operating efficiencies by addressing the six key parameters that customers must have from their suppliers to achieve supply chain excellence.

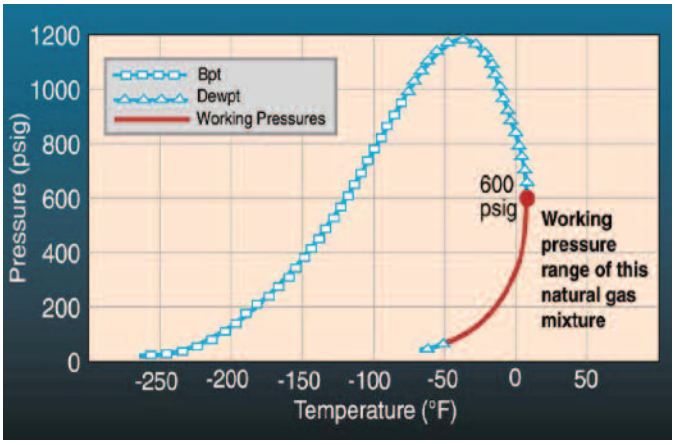
- **Products** *specifically designed for natural gas applications*
- **Quality** *products and processes to ensure consistent reliability and safety*
- **Safety** *programs, products and design integrity to protect your personnel and work environment*
- **Convenience** *to place your orders and manage your cylinder inventory, with online access to Certs*
- **Support** *whenever you need it from our technical and service support teams*
- **Delivery** *options tailored to your operating needs*

Quality Product Fleet

- **MaxiTherm™:** Statistically valid 1 BTU uncertainty with both NIST traceable analytical and gravimetric validation. Matheson Tri-Gas still has the only Natural Gas NTRM to provide directly NIST traceable certifications.
- **UniTherm™:** Two to 30 identical cylinders to calibrate every pipeline BTU analyzer equally.

Product Features Ensure Optimal Navigation:

- Certificates of Analysis and Cylinder Tags fully documented with components and certified concentrations, NIST traceability, calculated Specific Gravity and BTU content using industry software.
- Only Matheson Tri-Gas purified research grade Methane, Ethane, Propane, i-Butane, and n-Butane are used eliminating raw material inconsistency and surprise chromatogram peaks.
- **Products: Pipeline Analyzer Calibration**
  - Natural Gas Calibration Standards with 10 to 16 components
  - MaxiTherm™, Primary, and Gravimetric grades to accomplish your BTU accuracy and fit your budget
  - UniTherm™ batch standards of identical mixtures in 2-30 cylinders/batch



Natural Gas Phase Diagram that MTG uses to optimize cylinder contents vs hydrocarbon dewpoint.

- **Products: Environmental Monitoring**
  - For Compressors with CEMs
  - EPA Protocols and CalMat 1 and 2 grades

Nitric Oxide/N_2	CO/N_2	Nitrogen Dioxide/N_2 or Air
≥ 2.5 ppm	≥ 2.5 ppm	≥ 20 ppm

- **Products: Pipeline Maintenance**
  - H_2S ≥ 1 ppm in Methane or N_2 in Microshield treated cylinders for long term stability

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Products for Natural Gas Grades

Matheson Grade	Certification	BTU Accuracy	Mixture Preparation	Blend Tolerance	Cert. Accuracy % Rel
MaxiTherm™	Dual Certification Certified Concentration is laboratory analysis with the NIST NTRM natural gas standard, and confirmed with the Gravimetric concentrations	± 1.4 BTU	High-resolution Gravimetric Preparation	Methane <0.1% ≤ 1% rel. for % concentrations	≤ 0.1% Methane ≤ 0.2% Ethane ≤ 0.3% Propane ≤ 0.5% Butanes ≤ 1% Pentanes ≤ 2% N_2,CO_2,C_{6+}
Primary	Dual Certification Certified Concentration is the Gravimetric concentration, and laboratory analysis with a NIST NTRM traceable standard is used for confirmation*	± 1.5 -2 BTU	High-resolution Gravimetric Preparation	Methane <0.2% 1% for % concentrations ≤ 1% Pentanes	≤ 0.15% Methane ≤ 0.3% Ethane ≤ 0.5% Propane ≤ 1% Butanes ≤ 2% N_2,CO_2,C_{6+}
Gravimetric	Gravimetric only	± 2 BTU	Gravimetric Preparation	1% for % concentrations	0.2% CH_4 by weight
Certified Standard	Lab Standard or Gravimetric	No BTU accuracy claim or calculation (generally 2 -3 BTU)	Gravimetric or Volumetric Preparation	2-5% depends on concentration	0.2% CH_4 by analysis
UniTherm™ (identical BTU cyls) 2 - 30 units/batch	Dual: NIST NTRM plus Gravimetric	1 - 2 BTU depending on grade desired	Unitherm™ Gravimetric Process	≤ 1% for % concentrations	≤ 0.1% CH_4 and increases

*Matheson Tri-Gas, Inc., accepts customer preference for Gravimetric or Laboratory analysis as the Certified Concentration.
Please specify to the MTG Sales Engineer, or at the time of order.

Certificate of Analysis

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Primary Standard Mixture Grade
Certificate of Analysis

Matheson Tri-Gas Inc.
200 Alessio Drive
Joliet, IL 60433
Phone: 815-727-2202
Fax: 815-727 1676

TO:

TO AVOID BACKFILL, CYLINDER PRESSURE MUST BE GREATER THAN PROCESS PRESSURE

SALES ORDER NUMBER:
PHONE: **P.O. NUMBER:**
FAX: **LOT NUMBER:**

PRODUCT: 13 Comp. Primary Gas Mixture

CYLINDER NUMBER: 39373
SIZE: 1A
CGA/DISS OUTLET: 350
CONTENT: 62 cu. ft.
PRESSURE: 600 psia

FILL DATE: Jun 29, 2005
CERT. DATE: Jul 14, 2005
EXP. DATE: Jul 14, 2008

SPECIAL INFORMATION / ADDITIONAL COMMENTS

SIGNATURE **DATE SIGNED**

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COMPONENT	REQUESTED CONCENTRATION	GRAVIMETRIC CONCENTRATION	CERTIFIED CONCENTRATION	CERTIFICATION ACCURACY
N-OCTANE	0.017 %	**0.0171** %	0.0171 %	+/-5%
N-HEPTANE	0.035 %	**0.0354** %	0.0354 %	+/-2%
N-HEXANE	0.047 %	**0.0475** %	0.0475 %	+/-2%
N-PENTANE	0.250 %	**0.2498** %	0.2498 %	+/- 1%
I-PENTANE	0.250 %	**0.2502** %	0.2502 %	+/-1%
NEOPENTANE	0.125 %	**0.1255** %	0.1255 %	+/-1%
N-BUTANE	0.500 %	**0.5006** %	0.5006 %	+/-1%
I-BUTANE	0.500 %	**0.5015** %	0.5015 %	+/-1%
CARBON DIOXIDE	0.500 %	**0.5073** %	0.5073 %	+/- 2%
NITROGEN	0.750 %	**0.7542** %	0.7542 %	+/-2%
PROPANE	1.000 %	**0.9997** %	0.9997 %	+/-0.5%
ETHANE	2.000 %	**2.0088** %	2.0088 %	+/-0.3%
METHANE	BAL %	**94.0024** %	94.0024 %	+/-0.10%
NOTE: C6 PLUS = 47/35/17 Total Mole %	0.0990 %	**0.1000** %	0.1000 %	

All calculations based on AGA Standard data and are at 14.73 psia, 60°F dry, ideal conditions unless otherwise stated.

This Primary Standard Mixture Cylinder's BTU Accuracy is derived from the gravimetric and analyzed concentration's error propagation confirming gross heating values within +/- 1 BTU.

CAUTION: This Certified calibration gas mixture has a component dewpoint of 41.17 F (+/- 3 F). For initial use, this blend must be heated to a minimum of 80 F for a minimum of 24 hours using a vendor approved cylinder heating blanket only. Put the cylinder cap on the cylinder and roll the cylinder 15 minutes indoors. After initial installation, do not use this product unless the temperature is maintained at 100 F. DO NOT OPERATE if temperature is below the Dew Point of the gas mixture.

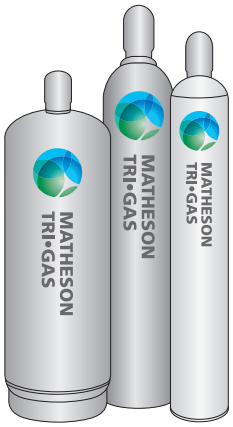
BTU: @ 60 °F and 14.73 psia
REAL DRY BTU VALUE: 1076.05
REAL SATURATED BTU VALUE: 1057.66

INSTRUMENT USED: CARDINAL GRAVIMETRIC BALANCE
SPECIFIC GRAVITY (REAL): 0.60788
HYDROCARBON DEWPOINT: 41.17 °F

TRACEABLE TO REFERENCE STANDARD SOURCE/NUMBER: NTRM #011101
TRACEABLE TO NIST TRACEABLE WEIGHT CERTIFICATE: 308973-1

The product listed above and furnished under the referenced purchase order has been tested and found to contain the component concentration listed above. All values in mole/mole basis gas phase unless otherwise indicated. Matheson Tri-Gas Inc. warrants that the above product(s) conform at the time of shipment to the above description. Matheson Tri-Gas Inc. liability does not exceed the value of the product purchased.

Safety Programs for a Safe Voyage



- **SAFETY-Mate:** Lab and process cylinder safety audits to aid in safe gas delivery systems
- On-site safety training
- Safety equipment products
- Specially designed safety CD for Proper Handling of Natural Gas Calibration Cylinders.

Convenience via Online Resource

- Barcode Tracking for Managing Cylinder Status
- Enhanced Service Profile (ESP) Viewing and Ordering
- Self-Service Certs
- Cylinder Management
  - Onsite Cylinder Inventory
  - Cylinder Expiration Notification
  - Cylinder Movement History
  - Cylinder Pickup Scheduling

Support via the Matheson Tri-Gas Bulkhead of Technical and Service Support

- Expert natural gas mixture engineering that includes the latest hydrocarbon mixture phase envelope software
- Specialty Gas Crew who understands natural gas mixtures: Product Manager, Technical Service Coordinator, Gas Operations Team and Customer Service
- Personalized service at your door with field sales, and on the phone with dedicated customer service representatives

Delivery to Your Port of Call

- Designed to suit your facility and operating hours
- Options for delivery

With the FIRST-Mate℠ Program for SUPPLY CHAIN Excellence, Matheson Tri-Gas is committed, without limitation, to be your "go to" company for maximizing profits and minimizing operating costs.

Thank you for your interest in our specialty gas and equipment products and we look forward to the opportunity to welcome you to our new FIRST-Mate℠ Program. For more information, please visit the Matheson Tri-Gas website @ **www.mathesontrigas.com**, or call our customer service center @ **800-416-2505** to have one of our sales representatives contact you directly.

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