

FUNDAMENTALS OF TRIAL ADVOCACY COURSE

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Phoenix, Arizona



DUI BREATH ANALYSIS ISSUES

Presented by:

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&

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Distributed by:

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DUI Breath Analysis

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Breath Alcohol Analysis

Direct Oxidation

**1927 – Emil Bogen: The Diagnosis of
Drunkness; California and Western
Medicine Vol XXVI, No 6**

Used Football to capture sample

**Won \$150 research price
(\$1866 by today's standards)**

Breath Alcohol Analysis

Direct Oxidation

1938 – Rolla Harger

Drunkometer

**Used colorimetric
analysis**

**Potassium chromate, silver
nitrate, and sulfuric acid
Turns from yellow to green
Office compares color change
to a chart**

Breath Alcohol Analysis

Direct Oxidation

1954 - Robert F.
Borkenstein

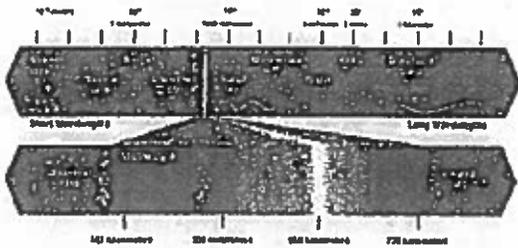
The Breathalyzer

Used colorimetric analysis

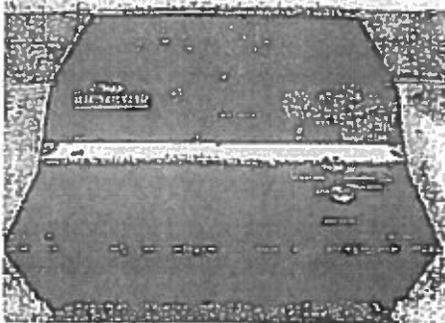
Potassium chromate, silver
nitrate, and sulfuric acid
Light meter measured
change in color

Breath Alcohol Analysis

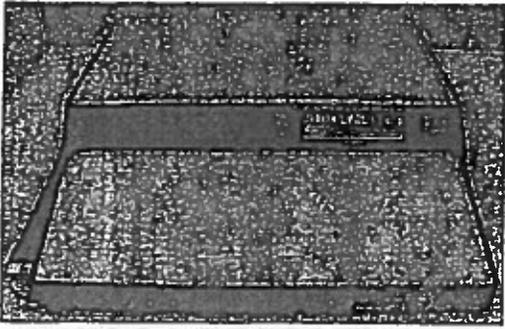
Infrared Spectrophotometry



Intoxilyzer 4011

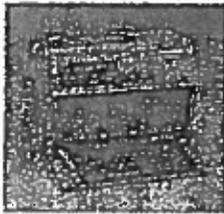


Intoxilyzer 5000



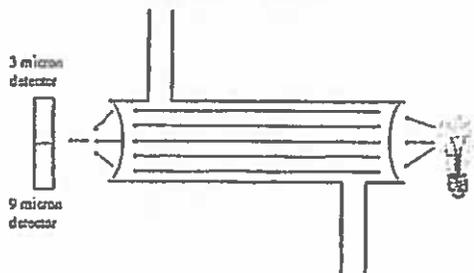
Intoxilyzer 8000

INTOXILYZER[®]



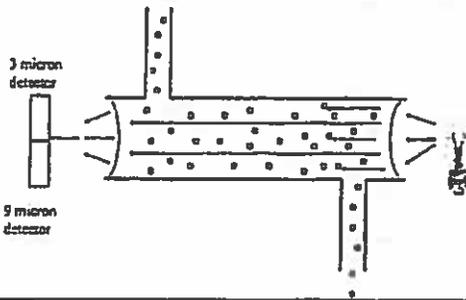
8000

Breath Alcohol Analysis Infrared Spectrophotometry



Breath Alcohol Analysis

Infrared Spectrophotometry



Breath Alcohol Analysis

Henry's Law

In a closed system, the concentration of a volatile substance above a fluid is proportional to the concentration of that substance in the fluid at equilibrium

Blood to Breath Ratio

USDOT mandates instruments use 2100:1

1972 ad hoc committee

Amount of alcohol in 2.1 l. of lung air is equal to amount of alcohol in 1 ml of blood

Average partition ratio is 2300:1

Large study (21582 drinkers) found 2440:1

A.R. Gainsford, A large scale study of the relationship between blood and breath alcohol concentration in New Zealand drinking drivers, J Forensic Sci. 51, 173-178, 2006

Breath Alcohol Analysis

Quality Assurance

Bracketing Diagnostic Checks

(Checks all internal systems of instrument)

Voltage/Current Test
RAM Test
EEPROM Test
DSP Test
Analytical Test
Internal Printer Test
Modem Test
Temperature Regulation Test
Software Checksum

Breath Alcohol Analysis

Quality Assurance

Bracketing Calibration Checks

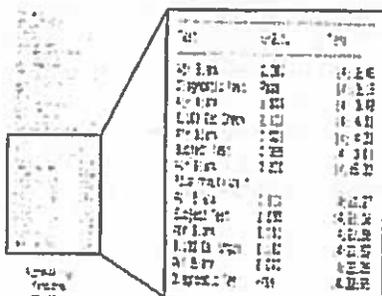
Arizona rules require result must be within
 $\pm 10\%$ or ± 0.01 g/210L of the known value

0.100 g/210L NIST traceable dry gas standard

Range is 0.090 - 0.110 g/210L

Breath Alcohol Analysis

Quality Assurance



ST	VAL	TR
07 1.00	1.00	0.100
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100 1.00	1.00	0.100

Breath Alcohol Analysis

Quality Assurance

Quality Assurance Specialist

31-day Calibration Check

90-day Standard Quality Assurance Procedure

Breath Alcohol Analysis

Exception Messages

Calibration Check Out of Tolerance

Outside 0.090 – 0.110

Instrument will be locked
Display "Contact QAS Cal Check Tolerance"

QAS will need to perform successful 31-day
calibration check to unlock

Breath Alcohol Analysis

Exception Messages

Sequence Aborted

Pushed Start Test button at wrong time

Improper Sample

Blew at wrong time

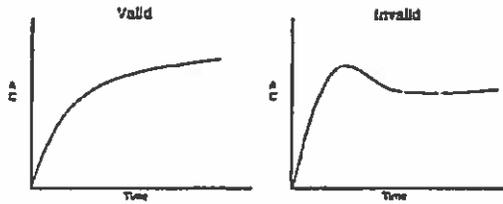
Inhibited RFI

Radio Frequency detected

Breath Alcohol Analysis

Exception Messages

Invalid Sample
Mouth alcohol possible



Breath Alcohol Analysis

Exception Messages

Ambient Failure
Detectable level of alcohol in room air

Range Exceeded
Level higher than 0.500

Deficient Sample
Minimum sample criteria not met

Breath Alcohol Analysis

Lockouts

Instrument will not allow a subject test to be performed if:

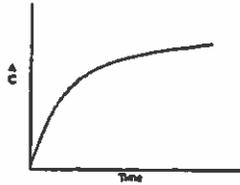
- The 31-day Calibration check is past due
- The dry gas standard is expired
- The dry gas standard pressure is too low
- Concurrent calibration check failed

QAS must unlock instrument by performing appropriate QA measures

Breath Alcohol Analysis

Quality Assurance

Minimum Sample Criteria
Flow rate - 0.15 L/sec
Time - 1 sec
Volume - 1.1 L
Level Slope



Breath Alcohol Admissibility

Two methods of admitting breath tests

Statutory Method
ARS § 28-1323

Rules of Evidence Method
Expert Witness, *Daubert*/Rule 702

Breath Alcohol Admissibility

Statutory Method

28-1323(A)

- 1) DHS/DPS Approved Device
- 2) Certified Operator
- 3) Duplicate Tests (includes deprivation period)
- 4) DHS/DPS Approved Checklist
- 5) Device in Proper Operating Condition

28-1323(B)

These are the only requirements for admissibility

DHS/DPS* Approved Device

- Testimony of Operator (not in statute)
- Judicial Notice
 - *Evidence*, Rule 201
 - *State v. Zaragoza*, 21 Ariz.App. 596 (App. 1974)
- Properly authenticated certification from DHS/DPS
- DHS/DPS Regulations (not in statute)
 - *Evidence*, Rule 902 (Self Authenticating Document)
 - Copy at <http://laws01/index.asp?click=codes#codes>

Certified Operator

- Testimony of Officer
- May Admit Copy of Card – not required
 - Certified Record of Officer's Certification from DHS/DPS
 - *Evidence*, Rule 902 (Self Authenticating Document)

Breath Test – Statutory Method (Duplicate Tests)

What the Statute Says:

- Duplicate (2) Tests
- Tests Within .02 of Each Other

In the Regulations:

- 15 Minute Deprivation Period
- Mouth Alcohol – discussed in depth later
- Tests Not Less Than 5 nor More Than 10 Minutes Apart

Breath Alcohol Admissibility

Rules of Evidence Method

Expert Witness, Daubert

Use when statutory foundation can't be shown
When want to use an expert
Also used to admit blood or urine test results

Majority of Time Will Use Statutory Method for
Breath Tests
State's Forensic Scientist rarely called in
breath test cases

Blood vs. Breath

To be certified by DPS, breath
instrument must be capable of
measuring alcohol to within $\pm 5\%$

CMI, Inc. states 3%

Lack of Foundation

Person objecting must indicate what is
lacking. *Packard v. Reidhead*, 22 Ariz App.
420 (1974).

Dealing with Experts

Ask about studies & what they entailed

Learn the material & understand it

Is that reasonable?

Questions?

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