



## **INVESTIGATION GUIDELINE**

**Product: Upholstered Furniture**

**Appendix: 19**

**Date Amended: October 2005**

### **I. Introduction**

#### **A. Background Information**

Upholstered furniture fires are a leading cause of residential fire deaths, injuries, and property loss. From 1995 to 1999, there were averages of 580 deaths per year, 1,430 injuries per year, and \$212 million in property loss per year involving upholstered furniture fires. The majority of upholstered furniture fires are ignited by smoking materials or small open flame sources, such as lighters, matches, and candles.

In October 2003, the Commission issued an advance notice of proposed rule making (ANPR) to address ignitions of upholstered furniture from smoldering cigarettes and small open flames. Previously, in 1994, the Commission had issued an ANPR addressing small open flame ignitions only.

The draft standard under consideration by staff is designed to reduce the progression and severity of an upholstered furniture fire. The standard places performance criteria on the component materials of furniture, including upholstery fabrics, fillings, and fire barriers.

The upholstered furniture fire investigations will be used for two chief purposes. First, they will be used to determine the hazard scenarios for both smoking materials and small open flame ignitions of furniture. Knowledge of the hazard scenarios will be used in the development of the draft standard.

Second, the investigations will be used to evaluate the effect of the draft standard on fire casualties and property losses. Under the standard, upholstered furniture fires would be prevented or have reduced severity. The investigations will be reviewed and staff will assess under the draft standard how many additional people in various scenarios might survive, not be injured, or have a less severe injury. For this reason, the investigation guideline pays special attention to the people present in the structure at the time of the fire, in particular, their locations, conditions, and their abilities to escape the fire.

All ignition sources of upholstered furniture are of interest. Although, the ANPR address only smoldering cigarette and small open flame ignitions, fires with other ignition sources may be affected by the standard.

## **B. Product Descriptions**

*Upholstered furniture* is a unit of interior furnishing that has resilient or cushioned seating surfaces, covered, in whole or part, with a fabric or related material, such as leather. It may be reasonably expected to be used in homes, offices, or other places of assembly or accommodation. Most such units are sofas and chairs.

### **Definitions**

The following are common terms relating to upholstered furniture that are relevant to the investigation.

*Upholstery fabric* is the outer-most layer of fabric or related material used to enclose the resilient upholstery filling. Aftermarket slipcovers installed over existing cover fabric are excluded from this definition.

*Cellulosic fabric* is made predominately or entirely of natural, plant-based fibers including cotton, rayon, or viscose. Wool and leather are animal-based materials and do not fall under this definition.

*Thermoplastic fabric* is made predominately or entirely of synthetic fibers, including polyester, polypropylene, nylon, or acrylic.

*Upholstery filling* is the padding, stuffing, or filling material enclosed by an upholstery fabric. This material may be used in one or more layers in an item of furniture.

*Batting* is a fibrous filling material that may be found under the upholstery fabric in most but not all furniture. It is typically a polyester or cotton wrap or topper (up to about one inch thick) on a resilient cushion core.

*Fire barrier* is a fire resistant material that encloses the interior materials of the furniture and designed to protect the interior materials from combustion. It may be a thin fabric-like layer or a thicker fibrous layer.

*Reupholstered furniture* is furniture that has been reworked to replace any materials such as the upholstery fabric, cushions, or upholstery filling. Minor repairs that do not include the replacement of the upholstery fabric, cushions, or upholstery filling do not constitute reupholstered furniture.

*Slipcover* is a removable, fitted cover (fabric or related material) for a chair, sofa, or other piece of upholstered furniture.

*Inside back* is the rear wall of the seating area. Not all furniture has an inside back.

*Inside arm* is the side wall of the seating area. Not all furniture has an inside arm.

*Crevice* is the area of contact between the inside arm or inside back and the seat area.

*Welt edge* is the seam or border edge of a cushion, pillow, arm, or back of an item.

*Welt cord* is a fabric covered cord, which is generally sewn into the edge of a cushion.

*Skirt* is the hanging piece of fabric (usually pleated or gathered) that is attached to the bottom of a chair or sofa.

## **Standards and Labels**

The following are standards and labels that apply to upholstered furniture.

UFAC (Upholstered Furniture Action Council) Standard: a voluntary standard, addressing cigarette ignition of upholstery materials. A hang tag displaying conformance is used for retail display, but there is no permanent label.

California Technical Bulletin (TB) 116: a California standard addressing cigarette ignition of upholstered furniture. There is a permanent label displaying conformance.

California Technical Bulletin (TB) 117: a California standard addressing cigarette and small open flame ignition of upholstered furniture. There is a permanent label displaying conformance.

California Technical Bulletin (TB) 133: a California standard addressing large open flame ignition of upholstered furniture found in public occupancies. This furniture is generally not found in household use. There is a permanent label displaying conformance.

## **C. Specific Items of Interest**

### **Furniture**

We are interested in the type of furniture, its construction, its materials, and its complying standards. Also, we are interested in the specific location of the ignition. See Section II D below for details.

### **Occupants**

We are interested in each non-emergency personnel person present in structure during the fire. In particular, we are interested in their locations, conditions, abilities to escape the fire, and actions during the fire. See Section II C below for details.

### **Ignition source**

We are interested in the type of ignition source and how it came in contact with the upholstered furniture. For cigarettes we are particularly interested in the make and brand. See Section II D below for details.

### **Other**

Complete relevant appendices on smoke alarms, sprinklers, extinguishers, candles and lighters.

### **D. Headquarters Contacts**

1. Mark Levenson, EPHA, 301-504-0470, [mlevenson@cpsc.gov](mailto:mlevenson@cpsc.gov)
2. Rohit Khanna, ESFS, 301-504-7546, [rkhanna@cpsc.gov](mailto:rkhanna@cpsc.gov)

## **II. Instructions for Collecting Specific Information**

### **A. Synopsis**

Provide a summary of the sequence of events that occurred prior to, during, and subsequent to the fire. Specify type of furniture involved, ignition source, and descriptions of injuries and deaths.

### **B. Description of Incident Environment**

#### **Pre-incident**

Describe the sequence of events that occurred prior to the fire.

Specify the activity and location of each occupant immediately prior to the fire.

Specify the location of the upholstered furniture.

Specify the location of the ignition source prior to coming in contact with furniture, e.g., candle on table on side of furniture, lighter stored in purse.

Specify the location of any fire safety devices or equipment, e.g., detectors, sprinklers, extinguishers.

Make use of the diagram requested in Section III below.

## **Incident**

Describe how the fire occurred.

Specify how the ignition source came in contact with the furniture.

Specify the point of ignition on furniture as precisely as possible.

## **Post-Incident**

Describe the progression of the fire. Although this information may be difficult to obtain, it is important for the analysis of the investigation. As best as possible include the following.

Discuss the spread of the fire, flames and smoke, from point of ignition to other parts of the furniture, to the room of origin, and to the structure. Include a timeline if possible.

Specify initial type of fire, smoldering or flaming. Specify if it changed from smoldering to flaming, or vice versa, over time.

Specify the actions of alarms, sprinklers present, or any other safety devices or equipment.

Note if the fire department was notified, and if so by who and at what time.

Make use of the diagram requested in Section III below.

## **C. Description of Interaction between Injured Person(s) and Product**

Describe each occupant and their actions during the fire, including people who may have entered the structure after the fire began.

Include the following information for each occupant.

Age.

General health, e.g., pre-existing conditions, medications, smoking habits.

Limitations, e.g., very young, very old, physically or mentally handicapped.

Condition, e.g., asleep, intoxicated, under medication.

Outcome, e.g., injured, killed, unharmed.

Location at start of fire.

Describe for each occupant when and how they became aware of fire. Describe the actions of each occupant after the fire began. e.g., tried to extinguish the fire, re-entered structure to rescue people, tried to escape room of origin or structure. Note if they escaped unaided or had help to escape structure.

Make use of the diagram requested in Section III below.

#### **D. Description of Product**

We are interested in both in the upholstered furniture and the ignition source.

Include the following information for the upholstered furniture.

Type, e.g., sofa, chair, ottoman.

Type of upholstery fabric, e.g., thermoplastic, cellulosic, leather.

Filling material, e.g., loose filling, solid foam.

Standards and labels, e.g., UFAC, California TB 117.

Other items on furniture, e.g., pillows, newspapers.

Include the following information for the ignition source.

Type, e.g., cigarette, cigarette lighter, general purpose lighter, match, candle, other.

For cigarettes, make and brand.

#### **III. Photographs/Diagram of Incident Scene**

Obtain photographs of the furniture including ignition location, ignition source, and room with furniture.

Create a diagram of the structure. Include the location of the furniture, the location of all occupants at the time of the fire, and the extent and type (smoke or flame) of the damage. Indicate any obstacles to escape.

#### **IV. Obtaining Samples and Documents Related to the Investigation**

Obtain the fire reports, medical reports, and insurance reports.

Samples of upholstery fabric or filling may be requested by headquarters staff at the time of the investigation assignment.

### **ATTACH DATA RECORD SHEET**

# DATA RECORD SHEET

**Product: Upholstered Furniture**

**Tasknumber** \_\_\_\_\_

**Incident Date** \_\_\_\_\_

**A. PRODUCT DESCRIPTION:**

1. Type of furniture:

Sofa/Couch

Chair

Sofa bed. Was the bed open?  Yes  No  Unknown

Other. Specify \_\_\_\_\_

Unknown

2. Upholstery fabric

Cellulosic

Thermoplastic

Leather

Other. Specify \_\_\_\_\_

Unknown

3. Date of furniture purchase \_\_\_\_\_

4. Was the furniture purchased new?

Yes

No

Unknown

5. Did the furniture have a slipcover?

Yes

No

Unknown

6. Was the furniture reupholstered?

Yes

No

Unknown

7. Standards, determined by labels

UFAC  Yes  No  Unknown

California TB 116  Yes  No  Unknown

California TB 117  Yes  No  Unknown

California TB 133  Yes  No  Unknown

B. FIRE IGNITION ON FURNITURE:

1. Ignition location

- Seat cushion
- Inside back
- Inside arm
- Underside
- Outside back
- Outside side
- Skirt
- Welt cord
- Other. Specify \_\_\_\_\_
- Unknown

2. Ignition source

- Cigarette. Make and brand \_\_\_\_\_
- Other smoking materials. Specify \_\_\_\_\_
- Cigarette lighter
- General purpose lighter
- Match
- Candle
- Other. Specify \_\_\_\_\_
- Unknown

3. Initial type of fire

- Flaming
- Smoldering
- Unknown

4. Was the ignition either deliberate or the unintentional result of play?

- Yes. Age of person responsible for ignition \_\_\_\_\_
- No
- Unknown



C. STRUCTURE

1. Was the structure owned or rented by the residents?

- Owned
- Rented
- Unknown

2. Approximate market value of structure \_\_\_\_\_

3. Approximate property loss and damage by fire of structure \_\_\_\_\_

4. Smoke detector present?

- Yes
- No. Go to Q6.
- Unknown

5. Smoke detector went off (alarmed)?

- Yes
- No. Why not? \_\_\_\_\_
- Unknown

6. Sprinklers present?

- Yes
- No. Go to Q8.
- Unknown

7. Sprinklers went off?

- Yes
- No. Why not? \_\_\_\_\_
- Unknown

8. CO alarm present?

- Yes
- No
- Unknown

9. CO alarm went off?

- Yes
- No. Why not? \_\_\_\_\_
- Unknown

D. OCCUPANTS

Total number of occupants in structure during fire \_\_\_\_\_

**For each occupant include a completed copy of this page.**

Identify each occupant by a unique number. Occupant Number \_\_\_\_\_

1. Age \_\_\_\_\_

2. Gender

- Male
- Female
- Unknown

2. Handicapped

- Yes. Specify \_\_\_\_\_
- No
- Unknown

3. On or near furniture at time of ignition?

- Yes. Go to Q6.
- No
- Unknown

4. In room with furniture at time of ignition?

- Yes. Go to Q6.
- No
- Unknown

5. In structure at time of ignition?

- Yes. Go to Q6.
- No
- Unknown

6. Special condition at time of ignition? Check all that apply.

- Asleep
- Intoxicated
- Under medication. Specify \_\_\_\_\_
- Other. Specify \_\_\_\_\_
- Unknown

7. Aware of fire immediately

- Yes
- No
- Unknown

8. Attempted to escape from fire

- Yes
- No
- Unknown

9. Attempted to rescue other

- Yes
- No
- Unknown

10. Injury Status

- Unharmmed. Go to **End**.
- Non-fatal Injured
- Fatal injury (Go to Q13)

11. Type of Injury

- Burns
- Smoke inhalation
- Other. Specify \_\_\_\_\_
- Unknown

12: Disposition

- Treated at scene
- Treated in ER and released
- Hospitalized
- Other. Specify \_\_\_\_\_
- Unknown

Go to **End**.

13. Setting of death

- Prior to any rescue
- Post-rescue at scene
- Post-rescue in transit
- Post-rescue at hospital
- Other. Specify \_\_\_\_\_
- Unknown

14 Cause of death

- Burns
- Smoke inhalation
- Other. Specify \_\_\_\_\_
- Unknown

**End** of questions for this occupant.