SIRCHIE®

TECHNICAL INFORMATION

Arson Investigation Liquid Sampler Kit

Catalog No. AEC200

Application	The collection of various types and volumes of liquid samples and containment for transportation to the lab for analysis.

Information

The kit provides methods for extracting large and small volume samples, allowing the investigator to provide the lab with the best sample possible. The collection pump provided, along with the Teflon® chemical resistant hose, can collect liquids from up to 10 feet away, allowing access to otherwise inaccessible pools of suspected liquids. Syringes are provided for collecting samples from cracks and crevices, as

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well as filtering test tubes for providing a simple collection and transportation method. Also provided in the kit are two simple methods of identification. Petroleum strips are provided to identify petroleum based products, and pH litmus strips are provided to determine if the liquid is acidic (pH below 6) or basic (pH above 8).

Hazards/Safety Info	**Warning!** Any and all liquids found and collected at a fire scene have the potential to contain harmful chemicals and should be handled with caution. **Caution!** Wear chemical resistant gloves, safety glasses and, when necessary, vapor filter respirator, chemical resistant overalls, and shoe covers. **Caution!** Hypodermic syringes are extremely sharp and require careful handling.
AEC200 Contents	1- AEC210 Collection Hand Pump 2- AEC211 Collection Bottles with valve heads 2- AEC212 8 oz. (250ml) Nalgene Sample Bottles with screw-on-caps 1- AEC213 Funnel, Transfer 1- AEC201 Tubing, Teflon®, 10' (305cm) 1- AEC202 Cutter, Tubing, 5" (12.7cm) 4- Vial: 40ml 28mm x 95mm 24-400 with Teflon lined cap 5- AEC206 Test Tube and Filter Closures 5- AEC205 Test Tubes, Polypropylene, Vacuum Filtration 25- AEC208 Strips, Oil-Based Test Paper 25- AEC209 Strips, pH Paper, Acid/Base, Litmus 6- KCP137 Syringe w/Needle, Disposable, 10cc 4- SM1000SR1 Evidence Integrity Strips 10- EIL011 Evidence ID Labels 1- AEC200C Black molded copolymer case, textured w/handle and molded inserts; Dimensions: 14" x 10.75" x 5.75" (35.6cm x 27.3cm x 14.6cm); Weight: 6.5 lbs. (2.9kg)

Component Instructions

Hand Pump System (Nos. AEC210, AEC211, AEC201)

1. Insert the pump body into the head of the collection bottle until there is a small click (Fig. 1).
2. Screw the Teflon® tube onto the opposite end of the bottle adapter (Fig. 2).
3. Place the open end of the tube into the liquid to be sampled. End must be submerged in liquid.
4. Squeeze handle on pump repeatedly until liquid fills collection bottle or sample site is exhausted. There is a valve in the collection bottle head that will stop the pump action once the bottle is full.
5. Remove the pump and tube from the bottle.
6. Remove the cap.
7. Transfer the liquid to one of the 8 oz. Nalgene bottles (AEC212) using the funnel provided (AEC213).
8. Seal and label the bottles properly with the materials provided.

FIGURE 1

FIGURE 2

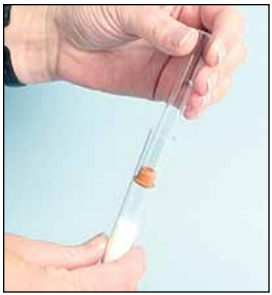

FIGURE 3

FIGURE 4

FIGURE 5

Test Tube Filters (No. AEC205)

1. Be certain that the filter is seated properly on the plunger.
2. Push plunger all the way down into the test tube (Fig. 3).
3. Pour the suspect liquid into the plunger well (Fig. 4).
4. Pull up the plunger out of the test tube slowly. The liquid will be drawn through the filter.
5. Rubber stoppers are provided for the test tube and plunger. Be certain to install these stoppers before shipping to the lab (Fig. 5).
6. The solids stay inside the filter, which may be removed and sealed in a bottle for transport to the laboratory.
7. Seal and label the tubes properly with the materials provided.

Note: Test tubes are supplied with cotton batting in place. The cotton is used to absorb liquids. Check with your laboratory as to whether they prefer to use cotton or not.

Use of Disposable Syringes (No. KCP137)

The kit includes disposable syringes that can be used to draw up small samples of liquids. These provide the ability to sample liquids in small areas, cracks, or crevices, where accelerants may have pooled.

Caution! Syringe needles are very sharp. Care should be taken when installing the syringe needle. Used syringe needles should be disposed of properly, by placing in a disposable plastic container or a designated broken glass container to avoid injury to others. NEVER transport a sample in a syringe.

1. Attach the needle to the end of the syringe.
2. Place end of syringe needle in the liquid to be sampled.
3. Withdraw the plunger, which will cause the sample to enter the syringe.
4. Transfer the liquid to a 1 oz. glass jar (No. AEC207) by placing the needle in the jar and pushing the plunger into the syringe to dispense the liquid.
5. Recap the jar and seal with No. SM1000SR1 Evidence Integrity Strip for transport to the laboratory.

Note: The syringes are disposable and should not be reused. Used syringes and needles should be disposed of properly, by placing in a disposable hard plastic container or a designated broken glass container to avoid injury to others. NEVER transport a sample in a syringe.

Use of Oil-Based Test Papers (No. AEC208)

1. If possible, a small sample of the material to be tested should be collected in a jar to avoid contamination of the evidence.

2. Place the strip in the liquid.
3. If the strip changes to a BRIGHT BLUE, it indicates the presence of petroleum or hydrocarbon based liquid (Fig. 6). These include gasoline, kerosene, diesel, and lighter fluid (naphtha).

FIGURE 6—POSITIVE REACTION FOR HYDROCARBONS

Use of pH Test Strips, Blue Litmus (No. AEC209)

1. If possible, a small sample of the material to be tested should be collected in a jar to avoid contamination of the evidence.
2. Place the strip in the liquid.
3. If the strip changes to RED/PINK (Fig. 7), it indicates the liquid is acidic (pH 1-5).
4. If the strip changes to BLUE/PURPLE, it indicates the liquid is basic (pH 9-14).

FIGURE 7—REACTION INDICATES ACIDIC LIQUID (pH<6)

5. If the strip remains ORANGE, it indicates neutral (pH 6-8).

Note: While few acids or bases are flammable by themselves, their interaction with other materials, such as metals, plastics, and other chemicals, can cause reactions that create ignition or heat that leads to fires.

Maintenance

No. AEC210 Hand Pump never gets contaminated with liquid and requires no maintenance. The pump can be wiped clean with alcohol.

No. AEC211 Collection Bottle, as well as the Valve Head, must be replaced each time as the valve is contaminated with the previous liquid sampled. Do not attempt to clean and reuse.

All other items in the AEC200 Kit, except the cutters, are one use only and should be properly disposed of after use and replaced.

References

1. **Inter Fire Online,** "Excerpts from A Pocket Guide to Accelerant Evidence Collection", <http://www.interfire.org/res_file/aec.asp#obj> March 6, 2009.
2. International Association of Arson Investigators. **User's Manual for NFPA 921 2nd Edition.** Sudbury, MA. Jones and Bartlett Publishers, 2005.

NO. AEC200 KIT AND COMPONENTS