FOR TRAINING USE ONLY

The information provided herein is for training purposes only. Should a conflict occur between the information presented in this course and Agency Policy and Procedure, or State or Federal Law, Policy and Procedure, or State or Federal Law shall take precedence.
INTOXILYZER 8000 & 9000 OPERATOR TRAINING

Making the Grade

- Attend the entire course
- Pass a practical examination by demonstrating proficiency in operating the intoxilyzer(s) properly
- Pass a comprehensive written examination with at least a score of 80%
  - 40 out of 50 questions correct

Performance Objectives

- Explain the effects of alcohol
- Explain the physiological principles to breath alcohol testing
- Explain the basic working of the operation of the instrument(s)
- Explain the differences between the Intoxilyzer 8000 and 9000
Performance Objectives

- Identify the criteria for an admissible breath test and a valid breath sample
- Identify exception messages for the instrument(s)
- Perform a successfully completed test sequence(s)

Characteristics of Ethanol

- Mixes with water
- Colorless
- Light odor
- Volatile (evaporates)
- Burning taste
- CNS depressant

Ethanol is the alcohol in alcoholic beverages

Other Sources of Ethanol

- Ethanol can be found in other products
  - Cold preparations (Nyquil ~10%)
  - Baking Extracts (Vanilla ~3%, Orange ~8%, Cherry ~9%)
  - Mouthwashes
  - Perfumes and colognes
What is a Standard Drink?

- A mug of beer
  - 12 oz of beer at 5% alcohol = 0.6 oz of pure ethanol
- A glass of wine
  - 5 oz of wine at 14% alcohol = 0.6 oz of pure ethanol
- A shot of liquor
  - 1.5 oz of liquor at 40% alcohol = 0.6 oz of pure ethanol

No matter the source of the alcohol, the contribution of one drink will give the same alcohol concentration in the body.

NOT a Standard Sized Drink

Absorption

- How Ethanol gets into the body to cause effects:
  - Oral consumption
  - Injection
  - Inhalation
  - Transdermal
  - Enema
  - Suppository
Distribution of Alcohol

- The process by which alcohol gets into the tissues through out the body
- The concentration of alcohol is directly proportional to the amount of water in the body
- Heavier the person = Greater water content = Lower the AC
- In theory, a 200 lb. man needs twice as much alcohol as a 500 lb. man to obtain the same alcohol concentration

Differences Between Men and Women

In general, women have more fatty tissues

therefore...

women have less water per pound of body weight
Elimination Rates

- Rate at which ethanol leaves the body varies from person to person
- Elimination rates range from 0.010% to 0.030% per hour
- Example:
  - From a 0.100 it will take about 6 hours to get down to a 0.040 if a person eliminates ethanol at 0.010% per hour
  - From a 0.100 it will take about 2 hours to get down to a 0.040 if a person eliminates ethanol at 0.030% per hour

Henry’s Law

- The fundamental law to ALL breath testing
- The concentration of a volatile in the air above a liquid corresponds to the concentration of the volatile in the liquid
- The concentration of alcohol in the breath is related to the concentration of alcohol in the blood in a blood to breath ratio
Henry’s Law

This occurs at a ratio of:

2100:1
Blood:Breath

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Breath Tests Measure Alveolar Air

Alveoli are sacs in the lungs where gas exchange occurs
- Oxygen is inhaled
- Carbon dioxide and volatiles (ethanol) are exhaled

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Blood Compared with Breath

<table>
<thead>
<tr>
<th>Blood</th>
<th>Breath</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Permit required</td>
<td>• Permit required</td>
</tr>
<tr>
<td>• Calibrated instrument</td>
<td>• Calibrated instrument</td>
</tr>
<tr>
<td>• Quality controls</td>
<td>• Quality controls</td>
</tr>
<tr>
<td>• Duplicate tests</td>
<td>• Duplicate tests</td>
</tr>
</tbody>
</table>

BOTH ARE EQUALLY ACCURATE AND SCIENTIFICALLY VALID

Arizona law gives the officer the right to choose what test(s)

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Breath Alcohol Results

- The Intoxilyzer does NOT tell you how much alcohol the subject consumed
- The Intoxilyzer measures the ethanol concentration of the subject's breath

Alcohol Concentration Curve

- It can NOT tell if their alcohol concentrations is rising or falling.
- Duplicate subject tests do NOT determine where a person is on the alcohol curve.

Intoxication vs Impairment

<table>
<thead>
<tr>
<th>Intoxication</th>
<th>Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Outward signs of drinking</td>
<td>• Measurable decrease in the persons ability to perform a specific task</td>
</tr>
</tbody>
</table>
Alcohol Related Impairment

- Acts as a Central Nervous System (CNS) Depressant
- Continuum of effects
  - Cognitive = the first effects of ethanol are on judgement
  - Sensory
  - Motor
- Death by respiratory arrest

---

Continuum Effects of Alcohol

<table>
<thead>
<tr>
<th>COGNITIVE</th>
<th>SENSORY</th>
<th>MOTOR FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judgment impaired</td>
<td>Near to far vision</td>
<td>Fine muscle control</td>
</tr>
<tr>
<td>Sense of balance disrupted</td>
<td>Near to far vision</td>
<td>Fine muscle control</td>
</tr>
<tr>
<td>Driving often becomes difficult due to slow, decreased reaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task difficulty</td>
<td>Near to far vision</td>
<td>Fine muscle control</td>
</tr>
<tr>
<td>Abilities to discriminate between different stimuli</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brain's ability to integrate information becomes impaired</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thought clarity</td>
<td>Near to far vision</td>
<td>Fine muscle control</td>
</tr>
<tr>
<td>Thought clarity</td>
<td>Near to far vision</td>
<td>Fine muscle control</td>
</tr>
<tr>
<td>Bizarreness of one's own thoughts and perceptions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairment of short-term memory</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Impairment

According to the National Safety Council (NSC), all people are impaired for the task of operating a motor vehicle by the time they reach a 0.08 alcohol concentration.
Significant Ethanol Levels

0.40  "Fatal" dose
0.08  Illegal per se level in most of the US
      All Drivers Impaired (NSC)
0.05  Illegal per se level in Utah
      AMA recommendation
0.04  DOT Rule Offense for CDL
0.02  Impairment begins – Judgement
      DOT screening level
      Illegal per se in Sweden

Divided Attention

• Having to focus on more than one task at the same time:
  • Requires more time to read, recognize, and respond to traffic signs and
    signals
  • Look at fewer sources of information and acquire less total information per
    unit of time

Tolerance

• Results from the chronic use of a drug when a larger dose is needed
  to achieve the desired effect - "the buzz"
  • Impairment occurs without the outward signs of intoxication
  • Absence of "the buzz" does not equate to absence of impairment
Acute Tolerance

- Acute Tolerance within same night of drinking
- Despite this functional tolerance, the person is EQUALLY impaired at points X and Y
- Only their perception is different

Factors Mimicking Alcohol Impairment

- Low alcohol concentration with drugs
- Drugs alone
- Head trauma
- Uncontrolled diabetics

Acetone

- Volatile
- Not an alcohol

- "Fruity" odor of acetone can be detected on the breath of:
  - Uncontrolled diabetics
  - Fasting subjects
- Acetone can be detected by the Intoxilyzer (Interferent Detect)
Review – Ethanol Overview

- CNS Depressant
- Increasing alcohol content impairs, in order
  - Cognitive (Judgement)
  - Sensory
  - Motor
- All persons are impaired for the task of driving at 0.08%
- Uncontrolled diabetes, head trauma, and other drugs may mimic alcohol impairment
- Alcohol content is proportional to water in the body
  - Less water = Higher AC

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Review – Breath Testing Principles

- Henry's Law
  - Fundamental to all breath testing
  - The concentration of a volatile in the air above a liquid is directly proportional to the concentration of that volatile in the liquid
- Blood to Breath ratio - 2100:1
- Deep Lung/Alveolar air

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INTOXILYZER 8000

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INTOXILYZER 9000

- Mouthpiece Storage, Lithium-Ion Battery
- Touch Screen Color Display
- Breath Hose
- Internal Handle
- Mouthpiece Storage or Internal Printer
- Magnetic Card Reader
- Power Button
- Power/Status LED

Infrared (IR) Analysis

- The Intoxilyzer 8000 and 9000 measure the amount of ethanol in a person's breath (BrAC)
  - They measure the decrease in the intensity of the IR light reaching the detector
- The breath alcohol concentration is proportional to the amount of infrared energy absorbed by the ethanol in the breath sample

Intoxilyzer 8000 Sample Chamber

- Detectors

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Approved AZ DPS 01-19-22

1/19/2022
Intoxilyzer 9000 Sample Chamber

- 4 Detectors

Delivering a Breath Sample

- When a subject blows into the instrument, they are replacing the air in the sample chamber with the air from their lungs
- The breath hose & sample chamber are heated, and the temperatures are internally monitored
- Condensation may result in a low reading
**Measurement Comparison**

<table>
<thead>
<tr>
<th>Intoxilyzer 8000</th>
<th>Intoxilyzer 9000</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Wavelengths of infrared light</td>
<td>4 Wavelengths of infrared light</td>
</tr>
<tr>
<td>2 Detectors</td>
<td>4 Detectors</td>
</tr>
</tbody>
</table>

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**Criteria for Admissible Breath Tests**

ARS = 28-1323

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**Criteria for Admissible Breath Tests**

ARS = 28-1323

- Approved breath testing device
- Valid Operator's permit
- Duplicate tests
- Follow an operational checklist
- Instrument in proper operating condition
Criteria for Admissible Breath Tests

ARS § 28-1323

- Approved breath testing device
- Valid Operator’s permit
- Duplicate tests
- Follow an operational checklist
- Instrument in proper operating condition

Approved Breath Testing Devices

- Intoxilyzer 9000, 9000 EN
- Intoxilyzer 8000
- Alcosensor RBT AZ
  - AZ Game & Fish for non-evidentiary use
- Intoxilyzer 9000

Criteria for Admissible Breath Tests

ARS § 28-1323

- Approved breath testing device
- Valid Operator’s permit
- Duplicate tests
- Follow an operational checklist
- Instrument in proper operating condition
Valid Operator Permit

- Issued by the Department of Public Safety
  - Attend entire Operator class
  - Complete written and practical tests
- Valid for 5 years
- Online renewal

Criteria for Admissible Breath Tests

AR5 § 28-1323

- Approved breath testing device
- Valid Operator’s permit
- Duplicate tests
- Follow an operational checklist
- Instrument in proper operating condition

Duplicate Tests Requirements

- Deprivation Period
- Two consecutive subject breath tests
- Provide a reasonable opportunity for an independent test
Deprivation Period

• At least a 15-minute period immediately prior to a quantitative, duplicate test during which the subject has not ingested any alcoholic beverages or other fluids, vomited, eaten, smoked or placed any foreign object in the mouth
  • R13-10-101.8
• Ensure the mouth is clear before beginning
• Can be conducted under the officer’s indirect attention

Deprivation Period

• A safeguard against mouth alcohol (Invalid Sample)
• If anything violates the deprivation period, start a new deprivation period
• The Intoxilyzer 8000 does NOT record the 15-minute deprivation period – fill out on Gs and note who performed it
• The Intoxilyzer 9000 verifies and records the length of the deprivation period and will begin a countdown timer if it has not been a full 15 minutes – note who performed it on Gs

Duplicate Tests  R13•10•104.C

• Two tests must be within 5-10 minutes apart
  • Intoxilyzer is programmed with a 5 minute wait
• Two consecutive tests within 0.020 agreement of each other
• A safeguard against mouth alcohol (Invalid Sample)
Reasonable Opportunity

- Subjects must be given an opportunity to arrange for their own independent test
- Reasonable opportunity is providing them access to a phone and phone directory or internet access

Duplicate Breath Test Advisory

- Duplicate Breath Test Advisory should be read to each defendant
- A signed acknowledgement of the defendant's right to an independent test should be obtained
Criteria for a Valid Breath Sample

- H: Hard enough blow = minimum pressure/flow
- E: Enough quantity blown = minimum volume
- L: Long enough blow = minimum time
- L*: Level slope is reached while blowing
  - Another safeguard against mouth alcohol (Invalid Sample)

Ethanol Level

Level Slope

Time

Criteria for a Valid Breath Sample

When all 4 criteria have been met:

- A zero will appear before the decimal of the breath alcohol value
- The breath alcohol value will change to red on the 9000
  - 9.258
- If all 4 criteria are not met, it will display Deficient Sample
- If subject does NOT blow, it will display No Sample Given on 9000
**Duplicate Test Examples**

- Breath Sample 0.105
- 5 minute wait
- Breath Sample 0.130
- 5 minute wait
- Breath Sample 0.131
- “Successfully Completed Test Sequence”

- Breath Sample 0.105
- 5 minute wait
- Breath Sample 0.130
- 5 minute wait
- Breath Sample 0.100
- “Not a Successfully Completed Test Sequence” (no 0.020 agreement)
- Start a new test

---

**Criteria for Admissible Breath Tests**

ARS = 28-1323

- Approved breath testing device
- Valid Operator's permit
- Duplicate tests
- Follow an operational checklist
- Instrument in proper operating condition

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**8000 Checklist**

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9000 Checklist

Criteria for Admissible Breath Tests

ARS ≅ 28-1323

• Approved breath testing device
• Valid Operator's permit
• Duplicate tests
• Follow an operational checklist
• Instrument in proper operating condition

ARS ≅ 28-1323.5

The device used to conduct the test was in proper operating condition. Records of periodic maintenance that show that the device was in proper operating condition are admissible in any proceeding as prima facie evidence that the device was in proper operating condition at the time of the test. Calibration checks with a standard alcohol concentration solution bracketing each person's duplicate breath test are one type of records of periodic maintenance that satisfies the requirements of this section. The records are public records.
Validation at Time of Testing

- The Intoxilyzer performs calibration checks and diagnostic checks at the time of the subject test.
  - Performed before and after a subject test (bracketing)
  - Performed by the Operator
- Additionally, the QAS performs testing that checks the calibration, diagnostics, and operation of the instrument.

Calibration Checks

- Regulations require that the Calibration Checks of breath testing devices must meet an acceptable accuracy limit of ± 10 % or ± 0.01 g/210L of breath whichever is greater.
- Calibration Checks are conducted by the Operators and the Quality Assurance Specialists through the testing sequence.
- Calibration is only done by laboratory personnel.

Calibration Check Ranges

What are the lowest and highest acceptable readings for a 0.100 standard?

* ± 10 %
  0.090 – 0.110
* ± 0.01 g/210L
  0.090 – 0.110
Review - Admissibility

- Instruments for breath testing must be approved
- Operator Permit issued by DPS (valid for 5 years)
- Duplicate Tests
  - 15-minute deprivation period prior to testing (no eating/drinking/vomiting)
  - 2 consecutive breaths, 5-10 minutes apart, within 0.020 of each other
  - Provide a reasonable opportunity for an independent test
  - Duplicate Breath Test Advisory
- Follow the G-3 checklist for the 8000 and the I-4 checklist for the 9000
- Successful calibration checks show the instrument is in proper operating condition.

8000 Display Messages During Testing

- Standby or Ready Mode
- Push button to start
- Evidentiary Test?
- Please swipe Operator card
- Displays card information
  - Officers name, badge & agency
- Is Info Correct?
- AZ Mag License Y/N?
- Edit Info Y/N?
- 15 Min Deprivation? Y/N

8000 Display Messages During Testing

- Air Blank
- Diagnostics
- Air Blank
- Reference
- Calibration
- Air Blank
- Reference
- Please Blow
- Air Blank
- Please Wait with 5 minute countdown
9000 Display Messages During Testing

- Standby (yellow button) or Ready Mode (green button)
- Push green "START" button
- Evidentiary Test?
- Push green "√" button
- Method of input – swipe or scan
- Please swipe/scan card
- Displays card information

- Push green "√" button
- Driver's License Input – type, swipe, or scan (last 2 only for AZ)
- Push grey "button to view information
- Deprivation start time
- Select "Review" or "Continue"

Data Input Comparison

Intoxilyzer 8000
- Magnetic swipe card
- Built-in keyboard

Intoxilyzer 9000
- Magnetic swipe card
- Touch screen keyboard
- External USB keyboard
- 2-D barcode scanner
Magnetic Swipe Card

- Swipe card with magnetic stripe down and facing away from you
- If swiped correctly, three beeps will sound
- Re-swipe if necessary

9000 Optional 2-D Bar Code Scanner

- When prompted, select the bar code scanner icon for data entry
- Scan driver’s license

8000 Subject Information

- Last Name
- First Name
- Middle Initial
- Date of Birth
- Sex
- Subject Weight
8000 Subject Information

- Enter middle initial with no period
- If no middle name, hit enter
- Enter DOB using MMDDYYYY format
  - September 10, 1975 = 09101975
- Enter Sex as M or F

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9000 Subject Information

- Last Name*
- First Name*
- Middle Name
- Driver’s License #
- Gender*

* Date of Birth*
* Age* (auto-populates)
* Weight*
* State of Issue
* Driver’s License Expiration

* Mandatory fields

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9000 Subject Information

- Enter DOB using MMDDYYYY format
  - September 10, 1975 = 09101975
- Enter Gender as M, F or O
How to Enter a Practice Test

- First name: “Test”
- Last name: “Test”
- No entry for middle name

Diagnostics

- If any of the diagnostics fail, attempt another test
- If the error repeats, leave the instrument ON, place an “Out of Service” sign on it, and contact the OAS

Date or Time Not Correct

If the date and/or time are incorrect:

- Proceed with the test
- Document the correct date and/or time
- Notify the OAS so they can update it
Mouthpiece

• The 8000 will **NOT** prompt you when it's time to insert and remove the mouthpiece
• The 9000 will prompt you when it's time to insert and remove the mouthpiece – you must push the blue button to continue
• Failure to remove the mouthpiece could damage the instrument or affect the subsequent air blanks or calibration checks

Printing Comparison

<table>
<thead>
<tr>
<th>Intoxilyzer 8000</th>
<th>Intoxilyzer 9000</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Internal thermal printer</td>
<td>• Extra wide internal thermal printer</td>
</tr>
<tr>
<td>• Parallel port for external printer</td>
<td>• USB for external printer</td>
</tr>
</tbody>
</table>

Power Comparison

<table>
<thead>
<tr>
<th>Intoxilyzer 8000</th>
<th>Intoxilyzer 9000</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 110 VAC or 220 VAC</td>
<td>• 110 VAC or 220 VAC</td>
</tr>
<tr>
<td>• 12 VDC</td>
<td>• 12 VDC</td>
</tr>
<tr>
<td>• <strong>No</strong> battery backup</td>
<td>• Battery backup</td>
</tr>
</tbody>
</table>
9000 Backup Battery

Review – 8000 vs 9000
- Infrared Light is used to determine breath alcohol content
  - When less alcohol is present, more infrared light reaches the detector
  - With higher alcohol content, decreased infrared light reaches the detector
- 8000 • 2 detectors
  9000 • 4 detectors
- Testing bracketed by calibration checks and diagnostic checks

Review – 8000 vs 9000
- Data entry: Keyboard and Mag Stripe Reader
  - 9000 • USB ports for external keyboard or a-D scanner
- Powered by 120V, 240V, or 12V DC
  - 9000 • Battery Backup
- Documentation of Deprivation Period
  - 8000 • Record deprivation period on G-1
  - 9000 • Deprivation start time entered on instrument
Duplicate Test Demonstration
ARE YOU IN...
CONTROL?

8000
Successful Test
(Internal Printer)

8000
Not a Successful Test
(Internal Printer)
9000
Successful Test
(External Printer)

9000
Not a Successful Test
(Internal Printer)

Possible Exception Messages

- Invalid Sample
- Deficient Sample
- RFI Detected
- No 0.020 Agreement
- Interferent Detect
- Ambient Fail
- Purge Fail

- Calibration Check Out of Tolerance
- Range Exceeded
- Improper Sample
- Sequence Aborted
- Diagnostic Fail
- Unstable Signal
Mouth alcohol is the residual amount of alcohol in the mouth after consumption.

Instrument software is a safeguard against mouth alcohol (Invalid Sample).

If "retest" button is selected, the Intoxilyzer 9000 will automatically start a 15-minute countdown for the new deprivation period.

**Invalid Sample (Mouth Alcohol)**

- Rapid rise and then fall
- Mouth alcohol is the residual amount of alcohol in the mouth after consumption.
- Instrument software is a safeguard against mouth alcohol (Invalid Sample).

**8000 Invalid Sample (Mouth Alcohol)**

<table>
<thead>
<tr>
<th>Test</th>
<th>g/L</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>13:55:33</td>
</tr>
<tr>
<td>Subject Test</td>
<td>XX*</td>
<td>13:55:48</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>13:56:23</td>
</tr>
</tbody>
</table>

*Invalid Sample - Begin new deprivation period

**9000 Invalid Sample (Mouth Alcohol)**

<table>
<thead>
<tr>
<th>Test</th>
<th>g/L</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>10:49:07</td>
</tr>
<tr>
<td>Diagnostic Test</td>
<td>PASS</td>
<td>10:46:42</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>10:47:19</td>
</tr>
<tr>
<td>Calibration Chk</td>
<td>0.098</td>
<td>10:47:41</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>10:48:20</td>
</tr>
<tr>
<td>Subject Test 1</td>
<td>IMP*</td>
<td>10:48:43</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>10:49:25</td>
</tr>
</tbody>
</table>

*Invalid Sample - Begin new deprivation period

**EXCEPTION MESSAGES**

* Invalid Sample - Begin new deprivation period

If "retest" button is selected, the Intoxilyzer 9000 will automatically start a 15-minute countdown for the new deprivation period.
Deficient Sample

- During the "Please Blow" period, the subject has an unlimited number of chances to deliver an acceptable breath sample.
- The instrument allows a 3 minute time period during the "Please Blow" period.
- If the subject refuses to blow into the 8000 a result of "DEF*" will print along with "Deficient Sample".
- If the subject refuses to blow into the 9000 a result of "NSG" will print along with "No Sample Given".

8000 Deficient Sample

If the subject attempts to deliver a breath sample, the last value obtained will print. This is NOT a valid test result.

9000 Deficient Sample

If the subject attempts to deliver a breath sample, the last value obtained will print. This is NOT a valid test result.
### Radio Frequency Inference

<table>
<thead>
<tr>
<th>Sample</th>
<th>RFI</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>07:20:08</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>07:21:06</td>
</tr>
</tbody>
</table>

*RFI Detect

### Exception Messages

* RFI Detect

---

### No 0.02 Agreement

<table>
<thead>
<tr>
<th>Sample</th>
<th>Alcohol</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>07:15:36</td>
</tr>
<tr>
<td>Blank</td>
<td>0.000</td>
<td>07:15:36</td>
</tr>
<tr>
<td>Blank</td>
<td>0.076</td>
<td>10:05:00</td>
</tr>
<tr>
<td>Blank</td>
<td>0.000</td>
<td>10:05:59</td>
</tr>
<tr>
<td>Blank</td>
<td>0.000</td>
<td>10:05:59</td>
</tr>
<tr>
<td>Blank</td>
<td>0.102</td>
<td>10:10:57</td>
</tr>
<tr>
<td>Blank</td>
<td>0.000</td>
<td>10:11:47</td>
</tr>
<tr>
<td>Blank</td>
<td>0.000</td>
<td>10:12:06</td>
</tr>
<tr>
<td>Blank</td>
<td>0.000</td>
<td>10:12:06</td>
</tr>
<tr>
<td>Blank</td>
<td>0.000</td>
<td>10:12:06</td>
</tr>
<tr>
<td>Blank</td>
<td>0.000</td>
<td>10:14:01</td>
</tr>
</tbody>
</table>

* No 0.02 Agreement

### Interferent Detect

- The instrument can detect volatiles other than ethanol.
- Uncontrolled diabetics expiring acetone will trigger this exception message
- "Huffing" or inhalants may also trigger this exception message
- Even if alcohol is present, a value will not be given
- Get medical attention and a blood sample for ethanol analysis
- A breath sample from a controlled diabetic will not cause this exception message
Interferent Detect

Test | g/210L | Time
--- | --- | ---
Air Blank | 0.000 | 16:36:59
Subject Test 1 | 2.57 | 16:39:23
Air Blank | 0.000 | 16:40:04

*Interferent Detect

Purge Fail vs. Ambient Fail

- A purge fail can occur during an air blank after an analytical test
  - Subject test
  - Calibration check

- An ambient fail can occur during an air blank at any other time during the testing sequence

Purge

Test | g/210L | Time
--- | --- | ---
Air Blank | 0.000 | 10:07:07
Diagnostic Test | PASS | 10:07:12
Air Blank | 0.000 | 10:08:19
Calibration Chk | 0.094 | 10:08:41
Air Blank | 0.000 | 10:09:21
Subject Test 1 | 0.008 | 10:09:45
Air Blank | PUR* | 10:10:26
Air Blank | 0.000 | 10:11:16

*Purge Fail

EXCEPTION MESSAGES
* Purge Fail
Ambient

<table>
<thead>
<tr>
<th>Test</th>
<th>g/210L</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Blank</td>
<td></td>
<td>10:05:33</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>10:06:12</td>
</tr>
</tbody>
</table>

*Ambient Fail

Exception Messages
  * Ambient Fail

Calibration Check Out of Tolerance

±10% or 0.01 (0.090-0.110)

<table>
<thead>
<tr>
<th>Test</th>
<th>g/210L</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air blank</td>
<td>0.000</td>
<td>10:31:32</td>
</tr>
<tr>
<td>Diagnostic Test PASS</td>
<td></td>
<td>10:32:07</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>10:32:44</td>
</tr>
<tr>
<td>Calibration Chk 0.088*</td>
<td></td>
<td>10:33:06</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>10:33:45</td>
</tr>
</tbody>
</table>

*Calibration Check Out of Tolerance

Exception Messages
  * Calibration Check Out of Tolerance

Range Exceeded

<table>
<thead>
<tr>
<th>Test</th>
<th>g/210L</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Blank</td>
<td></td>
<td>10:05:45</td>
</tr>
<tr>
<td>Diagnostic Test PASS</td>
<td></td>
<td>10:06:20</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>10:06:58</td>
</tr>
<tr>
<td>Dry Standard 1 0.101</td>
<td></td>
<td>10:07:19</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>10:07:59</td>
</tr>
<tr>
<td>Subject Test 1 RND*</td>
<td></td>
<td>10:08:20</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>10:09:19</td>
</tr>
</tbody>
</table>

*Range Exceeded

Intox 8000 range is 0.000-0.600
Intox 9000 range is 0.000-0.650
Improper Sample  
(Blew at the Wrong Time)

<table>
<thead>
<tr>
<th>Test</th>
<th>g/210L</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Blank</td>
<td>0.600</td>
<td>10:41:09</td>
</tr>
<tr>
<td>Diagnostic Test</td>
<td>PASS</td>
<td>10:41:46</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.090</td>
<td>10:42:23</td>
</tr>
<tr>
<td>Calibration Chk</td>
<td>0.097</td>
<td>10:42:44</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>10:43:24</td>
</tr>
<tr>
<td>Subject Test 1</td>
<td>0.029</td>
<td>10:43:48</td>
</tr>
<tr>
<td>Air Blank</td>
<td>INF</td>
<td>10:44:05</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.600</td>
<td>10:44:42</td>
</tr>
</tbody>
</table>

*Improper Sample

**Exception Messages**

*Improper Sample

Sequence Aborted (8000 Only)

<table>
<thead>
<tr>
<th>Test</th>
<th>g/210L</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Blank</td>
<td>ABT</td>
<td>14:36:59</td>
</tr>
<tr>
<td>Air Blank</td>
<td>0.000</td>
<td>14:37:26</td>
</tr>
</tbody>
</table>

*Sequence Aborted

Pressed green start button after the testing sequence began

Additional Exceptions

- Diagnostic Fail
- Unstable Signal
Reprinting a Test - 8000

- The Intoxilyzer 8000 allows the operator to reprint a subject test only within 24 hours of initial test.
- To reprint a test:
  - Hit "Esc" button twice then swipe Operator permit
  - Select "R" for "24 hour test recall"
  - Press "Enter" to select displayed record date
  - Display will show the number of records for that date then press "Enter" to get to the individual record display
  - Use "Page UP" or "Page Down" buttons to scroll through the chronological records
  - Press "Enter" to reprint record of interest

Reprinting a Test - 9000

- The Intoxilyzer 9000 allows the operator to reprint a subject test anytime.
- To reprint a test:
  - Touch the blue "Options" button
  - Select the mag card button and swipe Operator permit
  - Enter the known information to find the Analytical Report you want
  - Leave any field blank you do not wish to include in your search criteria
  - Select "Continue" to locate the matching records
  - Select the blue button next to the record you want
  - Press the print button to print the Analytical Report

Scenarios

- If you get...
  - Invalid Sample
  - INV (go00) or XXX (Booo)
  - No subject test value on the report
- What could it be?
  - Mouth Alcohol
- Can this be used as a valid test?
  - NO, "Not a Successfully Completed Test Sequence"
- What do you do?
  - Start a new deprivation period
  - Perform duplicate tests
  - 9000 will do an automatic 15 minute deprivation period if the "retest" button is selected
Scenarios

- If you get...
  - Interferent Detect
  - INT

- What could it be?
  - Acetone, isopropanol, etc.

- Can this be used as a valid test?
  - NO, "Not a Successfully Completed Test Sequence"

- What do you do?
  - Get medical attention
  - Draw blood

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Scenarios

- If you get...
  - RFI Detect
  - RFI

- What could it be?
  - Radio frequency interference from a radio transmission or cell phone (incoming or outgoing)

- Can this be used as a valid test?
  - NO, "Not a Successfully Completed Test Sequence"
  - Testing will end if RFI is detected

- What do you do?
  - Remove the source of the RFI
  - Perform duplicate tests

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Scenarios

- If you get...
  - Deficient
  - DSF
  - No Sample Given (g000)
  - NSG (g000)

- What could it be?
  - Subject did not meet the minimum requirements for a valid test
  - Refusal/Did not blow

- Can this be used as a valid test?
  - NO, "Not a Successfully Completed Test Sequence"

- What do you do?
  - Perform another test
  - If Deficient on first breath sample, a Successful Test can still be accomplished

120
Scenarios

• If you get...
  • Range Exceeded
  • RNG

• What could it be?
  • Breath alcohol above 0.600 (BAC) or 0.650 (g/100ml)

• Can this be used as a valid test?
  • NO, “Not a Successfully Completed Test Sequence”

• What do you do?
  • Get medical attention
  • Draw blood

---

Scenarios

• If you get...
  • Ambient fail
  • AMB
  • Purge Fail
  • PUR

• What could it be?
  • Small room
  • Subject too close to breath hose
  • Mouthpiece left on breath hose

• Can this be used as a valid test?
  • NO, “Not a Successfully Completed Test Sequence”

• What do you do?
  • Check the surroundings for the cause and make adjustments
  • Perform another test

---

Scenarios

• If you get...
  • Improper Sample
  • IMP

• What could it be?
  • Subject blew at some other time than "Please Blow"

• Can this be used as a valid test?
  • NO, “Not a Successfully Completed Test Sequence”

• What do you do?
  • Perform another test
  • Make sure the subject is only blowing during the "Please Blow"
Scenarios

- For all scenarios:
  - Retain the printouts of all tests

Breath Test Operator

Review

- What is Henry’s Law?
  - Henry’s law is the fundamental law to all breath testing
  - The amount of alcohol, a volatile, in a liquid will correspond to the amount of alcohol in the air space above the liquid
  - What is the relationship between blood and breath, in terms of alcohol? 2100:1
Review

• Who performs calibration checks on the Intoxilyzer?
  Operators and QAS

• What is the first thing affected at low alcohol concentrations?
  Judgement

Review

• What are the three safeguards against mouth alcohol?
  • 15-minute Deprivation Period
  • Duplicates within 0.020
  • Level Slope

• How long is the Operator permit valid?
  5 years

Review

• What does alveolar breath refer to?
  Deep lung air

• Prior to administering duplicate test, what should be read to the subject?
  Duplicate Breath Test Advisory
Review

• T/F Alcohol is a stimulant.
   False

• T/F Alcohol is a drug.
   True

To prevent condensation

• Why are the breath hose and sample chamber heated?
  To prevent condensation

• What would happen to the alcohol result if they weren't heated?
  The result would be lower than the true alcohol concentration

Review

• How often are calibration checks run?
  • Before and after each subject test
  • Every 31-Days

• What are the two accuracy limits for the calibration checks?
  • ± 10% or
  • 0.010, whichever is greater
Review

• Does the Intoxilyzer 8000 print the time of the deprivation period?
  No

• Does the Intoxilyzer 9000 print the time of the deprivation period?
  Yes

133

Review

• Is it important to keep all copies of the printouts as judicial evidence?
  Yes

• Does the duplicate test determine where a person is on a concentration curve?
  No

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Review

• Do you need to follow the operational checklist when conducting a breath test?
  Yes

• What is the form of this check list for the 8000 called?
  G-1

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Review

- What is the form of this check list for the 9000 called?
- What should you do if your test has an Interferent Detect exception?
  Seek medical attention and get a blood draw

Review

- T/F. Anyone who exhibits symptoms of intoxication is drunk.
  False

- What is a deprivation period?
  A period of at least 15 minutes immediately prior to a breath test where nothing is put into or comes out of the mouth of the subject

Review

- If a man and a woman (weighing the same) each have 4 shots of vodka, who will have the higher alcohol concentration?
  The woman

- Why?
  She has less body water than the man does
Review

- What is the maximum value that the Intoxilyzer 8000 can measure?
  0.600 above this will give a "Range Exceeded"

- What is the maximum value that the Intoxilyzer 9000 can measure?
  0.650 above this will give a "Range Exceeded"

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Review

- Will the Intoxilyzer complete a successful test if there is a problem with the instrument?
  No

- What prints at the bottom of the Test for a successful duplicate test?
  Successfully completed test sequence

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Review

- What type of light is used in the Intoxilyzer?
  Infrared light

- Does the Intoxilyzer use the differences in infrared light detected to determine the alcohol concentration?
  Yes

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Review

- What four criteria must be met for a valid breath sample?
  The subject must blow long enough, hard enough, provide enough volume, and reach a level alcohol slope.

- What do you do if the display on the instrument shows the wrong time or date?
  Perform the test, note the correct time and/or date on the paperwork, and notify a QAS.

Review

- How many detectors does the Intoxilyzer 8000 use to analyze a sample?
  Two

- How many detectors does the Intoxilyzer 9000 use to analyze a sample?
  Four

Review

- How is data entry accomplished on the Intoxilyzer 8000?
  Data entry is accomplished using the magnetic stripe reader or the attached keyboard.

- How is data entry accomplished on the Intoxilyzer 9000?
  Data entry is accomplished using the magnetic stripe reader, the on-screen keyboard, or, if attached, an optional USB keyboard or optional 2D barcode scanner.
Review

• If the exception message "Sequence Aborted" is displayed, what does that mean? The start test button was pressed at the wrong time.

• What prints at the bottom of a test if the duplicate test is NOT completed? Not a successfully completed test sequence

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Review

• If an "RFI Detect" is displayed, what is the corrective action? Remove the source of the RFI and perform another test

• What does the message "Invalid Sample" indicate? The instrument has detected a rise, then fall in alcohol, indicating the presence of mouth alcohol

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Review

• What is a breath test measuring? The concentration of alcohol in a person's breath

• What agreement must the two consecutive tests be within? 0.020

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Performance Objectives

- Explain the effects of alcohol
- Explain the physiological principles to breath alcohol testing
- Explain the basic working of the operation of the instrument(s)
- Explain the differences between the Intoxilyzer 8000 and 9000

Performance Objectives

- Identify the criteria for an admissible breath test and a valid breath sample
- Identify exception messages for the instrument(s)
- Perform a successfully completed test sequence(s)

Thank you