CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E02AI99E15A1704	Reference Number:	82-124187110-1
Cylinder Number:	SG9151636	Cylinder Volume:	146 Cu.Ft.
Laboratory:	ASG - Riverton - NJ	Cylinder Pressure:	2015 PSIG
Analysis Date:	Aug 17, 2009	Valve Outlet:	660

Expiration Date: Feb 17, 2010

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
NITROGEN DIOXIDE	50.00 PPM	51.11 PPM	G1	+/- 2% NIST Traceable
Air	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
GMIS	124063511301	CC207508	51.96PPM NITROGEN DIOXIDE/NITROGEN	Apr 01, 2011

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
California Analytical 600	Chemiluminescence	Aug 10, 2009

Triad Data Available Upon Request

Notes:

Signature on file

_____

QA Approval

Scott Specialty Gases
www.scottgas.com

Shipped From:
2330 HAMILTON BOULEVARD
SOUTH PLAINFIELD NJ 07080
Phone: 908-754-7700 Fax: 908-754-7303

C E R T I F I C A T E O F A N A L Y S I S

TRC ENVIRONMENTAL
PO#13080/RICH KOPACZ
21 GRIFFIN ROAD NORTH
RECEIVING DEPARTMENT
WINDSOR CT 06095

PROJECT #: 07-94693-006
PO#: 13080
ITEM #: 0701817 AL
DATE: 04Jun2009

CYLINDER #: AAL072721
FILL PRESSURE: 2000 PSI

PURE MATERIAL: NITROGEN CAS# 7727-37-9

GRADE: HIGH PURITY

PURITY: 99.99%

ANALYST: _____

Scott Specialty Gases
www.scottgas.com

RATA CLASS

Dual-Analyzed Calibration Standard

2330 HAMILTON BOULEVARD, SOUTH PLAINFIELD, NJ 07080 Phone: 908-754-7700 Fax: 908-754-7303

_CERTIFICATE_OF_ACCURACY:_EPA_Protocol_Gas_____

Assay_Laboratory
AIR LIQUIDE AMERICA SPECIALTY GA
2330 HAMILTON BOULEVARD
SOUTH PLAINFIELD, NJ 07080

P.O. No.: 49320
Project No.:2278-006

Customer_
TRC ENVIRONMENTAL
DONNA SOLDEN
5 WATERSIDE CROSSING
RECEIVING DEPARTMENT
WINDSOR CT 06095

_ANALYTICAL_INFORMATION_____

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standa
Procedure G-1; September, 1997.
Cylinder Number: ALM012385 Certification Date:Mar2008 Exp. Date:0Mar2011
Cylinder Pressure***: 2000 PSIG

COMPONENT___	CERTIFIED_CONCENTRATION_(Moles)		ANALYTICAL ACCURACY**_	TRACEABILITY__
CARBON MONOXIDE	454.99	PPM	+/- 1%	Direct NIST and VSL
AIR		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE_STANDARD_____

TYPE/SRM_NO._	EXPIRATION_DATE	CYLINDER_NUMBER__	CONCENTRATION____	COMPONENT____
NTRM 1680	02Oct2011	KAL003909	499.8PM	CARBON MONOXIDE

INSTRUMENTATION____

INSTRUMENT/MODEL/SERIAL#_____	DATE_LAST_CALIBRATED____	ANALYTICAL_PRINCIPLE___
SIEMENS/ULTRAMAT 6/LD-416	29Feb2008	NDIR

_ANALYZER_READINGS_____

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis	Second Triad Analysis	Calibration Curve
CARBON MONOXIDE		
Date: 11Mar2008onse Unit:PPM	Date: 20Mar2008onse Unit: PPM	Concentration=A+Bx+Cx2+Dx3+Ex4
Z1=0.040001=499.60001=455.4000	Z1=0.080001=499.6000=455.5000	r=.99999548600
R2=499.7000=0.09000T2=454.7000	R2=499.9000=0.100002=455.7000	Constants: A=.12643565700
Z3=0.070003=454.70003=499.7000	Z3=0.090003=455.8000=499.6000	B=.99892856100
Avg. Concentration: PPM	Avg. Concentration: PPM	D= E=

APPROVED BY: _____

Scott Specialty Gases
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RATA CLASS

Dual-Analyzed Calibration Standard

2330 HAMILTON BOULEVARD, SOUTH PLAINFIELD, NJ 07080 Phone: 908-754-7700 Fax: 908-754-7303

_CERTIFICATE_OF_ACCURACY:_EPA_Protocol_Gas_

Assay_Laboratory
AIR LIQUIDE AMERICA SPECIALTY GA
2330 HAMILTON BOULEVARD
SOUTH PLAINFIELD, NJ 07080

P.O. No.: 13080
Project No.:4693-004

Customer_
TRC ENVIRONMENTAL
PO#13080/RICH KOPACZ
21 GRIFFIN ROAD NORTH
RECEIVING DEPARTMENT
WINDSOR CT 06095

_ANALYTICAL_INFORMATION_

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standa
Procedure G-1; September, 1997.
Cylinder Number: ALM025317 Certification Date:Feb2009 Exp. Date:5Feb2012
Cylinder Pressure***: 2000 PSIG

COMPONENT___	CERTIFIED_CONCENTRATION_(Moles)		ANALYTICAL ACCURACY**_	TRACEABILITY__
CARBON DIOXIDE	18.1	%	+/- 1%	Direct NIST and VSL
OXYGEN	21.9	%	+/- 1%	Direct NIST and VSL
NITROGEN		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE_STANDARD_____

TYPE/SRM_NO._	EXPIRATION_DATE	CYLINDER_NUMBER__	CONCENTRATION____	COMPONENT____
NTRM 1675	02Oct2012	K001509	13.93	CARBON DIOXIDE
NTRM 2659	02Oct2012	K004610	20.85	OXYGEN

INSTRUMENTATION____

INSTRUMENT/MODEL/SERIAL#_____	DATE_LAST_CALIBRATED____	ANALYTICAL_PRINCIPLE___
MTI/M200/170927	13Feb2009	GC-TCD
MTI/M200/170927	12Feb2009	GC-TCD

_ANALYZER_READINGS_

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis | Second Triad Analysis | Calibration Curve

CARBON DIOXIDE
Date: 25Feb2009onse Unit:AREA
Z1=0.000001=590123.01=765784.0
R2=589912.0=0.00000T2=765460.0
Z3=0.000003=765761.03=589808.0
Avg. Concentration: %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=.9999992 2300
Constants: A=-0.01241285
B=2.3673E-05=
D= E=

OXYGEN
Date: 25Feb2009onse Unit:AREA
Z1=0.000001=615779.01=646736.0
R2=615839.0=0.00000T2=646467.0
Z3=0.000003=646390.03=615728.0
Avg. Concentration: %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=.9999994 2350
Constants: A=-0.00632893
B=3.37734E-05
D= E=

APPROVED BY: _____
JOHN C. FITZ

Scott Specialty Gases
www.scottgas.com

RATA CLASS

Dual-Analyzed Calibration Standard

2330 HAMILTON BOULEVARD, SOUTH PLAINFIELD, NJ 07080 Phone: 908-754-7700 Fax: 908-754-7303

_CERTIFICATE_OF_ACCURACY:_EPA_Protocol_Gas_

Assay_Laboratory
AIR LIQUIDE AMERICA SPECIALTY GA
2330 HAMILTON BOULEVARD
SOUTH PLAINFIELD, NJ 07080

P.O. No.: 13080
Project No.:4693-003

Customer_
TRC ENVIRONMENTAL
PO#13080/RICH KOPACZ
21 GRIFFIN ROAD NORTH
RECEIVING DEPARTMENT
WINDSOR CT 06095

_ANALYTICAL_INFORMATION_

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standa
Procedure G-1; September, 1997.
Cylinder Number: ALM023903 Certification Date:Feb2009 Exp. Date:5Feb2012
Cylinder Pressure***: 2000 PSIG

COMPONENT___	CERTIFIED_CONCENTRATION_(Moles)		ANALYTICAL_ACCURACY**_	TRACEABILITY__
CARBON DIOXIDE	10.1	%	+/- 1%	Direct NIST and VSL
OXYGEN	10.0	%	+/- 1%	Direct NIST and VSL
NITROGEN		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE_STANDARD_____

TYPE/SRM_NO._	EXPIRATION_DATE	CYLINDER_NUMBER__	CONCENTRATION____	COMPONENT____
NTRM 1675	02Oct2012	K001509	13.93	CARBON DIOXIDE
NTRM 2658	02Oct2010	ALM065242	9.930	OXYGEN

INSTRUMENTATION____

INSTRUMENT/MODEL/SERIAL#_____	DATE_LAST_CALIBRATED____	ANALYTICAL_PRINCIPLE___
MTI/M200/170927	13Feb2009	GC-TCD
MTI/M200/170927	12Feb2009	GC-TCD

_ANALYZER_READINGS_

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis | Second Triad Analysis | Calibration Curve

CARBON DIOXIDE
Date: 25Feb2009onse Unit:AREA
Z1=0.000001=590857.01=427648.0
R2=591062.0=0.00000T2=427840.0
Z3=0.000003=427711.03=590597.0
Avg. Concentration: %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=.9999992 2300
Constants: A=-0.01241285
B=2.3673E-05=
D= E=

OXYGEN
Date: 25Feb2009onse Unit:AREA
Z1=0.000001=293427.01=296105.0
R2=293357.0=0.00000T2=296013.0
Z3=0.000003=296001.03=293129.0
Avg. Concentration: %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=.9999994 2350
Constants: A=-0.00632893
B=3.37734E-05
D= E=

APPROVED BY: _____
JOHN C. FITZ

TRC Environmental Corporation

Critical Orifice Calibration

Date: 6/12/2009 Metering System Indentification: 80823 Technician: S. Boyko

Critical Orifice Id No.:		DN-48				DN-55				DN-63			
Critical Vacuum		15				15				14			
K' factor		0.3461				0.4587				0.5883			
Run Number		1		2		1		2		1		2	
DGM Final Reading	ft^3	194.967		200.511		178.309		184.419		164.742		171.767	
DGM Initial Reading	ft^3	189.425		194.967		172.207		178.309		157.712		164.742	
Difference, Vm	ft^3	5.542		5.544		6.102		6.110		7.030		7.025	
Volume Criteria Met	> 5 ft^3	**Yes**		**Yes**		**Yes**		**Yes**		**Yes**		**Yes**	
Inlet/Outlet Temp.													
DGM Initial	°F	81	77	81	77	78	74	80	75	76	72	77	73
DGM Final	°F	81	77	81	77	80	75	81	75	77	73	78	74
Average Temp., Tm		79		79		76.75		77.75		74.5		75.5	
Time	min.	12		12		10		10		9		9	
Delta H	in. H_2O	0.68		0.68		1.2		1.2		1.9		1.9	
Pbar	in. Hg	29.73		29.73		29.73		29.73		29.73		29.73	
Ambient Temp.	°F	70		70		70		70		70		70	
Pump Vacuum	in. Hg	17		17		17		17		17		17	
Vm(std)	ft^3	5.401		5.403		5.980		5.976		6.930		6.912	
Vcr(std)	ft^3	5.363		5.363		5.924		5.924		6.838		6.838	
DGM Cal. Factor, Y		0.993		0.993		0.991		0.991		0.987		0.989	
Y Average		0.993				0.991				0.988			
Y Dev. from avg.[1]		0.02%				0.03%				0.13%			
Y Dev. from other[2]		Max Y		0.993		Min Y		0.988		Y deviation		**0.49%**	**good**
Delta H@		1.903		1.903		1.920		1.917		1.856		1.853	
Delta H@ Average		1.903				1.919				1.855			
Delta H Dev. from avg.[3]		0.00%				0.09%				0.09%			

Average Y =	0.991
Average Delta H =	1.892

1 Y at each of the flow rates should not differ by more than +/- 2.0% from the average

2 If any critical orifice yields a DGM Y factor differing by more than 2% from others, recalibrate orifices

3 Average Delta H@ must be within 0.15 of the average

Vm(std) = 17.64 Vm (Pbar + deltaH/13.6) / (Tm + 460)

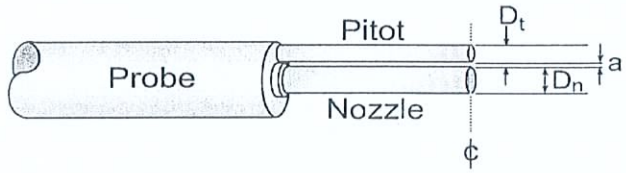
Vcr(std) = K' Pbar Time / SQRT(Tamb + 460)

Y = Vcr(std) / Vm(std)

S-Type Pitot Geometric Calibration
Part 1 - Probe Configuration

TRC Probe Identification	3-3
Technical Specialist	S Boyko
Date	Oct 15,2008

A.

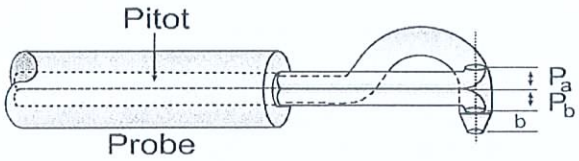


D_t = 0.375

D_n = 0.500

a = 0.925

B.

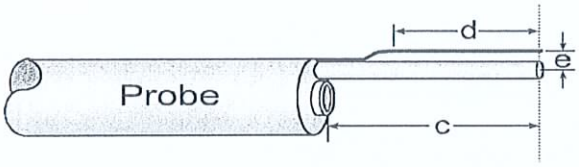


P_a = 0.490

P_b = 0.490

b = 1.200

C.



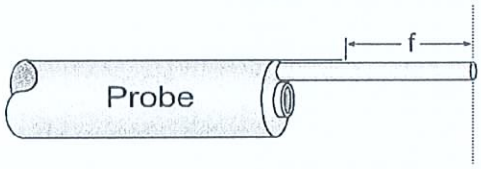
c = 4.544

d = 4.600

e = 0.800

OR

D.



OR

c = _____

f = _____

Specifications (EPA Method 2)

D_t = 3/16" to 3/8"	$c \geq 3"$	$P_a = P_b$
D_n = 1/2"	$d \geq 3"$	
$a \geq 3/4"$	$e \geq 3/4"$	$1.05\ D_t \leq P \leq 1.50\ D_t$
$b \geq 0$	$f \geq 2"$	

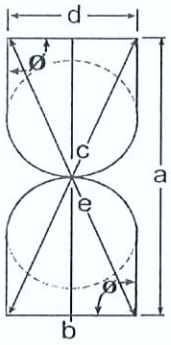
If these specifications are met, proceed with Part 2 Pitot alignment.

S-Type Pitot Geometric Calibration
Part 2 - Pitot Alignment

TRC Probe Identification: 3-3
Technical Specialist: S Boyko
Date: Oct 15,2008

A. Transverse Tube Axis

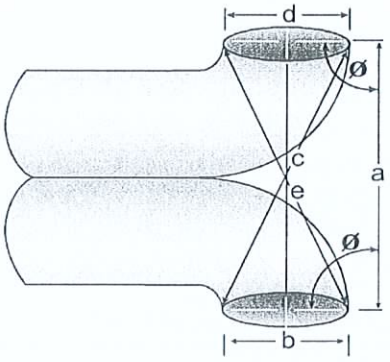
($80^o < Ø < 100^o$)
($80^o < Ø' < 100^o$)



a =	0.980
b =	0.375
c =	1.035
d =	0.375
e =	1.029
Ø =	87.7
Ø' =	86.7

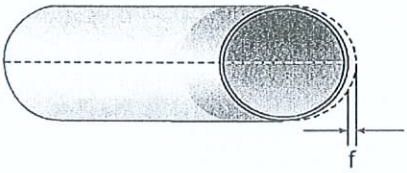
B. Longitudinal Tube Axis

($85^o < Ø < 95^o$)
($85^o < Ø' < 95^o$)

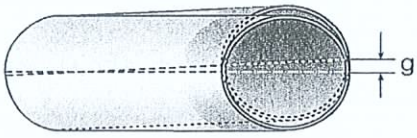


a =	0.985
b =	0.576
c =	1.145
d =	0.565
e =	1.115
Ø =	90.5
Ø' =	87.6

C. (f < 1/8")



D. (g,1/32")



f =	0
g =	0

Pitot Calibration = Good

NOTE: Values in parentheses are EPA Method 2 Specifications.

Probe Thermocouple Calibration			Tolerance $^oR = {}^oF + 460$	
Thermocouple Identification	3-3			
Expected Stack Temperature(T_s)		^oR	% Change Allowable	
Reference Thermometer(T_{ref}) boiling pt	672	^oR		
Thermocouple Readout	671	^oR	0.15%	1.50%
Reference Thermometer(T_{ref}) freezing pt	492	^oR		
Thermocouple Readout	491	^oR	0.20%	1.50%

Technician	S Boyko	Date	Oct 15,2008
Reviewed By		Date	Oct 15,2008