

From:
Trace Analytics, LLC
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To:
Mr. Jim Wyatt
Cave Country Dive Shop
705 Northwest Santa Fe Blvd.
High Springs, FL 32643

TRACE ANALYTICS, LLC



ANALYSIS CERTIFICATE

Report 11-30043, Sampled on
12/10/2011

Next Sample Due Quarterly, Approximately
3/10/2012

CAVE COUNTRY DIVE SHOP

IS IN COMPLIANCE WITH THE AIR/GAS QUALITY PORTION OF THE SPECIFICATION:
OXYGEN COMPAT. AIR-2003(I) & CGA G-7.1-2004 GRADE E(2)

AS ANALYZED AND REPORTED ON THIS CERTIFICATE

FOR THE SAMPLE DESCRIBED UNDER SECTION "SAMPLE & REPORT INFORMATION"



American Assn for Laboratory Accreditation
1991: Certificate No. 322.01 Chemical Field of Testing


Richard A. Smith, C.I.H., Laboratory Director

Analytical Test Methods	Media Sampled	Estimate of Uncertainty
Gases & Vapors CAT-A-01 Gas Chromatography/Mass Spectrometry	Source Bottle: 730851	The average analytical uncertainty (k=2) is 98.8±2.4% (relative) at the specification limit for the ten compounds normally reported. For uncertainty information for a specific compound, contact Trace.
Oil & Particulate CAT-A-03 Analytical Gravimetry	Ambient Bottle: N/A	
Particle Size CAT-A-04 Optical Microscopy	Source Filter: 2384	

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Sample & Report Information

Results of Test: PASS

Sampled For	Sampled By	Sampled On	Received On	Analyzed On	Sampled From:	Analytes	Source Results	Ambient Results	Specification ¹ Allowable Limits
Cave Country Dive Shop	Jim Wyatt	12/10/2011	12/16/2011	12/16/2011	Compressor	Oxygen, Volume %	20.9	N/A	20-22
						Nitrogen, Volume %	78.2	N/A	N/A
						Argon, Volume %	0.9	N/A	N/A
						Nitrogen Plus Argon, Volume %	79.1	N/A	N/A
						Carbon Monoxide (CO), ppmv	<0.3	N/A	2
						Carbon Dioxide (CO ₂), ppmv	530	N/A	1000
Make:	Bauer					Water Content (H ₂ O), ppmv/Dewpoint, °F	5.6 / -85	N/A	N/A / N/A (W)
Model:	K-14					Atmospheric Dew Point, °F (DT)	N/A	N/A	N/A
Serial No.:	81/570/06					TVHC (including CH ₄), ppmv	2.2	N/A	25
Cylinder(s):	4					Methane (CH ₄) ppmv	2.2	N/A	N/A
						TVHC (excluding CH ₄), ppmv	<0.7	N/A	N/A
						Oil (condensed) & Particulate, mg/m ³	0.07 (IAV)	N/A	0.1
Customer Comments	Compressor is Indoors Now					Odor (provided by customer)	None/Slight	N/A	None/Slight
						Other	N/A	N/A	N/A
						Other	N/A	N/A	N/A
						Other	N/A	N/A	N/A

PASS

(2) Water content is reported although not required by CGA G-7.1 for breathing air not used in conjunction with SCBA.
(1) This specification for oxygen compatible air is taken from ANSI/CGA G-7.1 Grade E as modified by International Association of Nitrox and Technical Divers (IANTD) in their document Blending Standards, 2003.
(W) Dew point is expressed in °F at one atmosphere pressure absolute.
(IAV) To ensure accuracy, the air volume should be sufficient to provide a limit of quantitation of <1/4 of the specification limit; in this case 1000 L. Please refer to sampling instructions or contact Customer Service.

Report Number 11-30043
Customer ID 3943
Date Reported 12/19/2011
Frequency Quarterly
Next Sample Due Approx. **3/10/2012**



Trace Analytics, LLC

15768 Hamilton Pool Road
 Austin, Texas 78738
 800-AIR-1024 or 512-263-0000 • Fax: 512-263-0002
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Routine AirCheck DataSheet™

Last Report No.: 11-30043

Last Sample Date: 12/10/2011

SOME INFORMATION BELOW IS PREPRINTED FROM YOUR PREVIOUS AIR TEST.

IF ANY OF THE INFORMATION HAS CHANGED OR IS INCORRECT, PLEASE MARK ONE LINE THROUGH IT AND CAREFULLY PRINT THE CORRECT INFORMATION.

1 Contact Information

Customer ID: 3943 Customer Name: Cave Country Dive Shop Country: USA

Contact: Mr. Jim Wyatt E-mail: jim@cavediveflorida.com Phone: (386) 454-1954 Fax: (386) 454-1954

Alternate: E-mail: Phone: Fax:

Please check box to the left if you'd like the AirCheck Report sent to the person below (fill in information).

Contact: E-mail:

2 Rush Analysis Request

IMPORTANT: PLEASE CALL 1-800-247-1024 (ext. 2) or 1-512-263-0000 (ext. 2) TO SCHEDULERUSH By marking this box, I understand that I am authorizing Same Day Analysis & Reporting for an additional \$100 per sample. Initial here: _____

3 Purchase Order Information (if applicable)

5 Customer Comments (use back if needed)

PO Number: PO Valid Thru:

4 System Information

6 Sampled By and Sample Date

System ID: 117125

Sampled For: Cave Country Dive Shop

Testing Schedule:
 45 Days Monthly Semi-Annual
 120 Days Other Startup
 Annual Quarterly Verification
 Bimonthly Random Sample Weekly

Air Spec: Oxygen Compat. Air-2003(I) & CGA G-7.1-2004 Grade E

If above is incorrect, indicate air spec below:
 OSHA 1910.134-Cylinders OSHA 1910.134-Compressor
 OSHA 1910.430-Com. Diving O Fire - NFPA 1989
 CGA Grade D-SCBA CGA Grade D2-not SCBA
 O Sport Diving - CGA Grade E Other _____
 O CSA(>2216 psig) O CSA(15-2216 psig) O CSA<15 psig

Make: Bauer

Model: K-14

Serial No: 81/570/06

Cylinder: 4

Other ID:

Pressure: High Pressure (1,000-6,000 psi)
 Low Pressure (less than 1,000 psi)

Air used for: SCBA Airline Respirator
 SCUBA Other

Purification: Molecular Sieve/Desiccant No Purification
 Refrigerated Dryer Unknown
 No Dryer

Sampled From: Compressor Source Other
 Stored Air Outlet Not Provided
 Comp. & Storage Breather Box

Comp. Hours:

SIGNATURE _____ PRINT Name (Person taking the test sample) _____

Date Sample Taken: MONTH DAY YEAR

Submission of this air sample authorizes Trace Analytics, LLC to provide services. If a purchase order number is required by your company, please attach it to this data sheet or write it in the spaces provided in section "3". I attest that all information provided on this datasheet is truthful and accurate to the best of my knowledge.

7 Sample Information

Is this sample a Retest taken within 30 days of a failed test? Yes No**A Source Bottle, Filter, and Data Sheet MUST BE RETURNED for a complete analysis.**

Filter Number (red or green label)

Flowrate (liters per minute)

Sample Time (minimum of 10 min.)

Detector Tube (OMIT data if sampling media does not include Detector Tube)

Tube Reading (0 - 200) Total Minutes Sampled

Source Bottle Number (blue label)

Ambient Bottle Number (white label)

Odor is REQUIRED. It's determined by sniffing the air from the side part of the Bottle Holder. **MARK ONLY ONE.** None/Slight Pronounced

PLEASE NOTE:

Sample Shelf Life

Once a sample is taken, it must be received by our laboratory within 60 days. **NO EXCEPTIONS.**

Shelf Life

Sampling media must be used or returned for free replacement within 2 years of shipment date. See expiration date on return box.

(Lowest temp, low pressure breathing air may be exposed to during the year)

Lowest Temp: °F °C

NFPA 1989 Only: Before Filter Change After Filter Change Routine

— For TRACE Use Only - CPPDS

DT Reading: Red / Gray

Receiving I.D.

Receiver's Initials

We Do One Thing - Test Compressed Air

www.AirCheckLab.com

Next Sample Due Approx: 3/10/2012

Sampling Notes for Water Vapor Detector Tube

1: Break BOTH tips of detector tube before inserting. Arrow on tube points away from Fitting. 50 LPM for 10 minutes.

2: The DT is filled with yellow filler material that reacts to the presence of water by changing color from yellow to a grayish/reddish brown. At any time during the 10 minute test if color change reaches 200 mark, remove tube and note elapsed time on data sheet.

Reading the Detector Tube for High Pressure Air Used for SCBA

The purpose of providing a detector tube for onsite testing is to allow you the opportunity to correct a problem without having to wait for the complete report. To determine if your sample passes; identify the farthest color change on the tube between 0 and 200; locate that number on chart below; identify the flowrate you took your sample on the left hand side of chart between 40 and 60; where the two readings intersect is the approximate result in °F. For example: If tube showed color change to 50, and flowrate was 50 LPM, the result would be -49°F. The number between 0 and 200 should be written on the data sheet not the dew point from the chart below.



		Det. Tube Reading, mg/m ³															
		2.5	5	10	20	30	40	50	60	70	80	90	100	125	175	200	
Flowrate Reading	60	-93	-84	-75	-66	-60	-56	-52	-49	-47	-45	-43	-42	-38	-33	-31	
	55	-92	-83	-74	-65	-58	-54	-51	-48	-45	-44	-42	-40	-36	-31	-29	
	50	-90	-81	-72	-62	-56	-52	-49	-46	-44	-42	-40	-38	-34	-29	-27	
	45	-88	-79	-70	-60	-54	-50	-47	-44	-41	-39	-38	-36	-32	-26	-24	
	40	-86	-77	-68	-58	-52	-47	-44	-41	-39	-36	-35	-33	-29	-23	-21	
		PASS					FAIL										

Above area marked "Pass" is for high pressure air used for SCBA; with a -65°F limit per CGA Grade D/NFPA 1989. See AirCheck Notebook Instructions for complete range of flowrates and further details.

If your detector tube reading indicates that you have a problem (anything outside of the PASS area in chart above); go through the following checklist; take corrective action; then retake your sample to see if the problem has been corrected. The 2nd test is free. Submit both samples for analysis to Trace's laboratory.

Troubleshooting Checklist

Purification filters/ Depressurized filters	High ambient air temperatures (above 70°F) affect the operating life of the cartridge. Chemicals used in purification filters begin to degrade as soon as they are installed. Is it time to change the filters?
Manual/auto drain or priority valve	If not working properly can be source for excess water and reduce filter life.
Remote fill or hose reel	Long lengths (>25 ft) of hose are notorious for accumulating and retaining water. A short 1-2 minute purge WILL NOT be sufficient. It is best to take sample from a short fill hose (5-10 ft) or directly from containment fill station. - View our resource videos at www.AirCheckLab.com
Recent hydrostat	Bottles must be properly dried after hydrostat and should be immediately pressurized with dry air.
Valves left open	Ambient air can easily have 10,000 - 50,000 ppm of water. Purge sufficiently to remove water accumulated from ambient air.
Sample taken from storage	Take sample from compressor to identify if compressor is producing dry air. If yes, storage banks may contain excess water. Drain and refill with dry air. This may require 2-3 fills to drive off water from inside cylinders. You can request extra detector tubes (\$10 ea) to do several checks for water without doing a complete air sample.
Detector tube cracked	Only the tips of the tube should be broken. If a crack runs down the main body of the tube, results will not be dependable.
Tube fitting wet	If multiple samples are taken consecutively, excess water may pool inside the fitting. Dry fitting between uses.
Other	Keep in mind that 1 milliliter (which is about 20 drops from an eyedropper) in a 1.7 cubic ft cylinder at 4500 psig would be 90 ppm of water vapor. It doesn't take much to fail.