Standard for Collection of Visible Powders Suspected of Being Biological Agents

FREQUENTLY ASKED QUESTIONS

1. What is the purpose of the sample collection standard procedure?

The purpose of the sampling procedure is to have a standard that is accepted and followed by Emergency Responders for suspicious powder collection in order to reduce exposure risks, reduce the variability associated with sample handling and analysis, and increase the reliability of sampling visible powders from nonporous surfaces.

The purpose is also to ensure that unadulterated samples are collected for public health and law enforcement officials for confirmatory and forensic analysis, while leaving enough sample for presumptive, on-site determination.

2. Why is the standard needed?

Prior to this standard, there have been no validated standards for collecting, packaging and transporting visible powder samples that are suspected biological threat agents.

3. What is the collection procedure?

The sample collection procedure is a two-step procedure. The first step, or Method A, involves the bulk collection and packaging of the suspicious visible powders from solid nonporous surfaces. Bulk samples are collected using a sterile swab to push the powder onto a thin plastic card. The powder is then placed with the plastic card into sterile containers, sealed and transported to a public health laboratory such as one of CDC's Laboratory Response Network (LRN) laboratories for analysis. The second step, or Method B, covers swab sampling of residual suspicious powders for presumptive, on-site biological screening using an appropriate method.

4. What about initial chemical and radiological screening?

The sample collection standard is performed <u>after</u> an initial risk assessment for explosive, radiological, and chemical hazard is conducted according to accepted procedures and regulations, and a visible powder is deemed a credible biological threat.

5. Why collect the bulk sample for confirmatory testing before taking my sample?

Collecting the bulk sample first reduces exposure risk and reduces risk of further contamination in the instance of a credible biological threat since weaponized powders are easily dispersed. Also, it is critical that the samples be unadulterated and minimally consumed for confirmatory analysis by a public health laboratory such as the Laboratory Response Network (LRN). Collecting the bulk sample for confirmatory and forensic analysis meets the sample needs of many federal agencies.

6. Can the hand held assays detect the residual sample for on-site testing?

Yes. Enough residual sample remains after the bulk collection procedure to allow for presumptive on-site testing.

7. How can Emergency Responders be sure enough sample is left for presumptive on-site determination?

A study was conducted to validate the reliability of the sampling procedure at the U.S. Army Dugway Proving Ground during a two-week period in March 2006. It was designed to determine the recovery efficacy on seven environmental surface types that included stainless steel, food-grade painted wood, rubber, tile, concrete, finished wood, and plastic.

The study demonstrated that the sampling procedure can be used by trained Emergency Responders in simulated emergency conditions to consistently recover samples. The study also proved that sufficient number of *Bacillus anthracis* spores can be detected by Emergency Responders to make a presumptive, on-site determination even ***after*** all bulk samples have been collected.

The study involved six teams that included four National Guard Civil Support Teams (CST), the Navy's Chemical Biological Incidence Response Force (CBIRF) as well as a hazmat team from the Florida Hazard Materials Response Unit. Team members were dressed in Class C personal protective equipment during the entire study so that the efficacy of the sample collection procedure could be tested under as close to real-life conditions as could be attained.

8. What is the scope of the sample collection standard?

The procedure was written as a sample collection procedure for visible powders that are determined as credible threats for biological agents (not limited to anthrax) and dispersed in a limited area (approximately 20 cm by 20 cm). It is applicable to nonporous surfaces only (stainless steel, food-grade painted wood, rubber, tile, concrete, finished wood, and plastic) and incorporates reference guidance for packaging and transport of suspicious powders to comply with all appropriate federal regulations regarding biosafety and biosecurity. The standard does not include environmental sample collection of widely dispersed biological agents over a very large surface area, nor the collection from highly porous surfaces such as air, filters, carpet, and ceiling tiles.

9. Can this Sample Collection Procedure be used to test for the environmental contamination of the building or area?

This Sample Collection Procedure cannot be used to determine whether a contaminated site may be released for unrestricted use after a formal decontamination process.

10. Who developed/approved the standard?

The development and testing of the sample collection procedure was a cooperative and interagency effort involving many stakeholder organizations as well as federal, state, and local governments.

The effort was coordinated by AOAC INTERNATIONAL, a worldwide provider and facilitator in the development of analytical standards. AOAC's Sampling Standard Task Group developed the standard, NIST drafted the standard based on the Task Group's input, and ASTM Committee E54 on Homeland Security Applications reviewed and approved it. Member organizations serving on the AOAC Task Group included the federal agencies NIST, CDC, FBI, DOD, EPA, the U.S. Army, Dugway Proving Ground, and the DHS Center for Domestic Preparedness. State and local organizations represented included the New York State Department of Health, State of Florida, International Association of Fire Chiefs, and the U.S. National Guard. Volunteers from ASTM Committee E54 and the AOAC Official Methods Board also provided extensive review and input. The development and testing of the standard were supported by the Science & Technology Directorate of the Department of Homeland Security.

11. Where do I get the Sample Collection Kits?

Among other sources, Sample Collection Kits compliant with the requirements of the standard are available from the Critical Reagents Program, a part of the Department of Defense Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD). This is not meant as an endorsement of the JPEO-CBD.

12. Where do I get the standard?

The *Standard Practices for Bulk Sample Collection and Swab Sample Collection of Visible Powders Suspected of Being Biological Agents from Nonporous Surfaces*, E2458 is under the jurisdiction of ASTM Committee E54 on Homeland Security Applications and is available by contacting ASTM INTERNATIONAL, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, www.astm.org.

13. Are plans underway to include sample collection procedures for other surfaces, and sampling for non-visible threat agents?

Plans are underway to use the same voluntary consensus standards organizations with an expanded group of experts to develop standards for other needed applications in bio-sampling for homeland security.