

# Intoxilyzer 9000 and the Disconnect Defense

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**2<sup>nd</sup> Annual Lonestar DWI, Austin, Texas**

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# Intoxilyzer 9000



# 9000 v. 5000

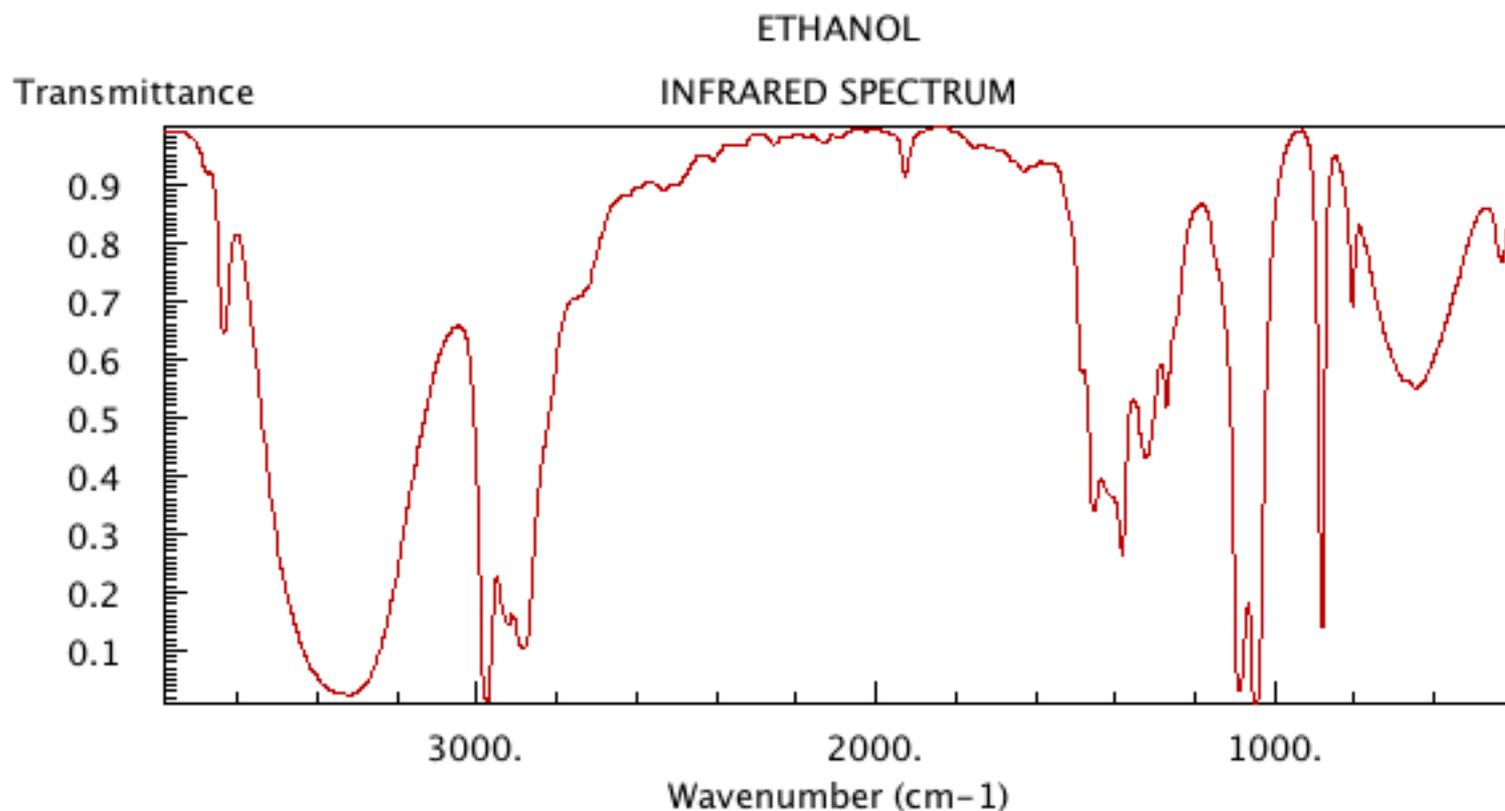


# SPECIFICITY FOR ETHANOL

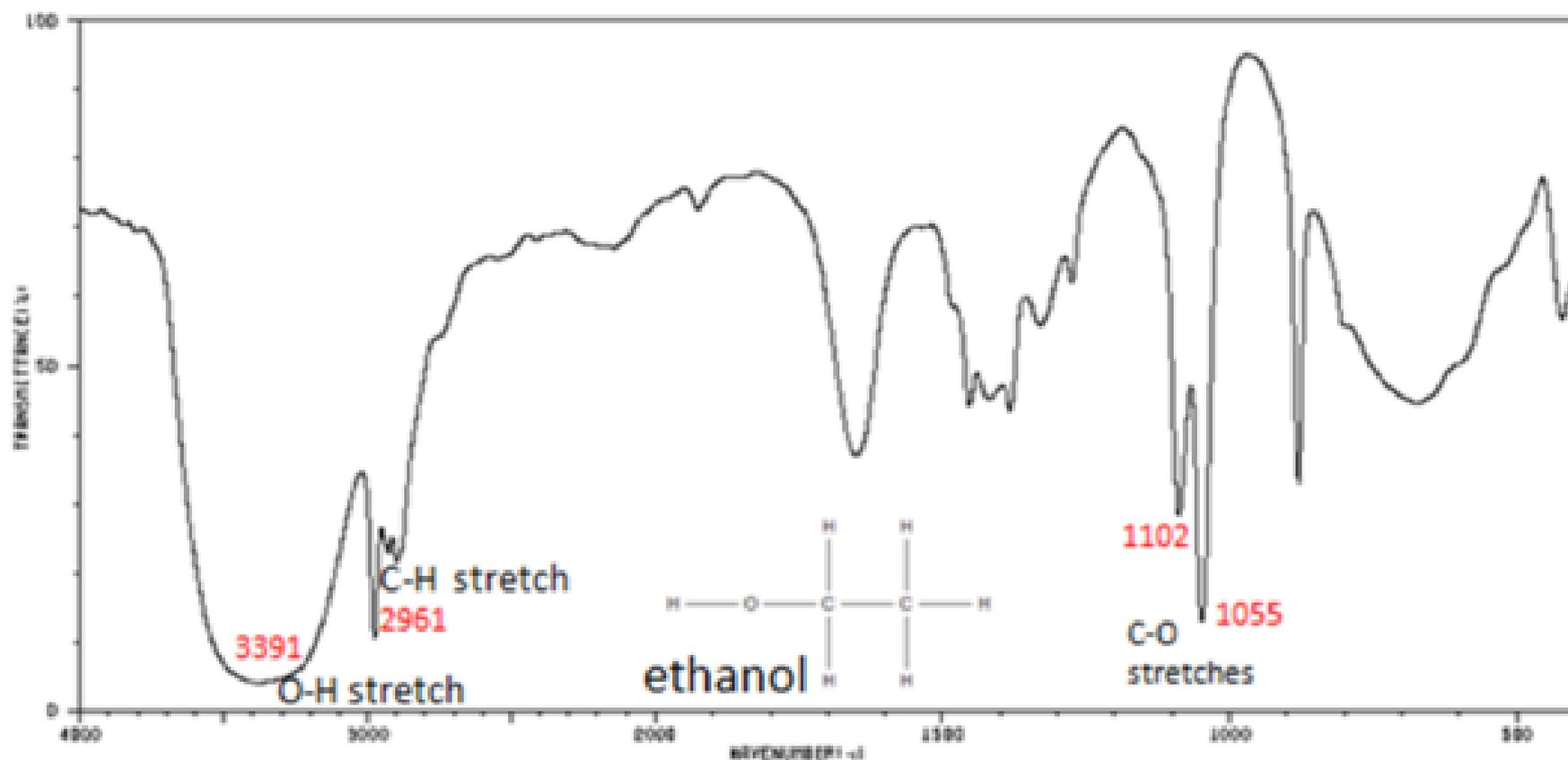
- Where the 5000 measured the carbon-hydrogen (C-H) bond vibrations in the 3 micron region of ethanol's molecular fingerprint; the 9000 is measuring the carbon-oxygen (C-O) vibration in the 8-9 micron region.

GBI Intoxilyzer 9000 Operator Transition Training Manual 2014 Revision, pg. 5; GBI Evaluation of Breath Alcohol Testing Instruments to Replace the Intoxilyzer 5000, pg. 6, 39 and 77 (September 2012).

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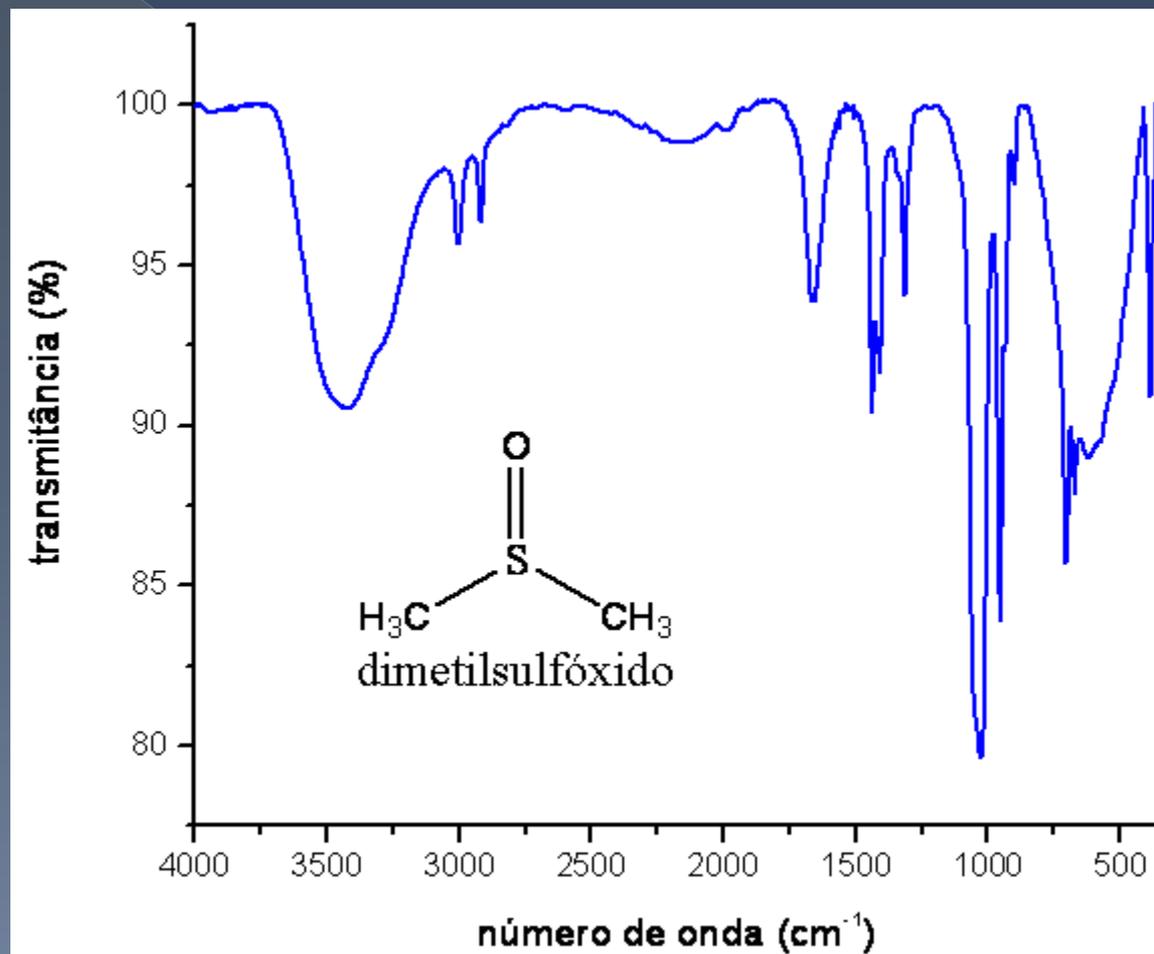
- ◎ **PROBLEM:** other organic molecules, which can potentially contaminate breath samples, also absorb IR radiation at 9 microns.
  - > Other alcohol, esters, and ethers that contain both the methyl group and carbon-oxygen bonds in their molecular structures.

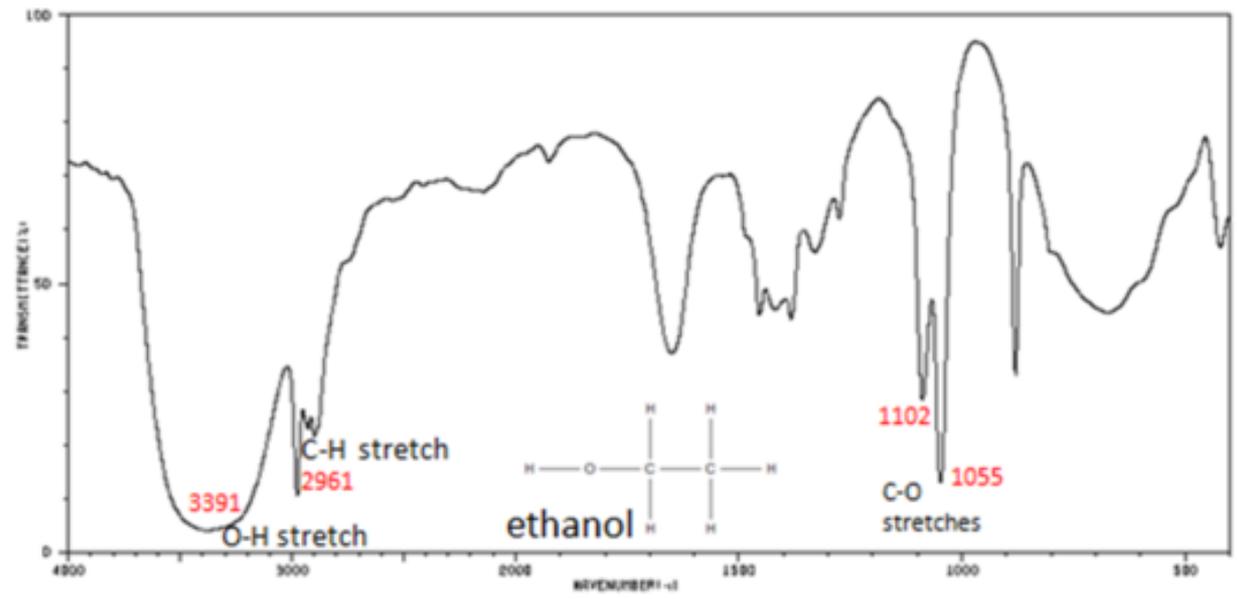
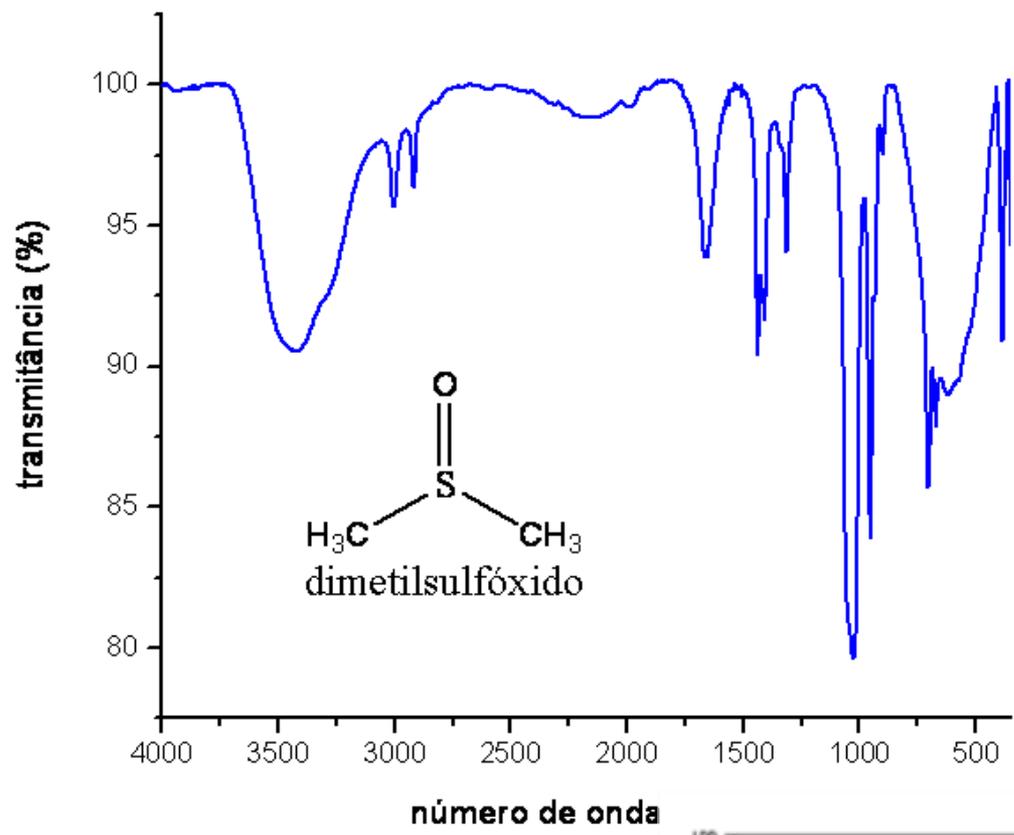
See Labianca, Dominick; Breath-alcohol analysis: a commentary on ethanol specificity in the 3 micron and 9 micron regions of the IR spectrum; Journal of Forensic Toxicology v. 24, pg. 92 (2006).

# Dimethyl sulfoxide (DMSO)

- ◉ Dimethyl sulfoxide (DMSO) exhibits IR absorption in both the 3.4 and 9.4 micron regions.
- ◉ DMSO is a common solvent for organic compounds and is also used in the treatment of interstitial cystitis (aka painful bladder syndrome) and scleroderma, with rapid absorption occurring through the skin and mucous membranes. *Id.*

# Dimethyl sulfoxide (DMSO)

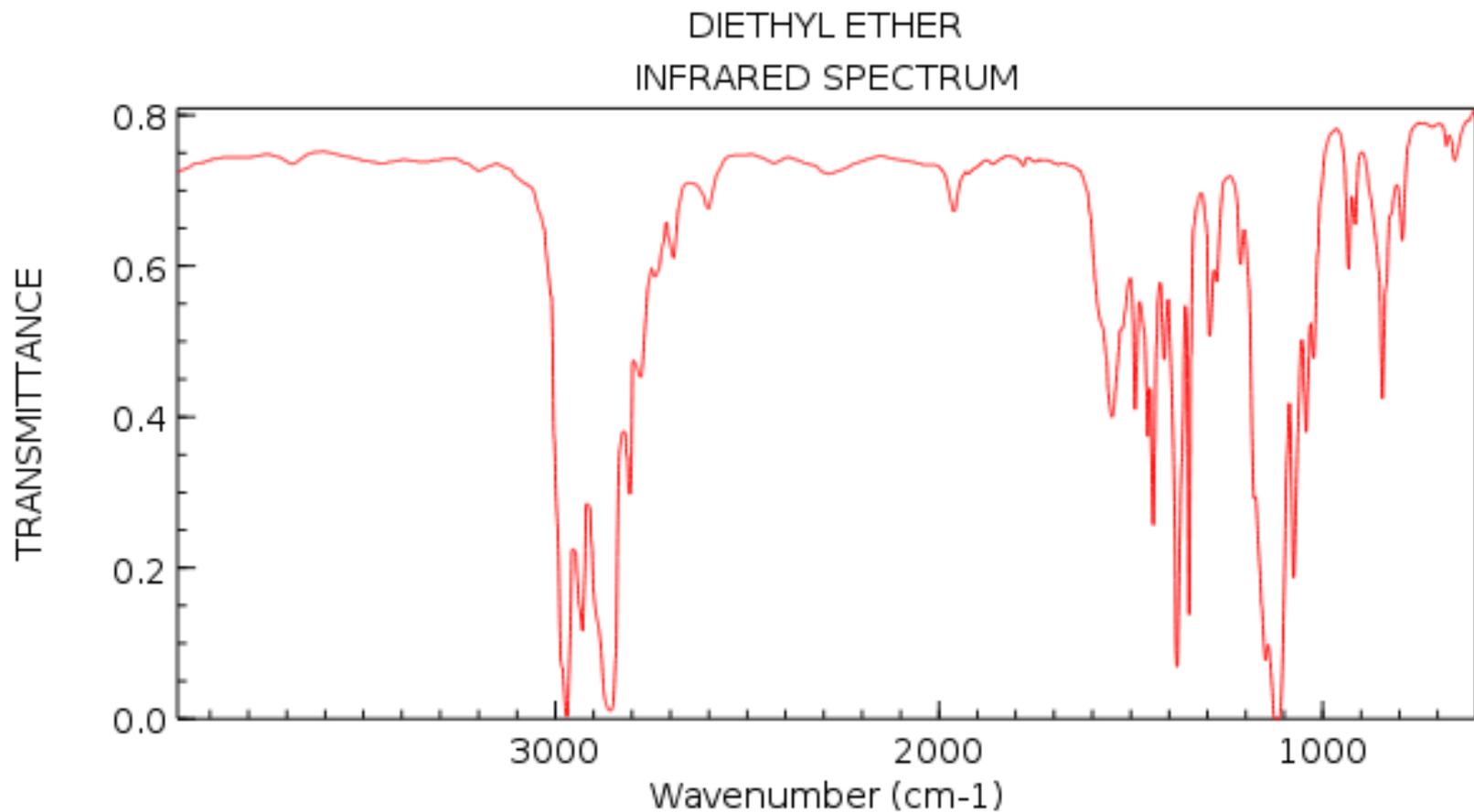




# Diethyl Ether

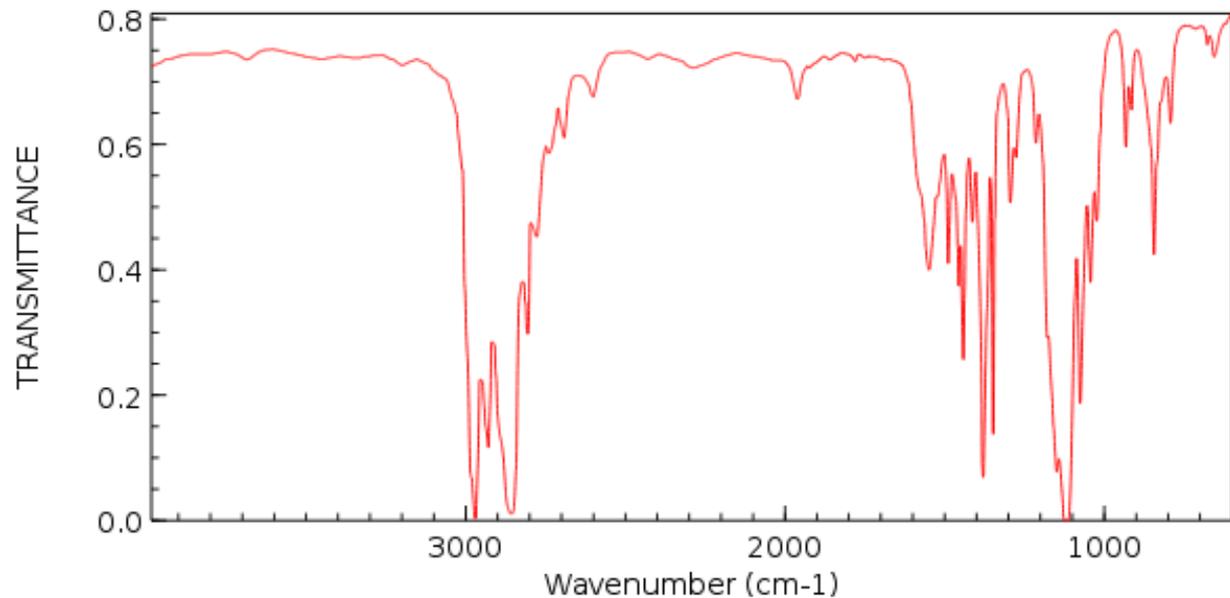
- Diethyl Ether, has been found to produce false ethanol readings at 3.4 and 9.5 microns, the latter overlapping absorption at 9.4 microns.
- Widely used as a solvent for waxes, fats, oils, perfumes, alkaloids, and gums. *Id.*
- Exposure to ether vapor is highly problematic because of its high tissue solubility and its low partition ratio in humans.

# Diethyl Ether

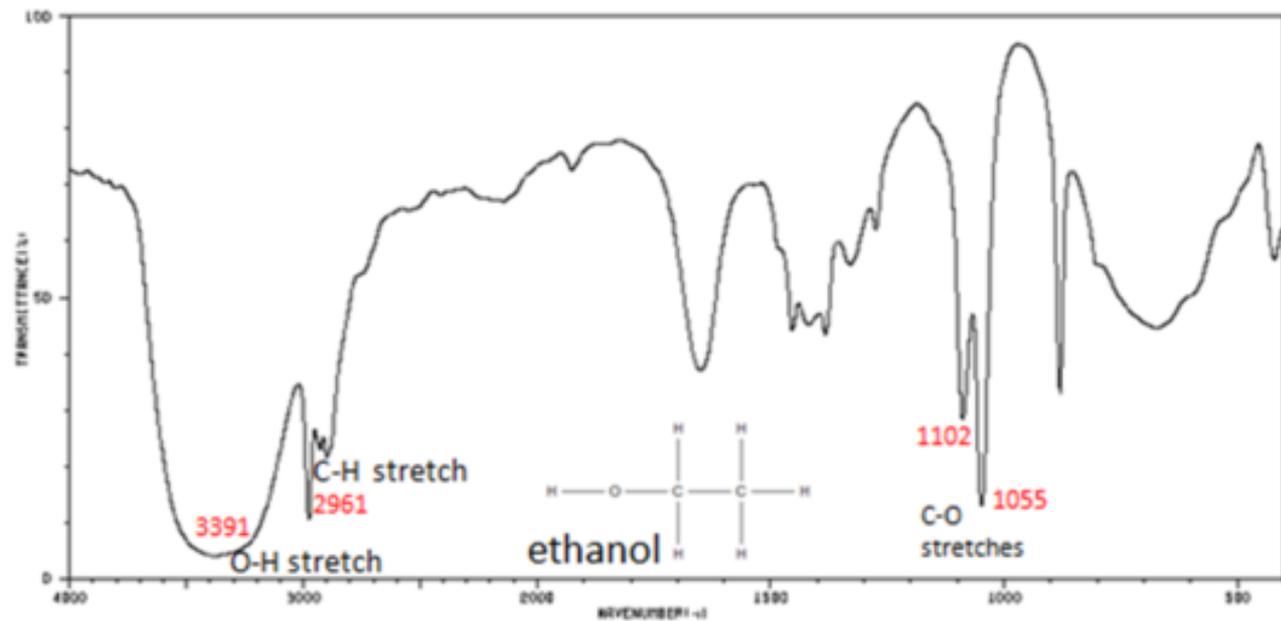


NIST Chemistry WebBook (<http://webbook.nist.gov/chemistry>)

DIETHYL ETHER  
INFRARED SPECTRUM



NIST Chemistry WebBook (<http://webbook.nist.gov/chemistry>)



# ESTERS

- Ethyl Formate,
- Methyl Butanoate,
- Propyl Acetate, and
- Pentyl Acetate are noteworthy because they are synthetic flavoring agents that allow many products, including ice cream, soft drinks, candy and other foods, to taste natural in flavor.

# ACETONE

- On the breath of individuals in a state of ketosis from untreated diabetes, prolonged fast, or a low-carb diet.
- Acetone impairment may resemble alcohol intoxication.
- The Intoxilyzer 9000 does not subtract the effect of acetone from the results. Texas recognizes the need to evaluate whether acetone testing will need to be a necessary part of official inspection in the future.  
The Effect of Acetone on the Intoxilyzer 9000, PowerPoint presentation by Janeen Kubilus, Forensic Scientist, Breath Alcohol Laboratory, Law Enforcement Support-Crime Laboratory Service (432)386-0353, slide 6.

# Lack of Specificity - Georgia

- GBI cited problems with the lack of sensitivity to compounds other than alcohol when evaluating the 9000.

GBI Evaluation of Breath Alcohol Testing Instruments to Replace the Intoxilyzer 5000, pg. 65 (September 2012). Compounds that were analyzed by the 9000 for specificity included: acetone, acetaldehyde, methanol, 2-propanol, toluene, ethyl acetate, 2-butanone, 2-butanol, 1-propanol, acetonitrile, methylene chloride, and 2-methyl propanol. *Id.* at 93.

- 9000 actually scored the lowest of any competitor on the GBI survey to a list supplied by CMI to rate the specificity/selectivity for ethanol.

GBI Evaluation of Breath Alcohol Testing Instruments to Replace the Intoxilyzer 5000, pg. 64 (September 2012).

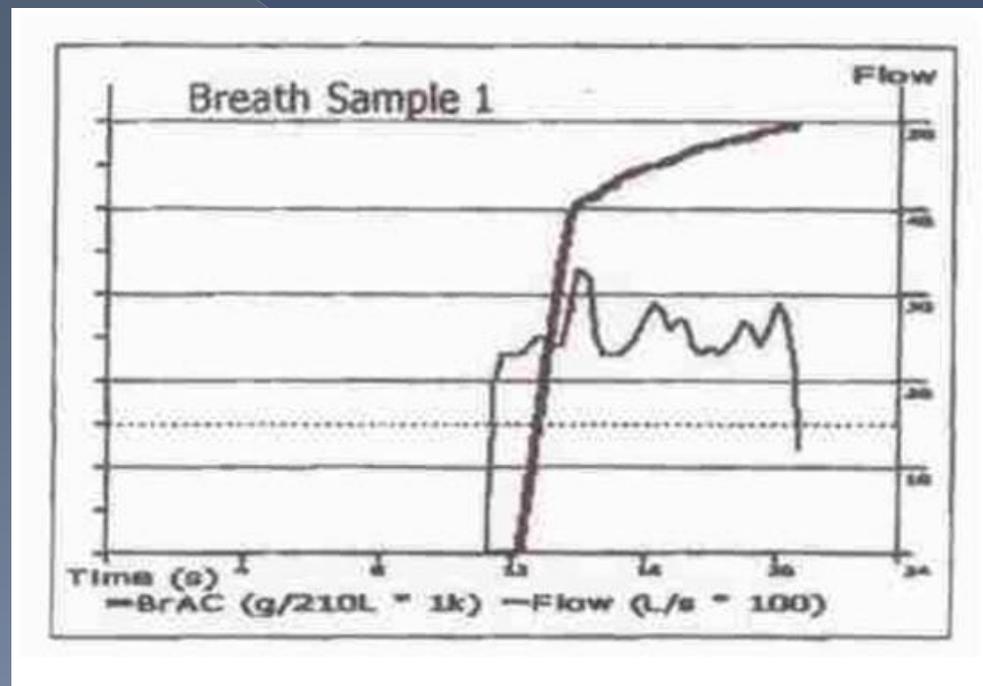
# SPECIFICITY CONCLUSION

Breath-alcohol analysis via IR at 3.4 and 9.4 microns is not entirely ethanol specific and any subject's employment, medical or eating history can and should be ascertained through appropriate evaluation of the subjects and the compounds.

See Labianca, Dominick; Breath-alcohol analysis: a commentary on ethanol specificity in the 3 micron and 9 micron regions of the IR spectrum; Journal of Forensic Toxicology v. 24, pg. 94 (2006).

# HISTOGRAM

- The 9000 produces a graphical representation of the breath flow, breath volume, blow duration and breath alcohol concentration for every subject test.



# HISTOGRAM

- Was the breath flow continual or spiked?
- Did the breath sample achieve sufficient slope to be considered a valid test?
- Was the slope indicative of mouth alcohol?
- Was the exhalation time sufficient to create a level slope?
- Likewise, the histogram would reveal what the breath alcohol concentration was at any given point during the exhalation.

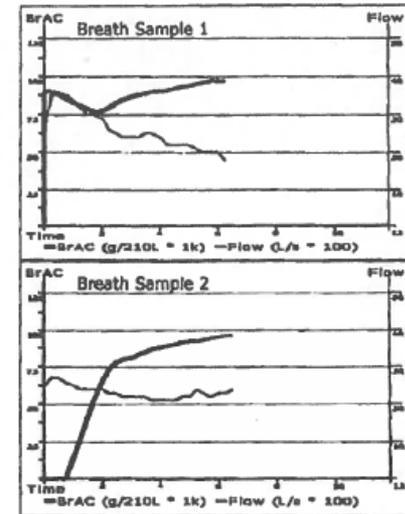
# Intoxilyzer 9000 Evidential Breath Alcohol Test (EBAT) Test Report

<b>Subject Name:</b> BAILEY, CLAUDIA B DOB: 01/01/0001 Sex: Female Driver License: 050340151 State: CO Zip Code: 80122	<b>Location:</b> AURORA POLICE DEPARTMENT  Serial Number: 90-000417 Test Number: 0417130059 Case Number: 13-20030 Date & Time of Offense: 05/30/2013 01:26
<b>Intoxilyzer Operator:</b> CHILSON, JASON P Last Certification Date: 05/10/2013 Agency: AURORA POLICE DEPARTMENT	<b>Arresting Officer:</b> CHILSON, JASON P Agency: AURORA POLICE DEPARTMENT Crash: No      Injury: No

 BAILEY, CLAUDIA B  
 Test Date: 05/30/2013

20-minute deprivation period	Start Time: 02:12	End Time: 02:32
<input checked="" type="checkbox"/> The 20-minute deprivation period has been conducted at the certified EBAT facility by a certified EBAT instructor or operator that is in an active status.  <input checked="" type="checkbox"/> The subject has removed any foreign material from the mouth cavity that is not permanent in nature, prior to starting the 20-minute deprivation period.	<input checked="" type="checkbox"/> The subject has been deprived access to foreign material that may be introduced into the mouth cavity during the 20-minute deprivation period.	<input checked="" type="checkbox"/> The subject has been observed for signs of belching, regurgitation, or intake of any foreign material into the mouth cavity during the 20-minute deprivation period.

EBAT Test Sequence	g/210L	Time
Air Blank	0.000	02:32:57
Sim Temp	34.0 C	
Wet Cal Chk	0.096	02:33:24
Air Blank	0.000	02:34:03
Subject Sample	0.097	02:34:36
Breath Volume 1.67 Liters		
Air Blank	0.000	02:35:30
Diagnostics	Passed	02:35:33
Air Blank	0.000	02:36:10
Wait		02:38:13
Air Blank	0.000	02:38:50
Subject Sample	0.097	02:39:12
Breath Volume 1.62 Liters		
Air Blank	0.000	02:40:03
Sim Temp	34.0 C	
Wet Cal Chk	0.096	02:40:30
Air Blank	0.000	02:41:10
Final Result 0.097 g/210L		



**COMMENTS:**

I am currently certified as an EBAT operator and attest that this Evidential Breath Alcohol Test (EBAT) has been performed in compliance (SCCR 1005-2) following the procedures set forth by the CDPHE.  
 I authenticate the information provided on this report is produced by the certified EBAT instrument used to perform this test.

Certified EBAT Instructor or Operator Signature      Date: 05/30/2013

00010

Georgia Model Intoxilyzer 9000

TestID# 0502140107 Date 10/12/2014

**Instrument Info**

Inst Serial # 90-000502 Software Version 9406.05.00 Agency DUIVILLE  
 Target Value 0.080 Lot # 21913080A2 POLICE  
 DEPARTMENT

**Subject Info**

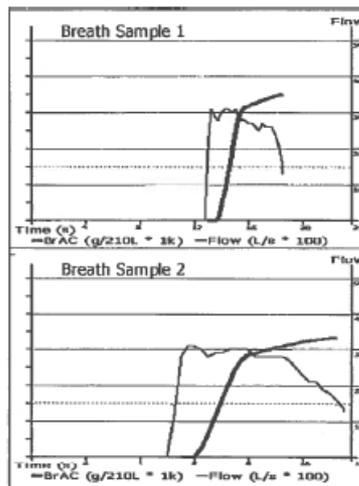
Subject Name DEVILLE, THOMAS C Measured BrAC (g/210L) 0.167 (+/- 0.008)  
 DOB 12/20/1967 DL 364836488 Gender Male Reason for Test: DUI  
 Additional Comments

**Operator Info**

Operator Name WIN, CHARLES Permit # 912345 Expiration Date 09/25/2017  
 Arresting Officer BALD, HARROLD Violation Date 10/12/2014 Violation Time 00:08  
 Arresting Agency DUIVILLE PD Case # 2014100

**Result Details**

Test	g/210L	Time
Air Blank	0.000	00:57:22
Diagnostics	Passed	00:57:57
Air Blank	0.000	00:58:36
Subject Sample	0.175	00:59:06
Breath Volume 1.49 Liters		
Air Blank	0.000	00:59:59
Dry Cal Chk	0.085	01:00:20
Air Blank	0.000	01:01:00
Diagnostics	Passed	01:02:38
Air Blank	0.000	01:03:15
Subject Sample	0.167	01:03:38
Breath Volume 1.61 Liters		
Air Blank	0.000	01:04:31



Operator's Signature

Date of Last Calibration adjustment: 08/22/2013

Date of Last Inspection: 7/25/2014

CMI Calibration Laboratory is a ISO 17025 accredited calibration laboratory for breath alcohol measuring instruments.

Printed On: 10/21/2014 09:03

# TEXAS FORENSIC BREATH ALCOHOL ANALYTICAL REPORT

Report Number: 0938000119  
Analytical Instrument: Intoxilyzer 9000  
Serial Number: 90-000938

Date: 07/31/2014  
Location: LAB  
Technical Supervisor Area: 099

Subject Name: SHELTON, DANIEL A II  
Date of Birth: 09/23/1964

Subject Result 1: 0.000 g/210 L  
Subject Result 2: 0.000 g/210 L

Sequence of Analysis:		
Operational System Check	OK	12:58 PDT
Air Blank	0.000	12:59 PDT
Calibration Verification	0.077	12:59 PDT
Solution Temp.	34.00°C	
Air Blank	0.000	13:00 PDT
SUBJECT RESULT 1	0.000	13:00 PDT
Air Blank	0.000	13:01 PDT
Air Blank	0.000	13:03 PDT
SUBJECT RESULT 2	0.000	13:03 PDT
Air Blank	0.000	13:04 PDT
Calibration Verification	0.075	13:04 PDT
Solution Temp.	34.01°C	
Air Blank	0.000	13:05 PDT
Operational System Check	OK	13:05 PDT

Test Complete 07/31/2014

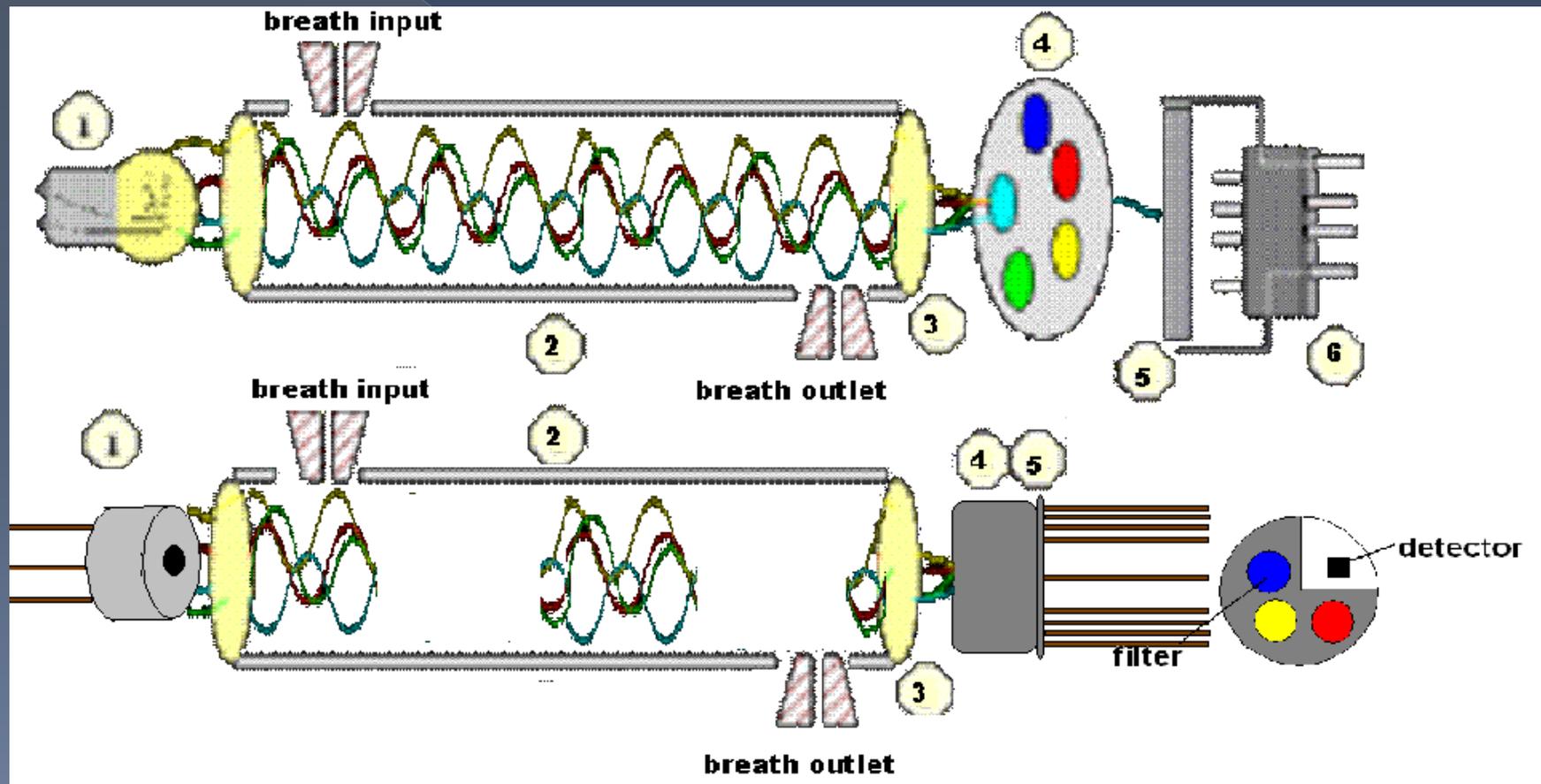
Operator Signature: \_\_\_\_\_

Fifteen minute waiting period completed - YES  
Operator Name: \_\_\_\_\_  
Certificate Number: \_\_\_\_\_

# OTHER OMISSIONS

- > the observation period start time;
- > observation period ended;
- > last instrument calibration date;
- > whether the observation period was conducted by a certified Breath Test Operator (BTO);
- > last BTO certification date;
- > the BTO had the subject remove any foreign material from the mouth cavity;
- > the subject was deprived access to foreign material during the observation period;
- > the subject did not belch, regurgitate, or intake any foreign material into the mouth during the observation period; and
- > the uncertainty measurement for the result.

# FOUR FILTERS/ NO ZERO



# FOUR FILTERS / NO ZERO

- **5000:** tungsten filament light source that provided continuous IR and visible radiation to a 5 filter chopper/filter wheel which rotated in front of the detector.
  - > had a blank or a zero filter in the wheel
- **9000:** grey body infrared light that pulses the energy through the sample chamber to a stationary detector that contains four filters, each for a specific wavelength of IR radiation.
  - > does not have a detector for a true zero.
- Instead, 9000 assumes or is programmed to read zero if the filters do not detect other samples besides alcohol.
- Additionally, 9000 “masks” all results less than 0.007 and instead reports it as 0.000. GBI Intoxilyzer 9000 Operator Transition Training Manual 2014 Revision, pg. 5-6.

# 5000 LIKE 9000

- ◎ 20 minute v. 15 minute Observation Period
  - > “An Operator shall remain in the **continuous** presence of the subject at least 15 minutes **immediately** before the test and should exercise reasonable care to ensure that the subject does not place any substances in the mouth.” See An Overview of the Training and Implementation of the Intoxilyzer 9000, pg. 3 and 6; emailed from Larry Smith, Regional Manager North Texas BAL to Kristina Aguirre on July 14, 2014.
  - > “clearly the ‘best practice’ is for the Waiting Period to be conducted entirely at the testing site.”

# 5000 LIKE 9000

- ◎ CMI Warranty – 1 year
  - > original purchaser
  - > does not include abuse, misuse, cables, switches, or use of the product for other than its intended purpose.
  - > does not apply if the product is in any way tampered with or modified without express written permission from CMI, Inc.
  - > extension of the warranty for one year for \$125.

# 5000 LIKE 9000

- ◎ COBRA V5 software to the 9000 without a protective order and non-disclosure agreement.
  - > Viewing of the source code must be done at CMI and may not be sent outside for independent analysis.
- ◎ Won't sell to private citizens.
- ◎ No ToxTrap
- ◎ 2 breath tests must be within 0.02 of each other.
- ◎ Dry Gas Simulator, but Texas chose wet bath compatible option.
  - > As with any preparation of a simulator solution, human error is always a factor.

# NEW 9000 PROBLEMS

- Optical Bench and radio frequency detection circuit?
- New Software Bugs
- Sample Chamber: 6 in (5000) v. 10 in. (9000)
- Valve of Least Resistance

# The DISCONNECT Defense

- ⦿ High Breath Test (0.15 and higher)  
+
- ⦿ Good Video Performance  
=
- ⦿ Indisputable Conflict
  - > Alleged breath test science
  - > Common sense theme of believing what you see.
  - > e.g. a DISCONNECT

# THE RIGHT CASE

## ◉ Reasonable Suspicion

- Speeding, Lights, Signals
- Weaving – texting, radio, BJ
- Accidents/ Not Deliberates

## ◉ Probable Cause

- Medical records
- Height and Weight Chart
- Heels or boots

## ◉ Video

# VOIR DIRE

- “The case is won or lost in voir dire.”
- Recognize Your Best Jurors
  - > Connecting with? Laughing with you? Eye contact?
- Scientists (engineers, mechanics, machinists, NASA, IT guys)
  - > GOOD: they’ve never used a machine that worked perfect every time
  - > BAD: they know the difference between a machine and an instrument
  - > EFFECT: keep the engineer, IT guy and NASA off your jury. Strike for cause??
- HYPOTHETICAL
  - > Taxalyzer 5000EN, Thermometer, Doppler 5000
  - > Serious Consequences: jail, brain surgery, natural disaster
  - > Relate if to the Intoxilyzer:
    - 20% acceptable range of error, self checking for accuracy;; newer model; current model not produced anymore; citizen cannot purchase; source code; not available for independent testing; destroys evidence; operator just pushes buttons; “scientist” rarely checks in person; any inconsistencies in data; no warranty; SPECIFICITY
  - > How does that make you feel?

# ARRESTING OFFICER

- ◉ Reasonable Suspicion and Probable Cause
- ◉ Start Weaving the Disconnect Thread
- ◉ Driving Issues
- ◉ Know the NHTSA Manual Better than Joe
- ◉ Mental and Physical Faculties
  - > Innocent reasons for odor, eyes, speech; compromised every SFST; coherent
  - > Must lose mental before physical (BTO Manual pg. 44)
  - > Neutralize M&P Faculties; Make it rely on the BT score
- ◉ Did not urinate or ask to use the restroom!
  - > 0.235 equals 12 beers (144 oz) in the system.

# BREATH TEST OPERATOR

- **Limited Exposure With Defendant**
  - > notes? (Hearsay 803(8)(b))
  - > No opinion of loss of mental or physical faculties
- **Knowledge of the Machine**
  - > Henry's Law; Infrared Spectroscopy; simulator solution; checking and maintaining machine
  - > Simply pushes buttons
  - > Machine tells him if working properly (self checking)
- **Temperature of the Machine ( $34^{\circ}\text{C} \pm 0.2$ )**
  - > Temp that night? Required to be? Standard deviation?
  - > Mistake can compromise the results (ask TS)
  - > Write in large letters on a board
- **15 Minute Observation Period**
  - > Video to see if burped or belched
  - > What does your TS consider "in the presence"
    - Line of sight; single or multiple officers; within hearing range
    - Establish a conflict with the timing and TS will admit this could compromise the test. (BTO Manual pg. 49; Tex.Admin. Code 19.3(a) and (c)(1)).
  - > Article 38.23 of Texas Code of Criminal Procedure
- **Did Not Use the Restroom!**

# TECHNICAL SUPERVISOR

- “Expert,” But Speak in Lay Terms
  - > working knowledge of breath testing science, the Intoxilyzer, and possession of multiple authoritative studies in the field of breath testing
  - > Dr. Kurt M. Dubowski, Dr. A.W. Jones, and Professor Dr. E.M.P. Widmark
- Articles/ Learned Treatises 803(18)
  - > Dubowski, Kurt M., *Alcohol Determination in the Clinical Laboratory*, Am. J. Clin. Pathol. 74: 747, 749 (1980).
  - > Dubowski, Kurt M., *Absorption, Distribution, and Elimination of Alcohol: Highway Safety Aspects*, J. Stud. Alc. Suppl. No. 10: 98, 99 and 106 (1985);
  - > Jones, A.W., *Physiological Aspects of Breath-Alcohol Measurement*, Alcohol, Drugs and Driving, Vol. 6, No. 2 (1990).
  - > Widmark, E.M.P., *Principles and Applications of Medicolegal Alcohol Determination*, Biomedical Publications, pg 99, Davis, CA (1981).
- Tables
  - > Dubowski’s table of the Stages of Acute Alcoholic Influence/Intoxication
  - > Stages of Alcoholic Influence – Dubowski
  - > Elated Disorders: Alcohol, Nicotine and Caffeine
  - > Specific Effects of Alcohol Related to BAC

# TECH SUPER (cont.)

## ⦿ Get Your Chops In and Get Out

- 20%, self checking; recalled in states; newer model(8000); current model not produced anymore; citizen cannot purchase; source code; not available for independent testing; Toxitrap; check in person once a month; no warranty; any inconsistencies in data

## ⦿ Retrograde Extrapolation

- > Only if you can explain it to a 5<sup>th</sup> grader and are in absorptive stage.

## ⦿ Tolerance

- > The only explanation for the State.
- > Binder of articles
- > Don't know anything about Defendant or family
- > Metabolic, cellular, behavioral, initial, acute, acquired, cross,
- > Agree that a person has to practice these tests while intoxicated...

## ⦿ Video

- > Did you even watch the video?
- > Your determination is purely on the number and not if it matches the table?

# DEFENSE EXPERT

## ◎ If the Client Can Afford It, Hire It

- > See Bubba's List
- > Research the expert's credentials and previous testimony
- > Make your expert familiar with your authoritative research
  - Simpson, G., Accuracy and Precision of Breath Alcohol Measurements for Subjects in the Absorptive State, Clin. Chem. 33/6, 753-756 (1987).
- > Let the expert meet with Defendant and his family
  - Counsel Defendant and family before this meeting

# NAILS IN THE COFFIN

- Systematically weaved reasonable doubt through every aspect of intoxication
- **Indisputable Conflict = Reasonable Doubt**
  - > Innocent Man, Insufficient Evidence, Indisputable Conflict
- Use Demonstrations
  - > Green, Green, Red
  - > Hypothetical Machine
  - > Pictures with ridiculous stats
- DISCONNECT: good video, no loss of mental or physical faculties, never urinated, all about the ridiculously high number, either the machine defies science or there is a problem
- Constitutional Duty to Find Defendant **NOT GUILTY**