
WEST VIRGINIA STATE POLICE

LABORATORY FIELD MANUAL

8th Edition

The **Toxicology Section** performs alcohol and drug analysis on blood and urine samples taken from subjects believed to be driving under the influence. The samples submitted to the lab are analyzed using Gas Chromatography for alcohol and Gas Chromatography/Mass Spectrometry for drug analysis. The West Virginia Department of Health has approved Gas Chromatography as the method for secondary chemical testing for alcohol in blood and urine.

The Toxicology Section will perform drug screens on blood or urine specimens at the request of the arresting officer or at any time the Blood Alcohol Level is below 0.10% Blood Alcohol by weight.

Please remember that the State Police Toxicology Laboratory will only perform analysis on samples submitted from subjects that are living. All samples from deceased persons should be sent to the Office of the Chief Medical Examiner at the following address:

Office of the Chief Medical Examiner
701 Jefferson Road
South Charleston, WV 25309
ATTN: Toxicology
(304) 558-3923

GLOSSARY

Alcohol – The unique chemical compound, ethyl alcohol, commonly found in consumable beverages. Also, the chemical class of compounds to be avoided as skin antiseptics.

Forensic Alcohol Analysis – The practical application of specialized devices, instruments and methods by trained laboratory personnel to measure the concentration of Ethyl Alcohol in samples of blood, breath, and urine of persons involved in traffic accidents and violations.

Forensic Alcohol Analyst – A person employed by the Forensic Toxicology Section who performs the technical procedures of Forensic Alcohol Analysis and Forensic Drug Toxicology.

“Sample” or “Specimen” – A representative portion of breath, blood, urine, or other material taken for the purpose of measuring the alcohol and/or drug concentration.

Gas Chromatograph – Instrument used in identifying and quantitating ethanol and other volatiles.

Serum – The liquid portion of a whole blood sample with the red and white blood cells removed. The Toxicology Section uses a division factor of 1.16 to convert a serum alcohol result to Blood Alcohol % by weight.

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Drug Screen – A preliminary chemical test that indicates a class of drugs present in a sample.

% - Grams of alcohol per 100 milliliters of liquid unless otherwise specified.

dL - Deciliter – 1 deciliter is equivalent to 100 milliliters.

GC/MS – (Gas Chromatograph/Mass Spectrometer) Instrument used in identifying and quantitating the amount of drugs or their metabolites in biological samples.

Metabolite – By-products created by the body's metabolism of the parent drug that was ingested.

Concentration – The weight amount of alcohol contained in a unit volume of liquid or a unit volume of gas under specified conditions of temperature and pressure.

11-nor-delta 9 tetra hydro cannabinol-9-carboxylic acid – Metabolite of THC; an active ingredient in marijuana.

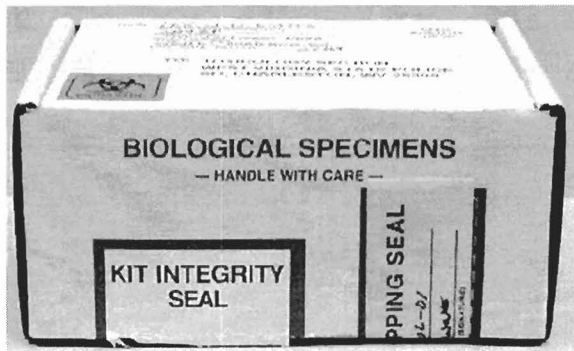
Proof – Twice the alcohol content by volume percent: 20%=40 proof

CHEMICAL TESTS FOR INTOXICATION

Blood Alcohol Tests

Blood must be collected in accordance with West Virginia Department of Health Rules and Regulations Section 8.2 (see below).

Blood Alcohol Collection Kits should be used if available. The Commission on Drunk Driving Prevention provides these kits to local hospitals. Use of the Blood Alcohol Collection Kit assures complete compliance with the West Virginia Department of Health Rules and Regulations. These kits contain labels, seals, vacuum tubes, alcohol free swabs, instructions for the technician, and consent forms. The kit also contains a pre-addressed mailing label and serves as a mailing carton.



Blood Collection Kit

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Collecting and Handling of Samples

1. Blood Samples

Blood samples are collected by veinipuncture from living individuals as soon as feasible after the alleged offense. These samples should only be taken by persons authorized by the West Virginia Department of Health Rules and Regulations: Title 64 Series 10.

Section 8.2: The methods of extracting blood for alcohol analysis shall be as follows:

- a. The blood shall be drawn only by a licensed doctor of medicine or osteopathy, or by a registered professional nurse, or by a trained medical technician at their place of employment.
- b. Sterile hypodermic needles and syringes shall be used. Sterile disposable units are recommended.
- c. The skin shall not be disinfected with ethyl alcohol. The use of non-alcoholic antiseptics, those that do not contain ethyl alcohol including 1-1000 aqueous solution of mercuric chloride, aqueous benzalkonium chloride (zephiran), aqueous merthiolate, or other suitable aqueous disinfectant is acceptable.
- d. The container (tube or vial) must be clean and dry, and have an inert, airtight stopper.

**** Please have medical personnel discard the needle used for the drawing of the blood sample.**

2. Collection Procedures (Blood)

a. Medical Personnel

Step 1. Remove all components from Kit box.

Step 2. If applicable, fill out all information requested on consent form. Then have subject sign where indicated.

Step 3. Cleanse the site with alcohol free prep pad provided. Using needle, needle holder and tubes provided, withdraw Blood Specimens from subject, allowing both tubes to fill to maximum volume.

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If Applicable

Step 4. Fill out information requested on Blood Collections Report.

CONSENT FORM	
Date: _____	Time: _____ am
Name of Subject (print): _____	
I HAVE GRANTED PERMISSION FOR BLOOD SAMPLES TO BE TAKEN.	
Signature of Subject: _____	

BLOOD COLLECTOR'S REPORT	
Subject's Name: _____	
Address: _____	
Place of Blood Collection: _____	
Date: _____	Time: _____ am
I HEREBY CERTIFY THAT I DREW BLOOD SAMPLES FROM THE ABOVE NAMED PERSON	
Signature: _____	
Inspector/Collector: _____	
Date: _____	Time: _____ am
I HEREBY CERTIFY THAT I HAVE WITNESSED THE ACTUAL WITHDRAWAL OF BLOOD FROM THE ABOVE SUBJECT BY THE PERSON WHOSE SIGNATURE APPEARS ABOVE.	
Signature: _____	
Witness: _____	
Date: _____	Time: _____ am

Note: Immediately after blood collection, assure proper mixing of anticoagulant powder by slowly and completely turning the blood tube several times.

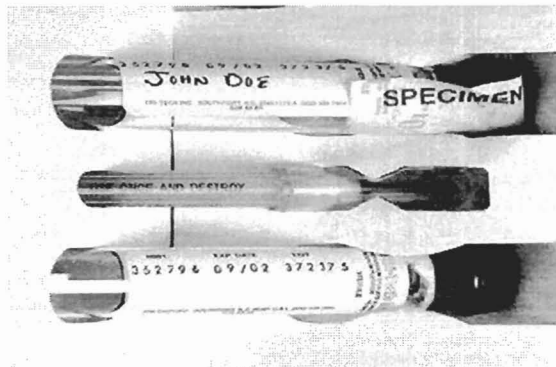
****DO NOT RETURN USED NEEDLE AND PREP PAD TO KIT BOX****

b. Investigating Officer

Step 5. Fill out any information requested on specimen seal and have collector initial seal where indicated.

Step 6. Remove backing from specimen seal. Place the center of the specimen seal to the blood tube rubber stoppers, then press the ends of the seal down the sides of the blood tube.

Step 7. Return both blood tubes filled, sealed, and initialed back to the holder.



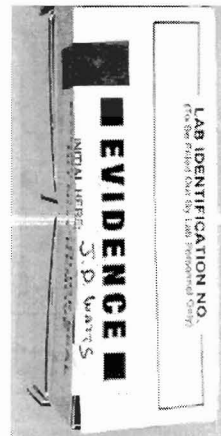
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Step 8. Fill out any information requested on the investigating officer's report on the holder. Affix the evidence seal where indicated on the inside box/container.

INVESTIGATING OFFICER'S REPORT			
NAME OF SUBJECT	JOHN DOE		
OFFENSE	DUI	CASE NO.	1234
DATE OF INCIDENT	7-2-01	TIME	1600 AM
COUNTY	Kanawha		
INVESTIGATING OFFICER	J.D. WATTS		
DEPARTMENT	WVSP		
DATE BLOOD DRAWN	7-2-01	TIME	1700 AM
LOCATION OF DRAWING	CHARLESTON BOWERS		
BLOOD DRAWN BY	ERIN FEZZOLI RN		
CHAIN OF POSSESSION			
RECEIVED FROM	ERIN FEZZOLI		
BY	TDR J.D. WATTS		
DATE	7-2-01	TIME	1705 AM
RECEIVED FROM			
BY			
DATE		TIME	AM PM
RECEIVED FROM			
BY			
DATE		TIME	AM PM



Step 9. Place the sealed specimen holder inside a ziplock bag. Squeeze out excess air and close the bag.

NOTE: DO NOT REMOVE LIQUID ABSORBING SHEET FROM ZIPLOCK BAG

Step 10. Return the ziplock bag containing the sealed specimen holder to the kit box and close lid. Remove the backing from the kit box shipping seal and affix it to the box where indicated.



FROM: TDR J.D. WATTS (NAME OF POLICE OFFICER)	AFFIX POSTAGE HERE
WVSP ORGANIZATION	
111 Jefferson Road CITY STREET ADDRESS	
South Charleston WV CITY, STATE, ZIP CODE 25309	
TO: TOXICOLOGY SECTION WEST VIRGINIA STATE POLICE SO. CHARLESTON, WV 25309	

Step 11. Fill out any information requested on the box top.

Step 12. Fill out a Case Submission form DPS#53. (If a specific drug is suspected, note this on your case submission.)

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Step 13. Place the Case Submission form into a business size envelope on the **OUTSIDE** of the mailing container and address it to the Toxicology Section.

Step 14. Mail or personally deliver the kit in a **SEALED** condition to the laboratory for analysis as soon as possible. Any sample submitted to the laboratory not suitable for analysis (i.e. broken vial or sample completely clotted) will not be analyzed.

3. Urine Alcohol Tests

Urine samples must be collected in accordance with the West Virginia Department of Health Rules and Regulations, Section 9.2. Section 9.2: The methods of extracting urine for **ALCOHOL** analysis shall be as follows:

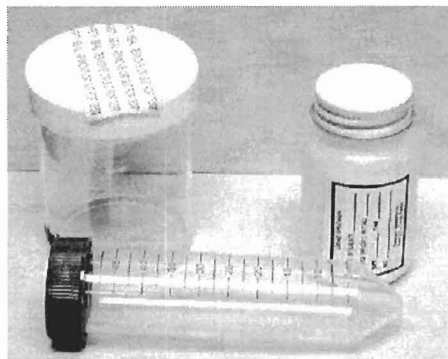
Two urine samples should be collected.

- a. The individual shall empty his or her urinary bladder. If your request is for alcohol content only, you may discard the first specimen. However, if you are going to request drug testing, retain the first sample and label it properly.
- b. Following a twenty minute observation period as described in 9.2c, the individual shall void a sample of his or her urine into a clean, dry container with an inert cap. The container shall be capable of holding at least ten milliliters of urine.
- c. An individual being tested shall be under constant observation for a period of twenty minutes before the specimen for alcohol analysis is taken to insure that the individual has nothing in his or her mouth at the time the specimen is taken.

4. Collection Procedures (Urine)

a. Alcohol Sample Collection:

Step 1. Have subject urinate into provided collection container.



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Step 2. Label container with: sample #1, subject's name, date, and time.

Alcohol testing only: discard sample

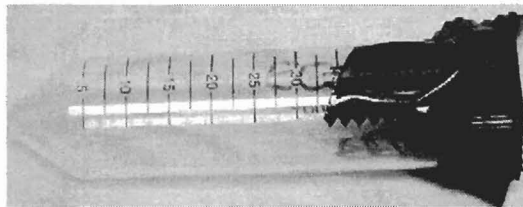
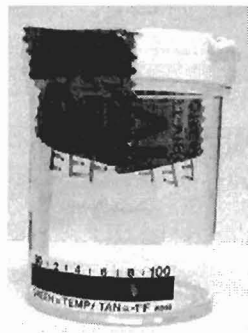
Drug testing: retain sample

Step 3. Wait at least twenty (20) minutes.

Step 4. Obtain second sample – USE A NEW COLLECTION CONTAINER!

Step 5. Label container with: sample #2, subject's name, date, and time.

Step 6. Place lids on containers, tighten securely – Place a seal on the container and initial.



Step 7. Place sample into leak proof plastic bag.

Step 8. Place sample containers into a mailing container. Seal and initial all openings. Mail or deliver specimen to the laboratory.

NOTE: OFFICERS SHOULD REALIZE THAT DRUGS FOUND IN URINE SAMPLES WILL ONLY SHOW THAT THE DRUG WAS USED AT SOME POINT IN THE PAST. TEST RESULTS ARE NOT A GOOD INDICATOR OF INFLUENCE AT THE TIME OF THE INCIDENT.

TOXICOLOGY SPECIMEN COLLECTION KITS

(INCLUDED WITH SEX CRIMES KITS)

If alcohol and drug determinations are requested, always submit both blood and urine specimens.

1. Blood collection steps should be performed only by a physician, registered nurse or trained phlebotomist. Sterile hypodermic needles and syringes shall be used. Sterile disposable units

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are recommended. **The skin shall not be disinfected with ethyl alcohol.** Non-alcoholic antiseptics should be used.

2. In a drug facilitated assault, the likelihood of detecting the drug used to commit the assault diminishes each time the victim urinates; therefore, it is imperative that immediate action to be taken to preserve the evidence.
3. **96-Hour Rule.** In a suspected drug facilitated assault, if the drug was ingested within the last 96-hours (4 days), collect the urine and blood specimens.
4. The provided blood collection vials have expired, replace them with similar unexpired vials from the hospital stock.
5. **If the victim presents with a urine specimen,** label the specimen, seal the specimen, and include the specimen in the Toxicology kit with the one collected by the hospital.
6. **Procedure:**

Remove all of the components from the box. Complete the appropriate enclosed forms: Blood Collection Report, Urine Collection Report, Consent form (blood), and/or Consent form (urine).

If **collecting blood** for either alcohol or drug analysis, collect two vials of blood following standard clinical procedures in “gray top” (potassium oxalate/sodium fluoride) 10 ml tubes. Place the blood tubes in the pouch provided and seal. Return the blood sample to the **Toxicology Collection Kit.**

If **collecting urine for drug analysis,** collect 30 ml to 90 ml of urine using standard clinical procedures in the urine specimen container (max capacity 90 ml). Place the urine specimen container in the ziplock bag provided and seal. Return the urine sample to the **Toxicology Collection Kit.** Seal the kit and affix the Biohazard label to the front of the kit.

SAMPLE RETURN

Blood and urine samples will be returned to the submitting officer along with a report of results. The submitting officer is responsible for proper storage of evidence until a court order for destruction can be obtained.

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ILLEGAL LIQUOR

Alcohol Analysis

The alcohol content of “moonshine” liquors, wines and beers can be determined by the Lab.

1. Submit approximately **4 oz.** of the sample to the Toxicology Section. It is not necessary to bring in large quantities of the sample. A representative sample will suffice. Submit the sample in a sealed, leak proof container.
2. Initial all seals.
3. Hand deliver any items that contain a high alcohol content and are flammable.

The report will be forwarded upon completion of analysis. Due to U.S. Postal Regulations, we can not mail back evidence that is flammable; therefore, it must be picked up in person.

Note: Items that are flammable MUST BE hand delivered to the Laboratory.

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TOXICOLOGY