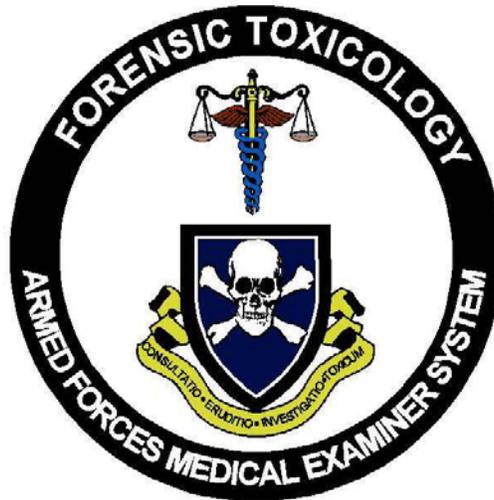


# ARMED FORCES MEDICAL EXAMINER SYSTEM

DIVISION OF FORENSIC TOXICOLOGY



## GUIDELINES FOR THE COLLECTION AND SHIPMENT OF TOXICOLOGY SPECIMENS

October 2015

### **Address for specimen shipment:**

Division of Forensic Toxicology  
Armed Forces Medical Examiner System  
115 Purple Heart Drive  
Dover AFB, Delaware 19902  
(No Weekend Deliveries)

**Phone:** (302) 346-8724, DSN: 366-8724

**Fax:** (302) 346-8822, DSN: 366-8822

**e-mail:** [usarmy.dover.medcom-afmes.mbx.fortox@mail.mil](mailto:usarmy.dover.medcom-afmes.mbx.fortox@mail.mil)

**Website:** [www.afmes.mil](http://www.afmes.mil)

## Mission:

The Division of Forensic Toxicology (DFT), Armed Forces Medical Examiner System (AFMES) is located at Dover AFB, DE. It is the Department of Defense's primary forensic laboratory for performing full spectrum toxicological analysis for:

- 1) Non-fatal Class A, B and C military aircraft, ground and ship (sea) mishaps
- 2) Military aircraft, ground and ship (sea) accidents involving fatalities
- 3) Select autopsies of military or Federal significance
- 4) Biological specimens from AFOSI, CID and NCIS criminal investigations
- 5) Blood alcohol and drug tests in DUI and Drug Facilitated Sexual Assault investigations
- 6) Fitness-for-duty inquiries and selected forensic cases of national interest.

## Case Chain of Custody Documentation:

AFMES Form 18 must be included with each case submission and is available at <http://www.afmes.mil>. Complete and submit a separate form for each case submission (see attachment 2 sample form) and provide details pertaining to the incident/accident. This will assist the toxicologist in selecting the appropriate testing to perform. The completed and signed AFMES Form 18 and other case relevant forms should be sealed in a separate Ziploc plastic bag. Paperwork should be legibly printed or typed. The importance of establishing a proper chain-of-custody, by properly completing the AFMES Form 18, cannot be overstated.

- **A point-of-contact for each case should be provided. Include their printed name, telephone number, FAX number, and an e-mail address in the appropriate box on AFMES Form 18.**
- **Failure to submit a properly completed AFMES Form 18 will delay processing and may result in an incomplete analysis.**

## Sample Submission with **no** Fatalities (Air, Ground & Sea Mishaps):

Grey-top and purple-top vacutainers (or the equivalent) should be used for all blood collections. Hand mix the blood after collection. Urine should be collected in a polypropylene bottle suitable for urine collection; a minimum of 50 milliliters is required. Ensure each specimen container is properly labeled with the member's name, SSN and collection date. Send all samples to the laboratory as soon as possible; it is not necessary to refrigerate or chill samples during shipment. Care should be taken to protect glass containers.

Minimum specimen requirements for submission:

BLOOD:           14 mL NaF (gray top) tubes  
                      7 mL EDTA (purple top) tubes

URINE:           50 mL - 70 mL (no preservative)

**DO NOT USE - SST/CORVAC/Tiger Top tubes for blood collection.**

To ensure integrity of sample collection, direct observation and documentation of the sample collection (i.e. name of observer, date/time of collection) should be maintained by the submitting command.

## Sample Submission with Fatalities (Routine Autopsies, Air, Ground & Sea Mishaps):

Tissue and fluid specimens submitted for toxicological analysis are preferably obtained at autopsy. The pathologist should select the most appropriate and available fluids and tissues for toxicology sample collection. Ensure that suitable containers or tubes are used and fully label prior to tissue collection. When fragmentation of two or more bodies has occurred, the flight surgeon and/or pathologist must ensure that the fragments are accurately identified before being submitted as specific individuals. If this cannot be guaranteed, specimens must be labeled as commingled remains.

When possible please collect and submit the following volumes/weights for testing:

Blood:	All available up to 100 mL (indicate source/location)
Urine:	100 mL (no preservative)
Bile:	All available
Vitreous:	All available
Liver:	100 grams
Brain:	100 - 200 grams
Kidney:	50 grams
Lung:	50 grams
Gastric:	50 grams

- For patients who survive and later expire during a hospital stay, it can be extremely beneficial if the contributor can furnish any ante mortem/admission samples (often stored in a clinical laboratory's refrigerator) along with the postmortem samples. Clearly label the source of all samples (e.g., heart blood or peripheral blood) and clearly differentiate ante mortem from postmortem specimens. In addition, list the date and time when the specimens were collected.
- Prompt collection of specimens is essential to prevent contamination and degradation. All specimens should be refrigerated as soon as possible. No attempt should be made to collect blood, urine or bile by needle puncture if an autopsy is to be performed. Such attempts may result in unsuitable toxicology specimens and contaminate crucial evidence such as body wounds, markings and other prominent features.
- If no fluids or organs can be recovered, 100 grams of muscle (psoas, peri-spinal or deep thigh preferred), and/or fat and red bone marrow should be submitted. In severe crush injuries, the gallbladder will often remain intact, permitting bile collection. Even in the most severely burned or fragmented cases, valuable information can often be obtained from only a few grams of dried blood or tissue (esp. spleen). If in doubt, submit as much tissue as is possible (do not submit fixed tissue for toxicological analysis). All specimens must be labeled with: sample type, decedent's name, SSN and autopsy number. A properly completed AFMES Form 18 (see Attachment 1) must be submitted with each case.

## Sample Submission for Law Enforcement/Command Investigations:

The following types of cases may be submitted to the Division of Forensic Toxicology for toxicological analysis:

- 1) **Criminal Investigations** - AFOSI, CID, NCIS and base security forces
- 2) **Legal Blood Alcohol** - BAC's from DUI, DFSA (drug or alcohol facilitated sexual assaults)
- 3) **Fitness-for-Duty and Probable Cause Testing**

Analyses routinely performed for these types of cases include:

- **Volatiles:** Ethanol, methanol, acetone, huffing agents and other volatile compounds.
- **Drugs of Abuse:** Complete drug screen for commonly abused compounds is available upon request; if use of a specific drug is known or suspected, analysis for that drug should be specifically requested.
- **Synthetic Cannabinoids:** (Spice, K<sup>2</sup> etc.) testing for these compounds are only performed as part of an active criminal investigation. Submissions must include the investigation number (ROI) in addition to the blood or urine sample.
- **Anabolic Steroids:** The division of Forensic Toxicology does not test for these compounds. Analysis for these agents must be coordinated through your Service drug testing laboratories.

Minimum specimen requirements for submission:

BLOOD:            14 mL NaF (gray top) tubes  
                      7 mL EDTA (purple top) tubes

URINE:            50 mL - 70 mL (no preservative)

**DO NOT USE - SST/CORVAC/Tiger Top** tubes for blood collection. Hand mix blood samples upon collection. Ensure each sample container is clearly labeled with the name, collection date and SSN of the individual from whom the sample was collected. When appropriate, direct observation of sample collection is encouraged. It is not necessary to refrigerate or chill samples during shipment.

## Packaging Forensic Samples for Shipment:

### **Non-Fatal Mishap and Investigative Specimen Packaging:**

Specimens should be collected into the appropriate polyethylene bottle (urine) or glass vial (blood). Samples should be shipped in sufficiently sturdy boxes with individual samples containers wrapped in heat-sealed or Ziploc plastic bags with adequate absorbent material to contain leakage. Package blood and urine separately and **do not** freeze. Paperwork should be sealed in a separate plastic bag. Place specimens and paperwork for each case in another larger heat sealed or Ziploc plastic bag. Each large bag will **only** contain specimens from **one** individual (do not package more than one set of patient specimens in each bag). Please ensure packaging is compliant with IATA Packing Instruction 650 detailed in Figure 2.

\*Note that failure to submit a properly completed AFMES Form 18 will delay processing, may result in an incomplete analysis, return of specimens or may cause test results to be sent to the wrong address.

## **Post-Mortem Sample Preservation and Packaging:**

Urine and blood specimens should be collected into the appropriately labeled polyethylene bottle (urine) or glass vial (blood). Bodily fluids, other than blood, should be placed in screw-cap polyethylene containers labeled with the following information: decedent's name, autopsy number, SSN and collection date. Permanent markers are very useful for this purpose. Care must be taken to avoid contaminating specimens with solvents that may be found in some inks, formalin-fixed tissue, alcohol, disinfectants or deodorants. Make sure each tissue sample is packaged separately and individually.

- Chemical fixatives, such as formalin, embalming fluids, etc., cause interference with toxicological analyses; **do not submit fixed tissues for toxicological analysis.**

Freezing with dry ice is the method of choice for preserving tissue. It is imperative that each specimen and its accompanying paperwork are all **individually** packaged to prevent cross contamination upon thawing.

A large Ziploc plastic bag should be used to keep all specimens and forms from a specific individual together. Frozen tissue(s) and body fluid(s) must be packed in an insulated shipping container large enough to hold the specimens plus a quantity of dry ice approximately **3 times** the weight of the specimens. When using dry ice in shipping containers, use containers that allow CO<sub>2</sub> gas from melting dry ice to escape (Dry ice must not be placed in thermos bottles). Glass, fluid containers or tissue bags should **not** be allowed to come in direct contact with the dry ice.

## **Specimen Shipment:**

The AFMES Form 18 and any other pertinent paperwork should be placed in a separate, sealed Ziploc plastic bag and placed **inside** the specimen shipping box.

The shipment **MUST** be sent via an express mail service such as FedEx<sup>®</sup>, DHL, U.S. Express/Priority Mail or U.S. Second-Day Mail. Packages must be shipped to ensure they arrive at the AFMES on a weekday, (Monday through Friday only), **weekend deliveries will not be accepted.** For insurance purposes, assign a monetary value of \$100.00 or less for all diagnostic samples. Do not send package(s) by Registered or Certified mail, Air Freight, or "Return Receipt Requested" as this will cause significant delays in specimen delivery.

## **Mailing Address:**

Division of Forensic Toxicology  
Armed Forces Medical Examiner System  
Building 115 Purple Heart Drive  
Dover AFB, DE 19902

Packages must be shipped so that they arrive at the AFMES Monday through Friday. Weekend deliveries are not accepted.

**YOU MUST** label the outside of the package with (2) phrases: **“Clinical/Diagnostic Specimens Enclosed”** and **“Shipment complies with U.S. domestic and IATA international packaging regulations.”**

The term “Biohazard” should **NOT** be written on the outside of the package.

## Communicate with the Division of Forensic Toxicology:

- **Division of Forensic Toxicology Phone:** (302) 346-8724 or 366-8724 (DSN)
- **Facsimile (FAX):** (302) 346-8822 or 366-8822 (DSN)
- **e-mail:** usarmy.dover.medcom-afmes.mbx.fortox@mail.mil
- **Website:** <http://www.afmes.mil>
  - To view and print electronic version of this SOP and/or obtain fillable Adobe Acrobat version of AFMES Form 18.

## Helpful Hints and Additional Information:

- When packaging shipments **do not** seal tubes or containers with wax or masking/scotch-tape.
- Clinical urinalysis sample cups generally leak during shipment and are **not** recommended. Use a sturdy urine container with a hard plastic screw-top lid.
- Evidence tape is not required, but is acceptable.
- Absorbent Pouches will contain most spills and meet US and international mail requirements.
- Lastly, call for information or clarification concerning collection and shipment policies if you are unsure of what to do. It is better to temporarily delay shipment of specimens than to send specimens improperly collected, labeled, packaged, and shipped or to submit cases without the correct paperwork.

**FORENSIC TOXICOLOGY ANALYSIS REQUEST**

<b>AUTHORITY:</b>	Title 10 USC, Section 1471
<b>PRINCIPLE PURPOSE:</b>	To obtain information/specimens needed to evaluate and document forensic toxicological testing.
<b>ROUTINE USES:</b>	Information will be used to document forensic toxicological testing.
<b>DISCLOSURE:</b>	Disclosure of requested information is mandatory. Missing information may prevent timely processing of this request.
<b>TO:</b> ARMED FORCES MEDICAL EXAMINER SYSTEM <b>ATTN: Division of Forensic Toxicology</b> 115 Purple Heart Drive Dover Air Force Base, DE 19902	<b>FORWARD FINAL REPORT TO:</b> <i>(Please use complete mailing address)</i>
<b>**WEEKEND DELIVERIES ARE NOT ACCEPTED**</b>	<b>Email Address:</b>

NAME OF PATIENT <i>(Last, First, MI)</i>	SOCIAL SECURITY #	AGE	SEX	RACE

DATE OF INCIDENT/ ACCIDENT	TIME AND DATE OF DEATH	AUTOPSY #

<i>MEDICATION HISTORY (Prescribed or administered, in patient's possession, containers found near body, etc.)</i>

SPECIMEN / AMOUNT	SPECIMEN / AMOUNT	SPECIMEN / AMOUNT
1.	5.	9.
2.	6.	10.
3.	7.	11.
4.	8.	12.

<i>INCIDENT/ ACCIDENT DETAILS (Include pertinent information regarding crash site, autopsy or investigation; (e.g., What happened?)</i>

PRINTED NAME OF REQUESTER/ TITLE	SIGNATURE	DATE	TELEPHONE #
			COMM: <input style="width: 50px;" type="text"/>
			DSN: <input style="width: 50px;" type="text"/>

**CHAIN OF CUSTODY (CC)**  
*Each individual charged with custody of specimens must complete information below (continue CC on reverse as required).*

RELEASED BY	RECEIVED BY	DATE & TIME	PURPOSE OF TRANSFER
SIGNATURE	SIGNATURE		
PRINTED NAME	PRINTED NAME		
SIGNATURE	SIGNATURE		
PRINTED NAME	PRINTED NAME		
SIGNATURE	SIGNATURE		
PRINTED NAME	PRINTED NAME		
SIGNATURE	SIGNATURE		
PRINTED NAME	PRINTED NAME		

**FORENSIC TOXICOLOGY ANALYSIS REQUEST**

<b>AUTHORITY:</b>	Title 10 USC, Section 1471
<b>PRINCIPLE PURPOSE:</b>	To obtain information/specimens needed to evaluate and document forensic toxicological testing.
<b>ROUTINE USES:</b>	Information will be used to document forensic toxicological testing.
<b>DISCLOSURE:</b>	Disclosure of requested information is mandatory. Missing information may prevent timely processing of this request.
<b>TO:</b> ARMED FORCES MEDICAL EXAMINER SYSTEM <b>ATTN: Division of Forensic Toxicology</b> 115 Purple Heart Drive Dover Air Force Base, DE 19902	<b>FORWARD FINAL REPORT TO:</b> (Please use complete mailing address)  Your Unit Name Your Unit Address City, State APO or Zip Code  <b>Email Address:</b>
<b>**WEEKEND DELIVERIES ARE NOT ACCEPTED**</b>	

NAME OF PATIENT (Last, First, MI)	SOCIAL SECURITY #	AGE	SEX	RACE
Smith, John F.	123-45-6789	29	M	CAU

DATE OF INCIDENT/ ACCIDENT	TIME AND DATE OF DEATH	IDENTIFICATION #
29 March 2000	29 March 2000 @ 1820	M 00-0000

**MEDICATION HISTORY** (Prescribed or administered, in patient's possession, or containers found near body, etc.)  
 Found empty bottle of xanax on person. Search of residence revealed prescription medications including Prozac

SPECIMEN / AMOUNT	SPECIMEN / AMOUNT	SPECIMEN / AMOUNT
1. Blood I 100ml	5. Kidney I 5g	9.
2. Urine I 100ml	6. Gastric contents I 50ml	10.
3. Vitreous Fluid I 5ml	7.	11.
4. Liver I 100g	8.	12.

**INCIDENT/ ACCIDENT DETAILS** (Provide pertinent information regarding crash site, autopsy or investigation; (e.g., What happened?)  
 Following a marital dispute, Jane Smith was found slumped in his car that had been apparently running with an exhaust hose connected to his car. Police discovered drug paraphernalia and alcohol in the trunk. A note was attached to the rear-view mirror that contained instructions for his property and insurance. Cause of death appears to be suicide. Please perform forensic toxicology analysis to rule out a toxic overdose of prescription medication and or alcohol ingestion.

PRINTED NAME OF REQUESTER/ TITLE	SIGNATURE	DATE	TELEPHONE #
JANE SMITH, Maj, USAF	(sign here)	30 March 2000	COMM: (555)555-5555 DSN: (444)444-4444

**CHAIN OF CUSTODY (CC)**

Each individual charged with custody of specimens must complete information below (continue CC on reverse as required).

RELEASED BY	RECEIVED BY	DATE & TIME	PURPOSE OF TRANSFER
SIGNATURE	SIGNATURE	30 Mar 2000 0930	Transfer to lab for shipping
PRINTED NAME Jane Smith	PRINTED NAME Greg Adams		
SIGNATURE	SIGNATURE	30 Mar 2000 1100	Prepare for shipping
PRINTED NAME Greg Adams	PRINTED NAME Bruce Brown		
SIGNATURE	SIGNATURE	30 Mar 2000 1145	Mail samples to AFMES Tox
PRINTED NAME Bruce Brown	PRINTED NAME Todd Hartmann		
SIGNATURE	SIGNATURE	30 Mar 2000 1300	Tracking # - 6612-0002-990
PRINTED NAME Todd Hartmann	PRINTED NAME Federal EXpress		