

## LOG OF MEETING

CPSA 6 (b)(1) Cleared  
A No Mfrs/PrvtLbrs or  
Products Identified  
Excepted by  
Firms Notified,  
Comments Processed.

**SUBJECT:** Safety standards for electric clothes dryers, small kitchen appliances, and electric air heaters.

**DATE:** March 29, 2000

**PLACE:** Room 518  
East West Towers

**DATE OF LOG ENTRY:** March 30, 2000

**LOG ENTRY SOURCE:** William H. King, Jr., ES *WAKC*

### CPSC PARTICIPANTS:

William H. King, Jr., ES  
Randy Butturini, ESEE  
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### NON-CPSC PARTICIPANTS:

Donald Grob, Underwriters Laboratories Inc. (UL)  
Bob DellaValle, UL  
Robert Wozniak, UL  
John Drengenberg, UL  
Wayne Morris, Assoc. of Home Appliance Mfrs.

### SUMMARY:

CPSC staff requested a meeting between CPSC project managers assigned to selected projects and their counterparts at UL. The purpose of the discussions was to review the status and direction of CPSC and UL activities related to their particular project. This meeting was in addition to a 14-topic, management overview meeting with senior UL management scheduled for April 19<sup>th</sup>.

After a brief kick-off to the assembled group, where the purpose of the meeting and introductions were given, the attendees divided into three break-out groups to discuss the three specific topics as noted above. Attached are brief summaries of the three break-out sessions.

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CPSC/OFC OF THE SECRETARY  
FREEDOM OF INFORMATION

# Portable Electric Space Heater Project

UL and CPSC meeting  
March 29, 2000

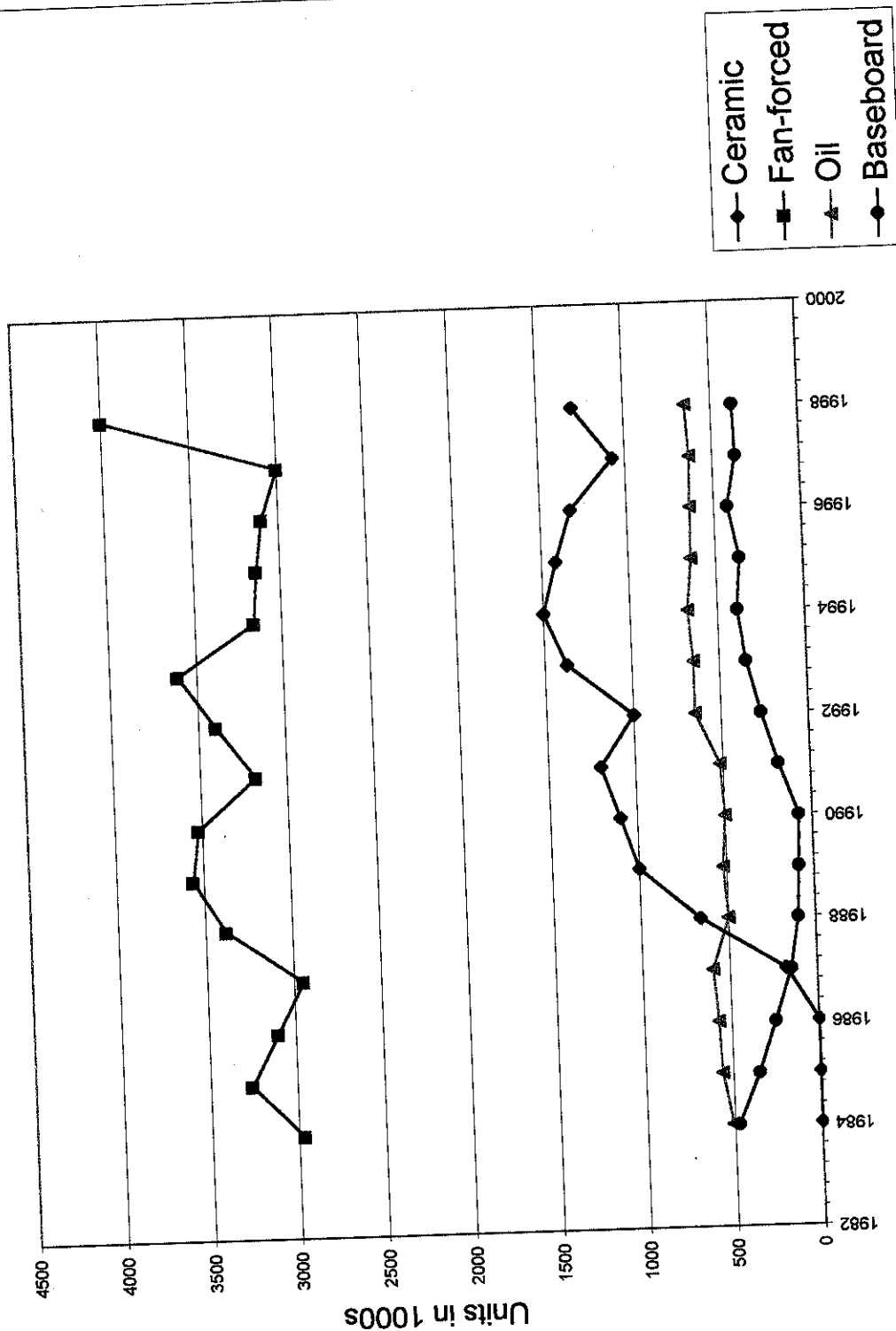
DRAFT

Mai Ngo, Directorate of Engineering Sciences, CPSC

## **Review of Market Data**

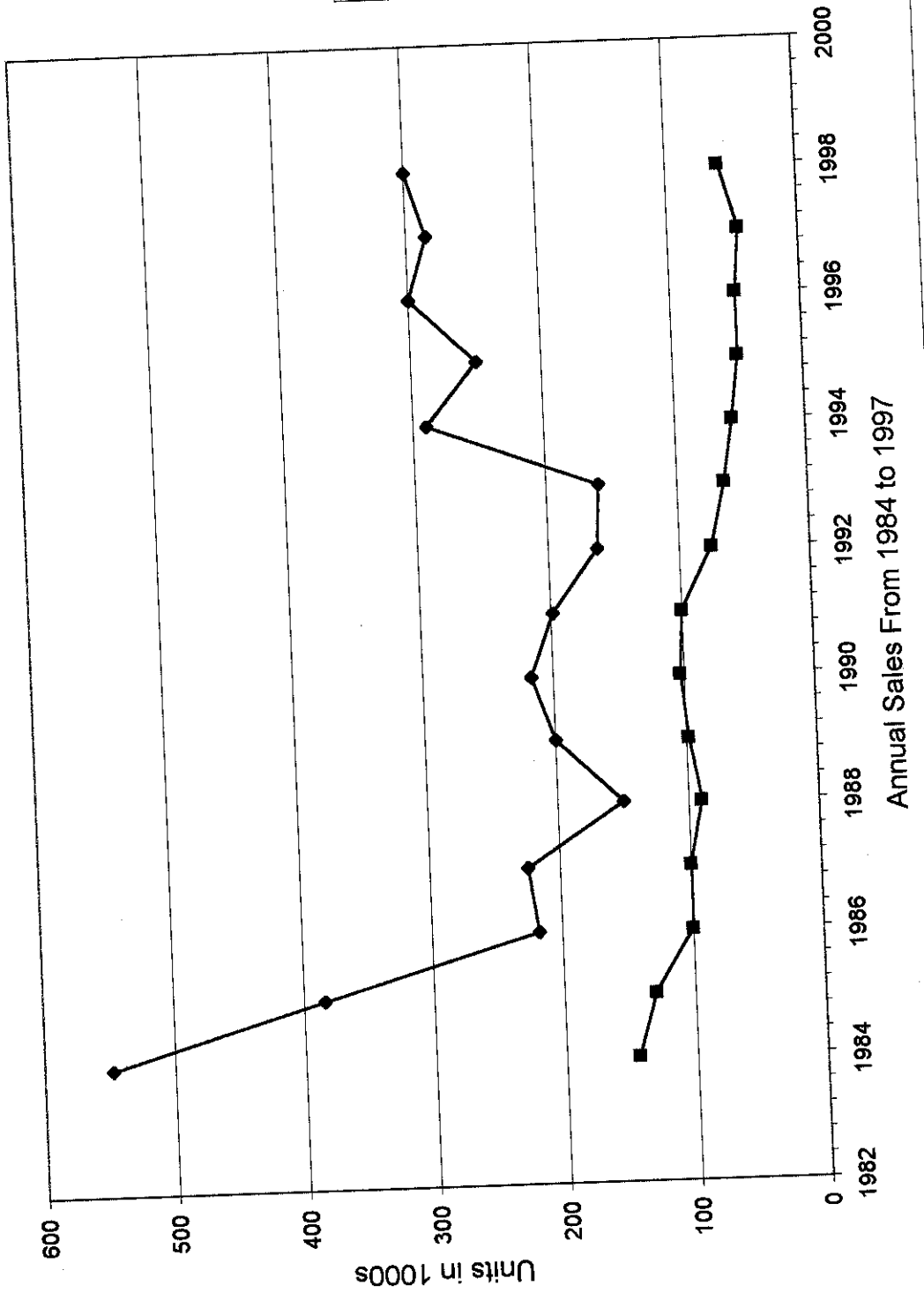
- Seven member firms account for 75% of total annual sales
- Most portable heaters sold in U.S. imported and all heaters listed by UL
- Trade publication, Appliance, reported a slight increase in sales from 4.6M units in 1984 to 5.4M units in 1997
- CPSC staff estimates 38 M heaters currently in use
- CPSC staff estimates 10% of 38 M heaters in use were produced prior to 1991
- Variety of configurations and prices (\$15-\$150)
- CPSC staff estimates a 6-year life expectancy
- Share of the pre-91 heaters is declining but injuries are the same

# Sales of Convection Heaters

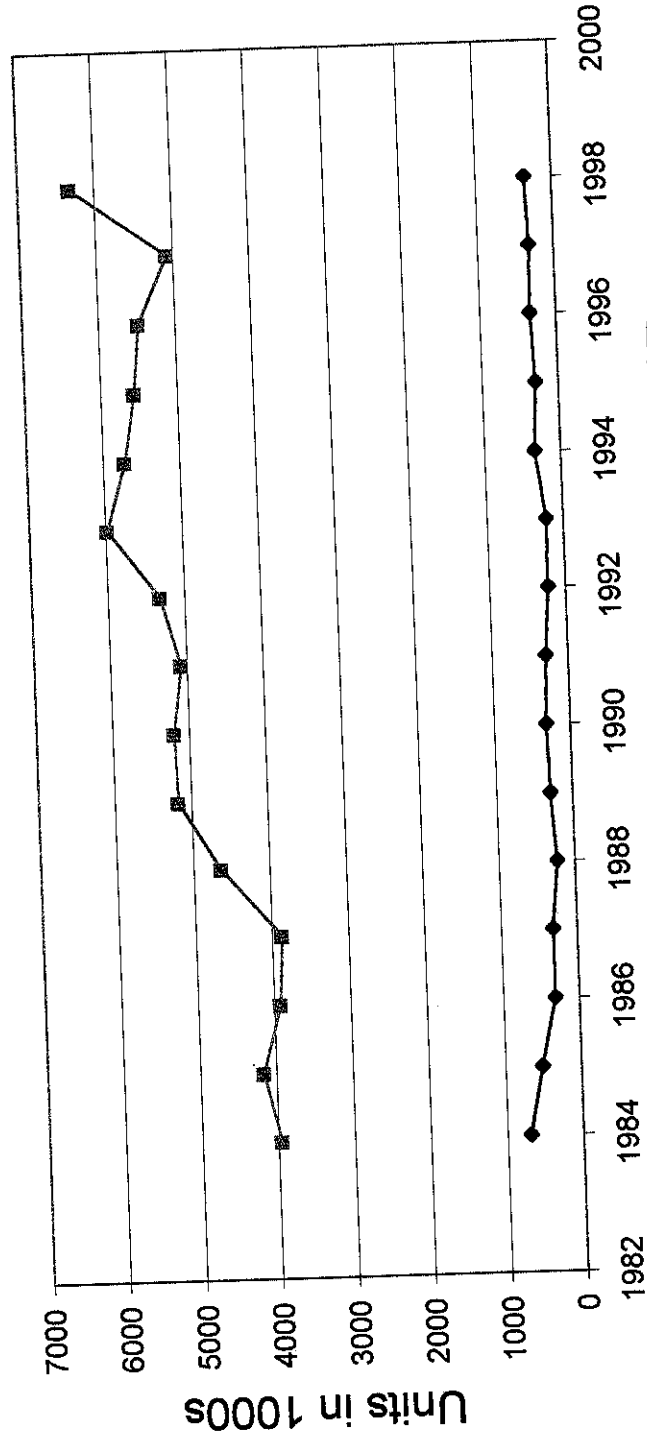


Annual Sales From 1984 to 1997

# Sales of Radiant Heaters



# Sales of Radiant versus Convection Heaters



Annual Sales From 1984 to 1997

## HEATER TYPES\*

Radiant types			Convection types	
Radiant, no fan	Radiant, with fan	Hybrid Radiant/convection with fan	Natural convection, no fan	Convection, with fan
<ul style="list-style-type: none"> <li>• Red visibly glowing element</li> <li>• High operating temperatures</li> <li>• Includes reflector shield</li> <li>• Emits IR</li> </ul>	<ul style="list-style-type: none"> <li>• Red visibly glowing element</li> <li>• High operating temperatures</li> <li>• Includes reflector shield</li> <li>• Emits IR</li> <li>• Radiant heating elements plus fan to direct air flow over internal components to cool the heater</li> </ul>	<ul style="list-style-type: none"> <li>• Red visibly glowing element and fan</li> <li>• High operating temperatures</li> <li>• Includes reflector shield</li> <li>• Emits significant energy as Infrared Radiation <b>AND</b> warmed air</li> </ul>	<ul style="list-style-type: none"> <li>• Non glowing element</li> <li>• Low operating temperatures</li> <li>• No reflector</li> <li>• Emits warmed air</li> </ul>	<ul style="list-style-type: none"> <li>• Non-glowing element</li> <li>• Low operating temperatures</li> <li>• No reflector</li> <li>• Emits warmed air</li> <li>• Has motor and fan to direct air over heating elements</li> </ul>
<b>Element types</b>			<b>Element types</b>	
<ul style="list-style-type: none"> <li>• Quartz tube heating element</li> <li>• Open ribbon</li> <li>• Open coil element</li> <li>• Sheathed element</li> </ul>			<ul style="list-style-type: none"> <li>• PTC ceramic element</li> <li>• Open coil element</li> <li>• Baseboard (sheathed elements with fins)</li> <li>• Sheathed element within cast aluminum fins</li> <li>• Sheathed element in oil</li> </ul>	

\* Excerpted from September 1987 Engineering Project Report. Portable electric room heaters transfer energy by three primary mechanisms: Conduction, convection, and radiation. It is not practical to design a portable

## **Review of Product Labeling and Instructions**

- Reviewed In-Depth Investigations
  - Close proximity to combustibles
  - Excessive heat produced internal to heater.
- Reviewed of On-Product Labels
  - Power cord labels – Reset instructions
  - On product labels: 3-foot clearance from combustibles.
  - Only one manufacturer conformed to ANSI labeling standard.
- Review of Owners Manual
  - All manuals repeated warnings on labels
  - Only two manuals explained why heater may overheat and what to do if it happened.



## **Review of Product Labeling and Instructions (cont'd)**

- Switch and Indicator Light Markings
  - All switch markings conformed to UL Standard.
  - All heaters had power indicator light.
  - No evidence of confusion with switch operation was found in In-depth investigations.
  
- Conclusion
  - Labels may be more noticeable if followed the ANSI labeling format.

**DRAFT**

**IDI pattern**

Below is a rough count from the 26 post-91 heaters:

Convection heater	7 IDIs
Radiant heater	12
Liquid filled	3
Unknown type	4

**Possible causes:**

- 11 cases under User habit or proximity/combustible fires
- 15 cases under Product failure:
  - 3 cord problem
  - 2 other component or feature like oscillating
  - 10 related to something was overheated then melted plastic enclosure

## Test Program Scope

### Samples Collected

15 total heaters (8 convection-type and 7 radiant-type)

### Testing

Heaters were tested using variety of fire indicators.

- UL Band Drape Test: 6-inch wide, 6-layer thick band of terry cloth draped over heater from front to back.
- Cotton Core Test: terry cloth wrapped around 1-inch diameter wooden dowel to make 3-inch diameter core. Core placed vertically against heater grill.
- Pillow Test: decorative pillow used as fire indicator.
- Blanket Test: comforter used as fire indicator.

# Testing Results of Purchased Portable heaters

- Convection-type heaters passed all ignition-scenario tests.
- Radiant-type heaters did not.

Sample	Band Drape	Cotton Core	Pillow	Blanket
5	Passed	Passed	Failed	
6	Passed		Failed	
8	Passed	Failed	Failed	
10	Passed	Failed		Failed
11	Failed	Failed		
14	Passed		Passed	Passed
15	Passed	Failed	Failed	

## **Recommendations to UL 1278**

### ***Movable and Wall- or Ceiling-Hung Electric Room Heaters***

- Add fire indicators that are more representative of actual conditions, (e.g. cotton core test and pillow test, or use heat flux density limit).
- Improve effectiveness of labels and hang tags by incorporating ANSI Z535.4 standard for product labeling. While labeling is important, it is not satisfactory to resolve fire hazards. Heaters also must be improved to complement enhanced labels to reduce ignition hazards of nearby articles.
- Require explicit warnings to use portable heaters only in rooms with smoke detectors, use only when awake, and do not use unattended especially near children or invalids.

**Underwriters Laboratories,  
U. S. Consumer Product Safety Commission**

Meeting Log notes from the meeting of 29 March, 2000  
Randy Butturini

**Fixed-Position Electric Heater Project**

It is a strategic objective of the CPSC to reduce the number of deaths from fire-related causes by 10% from 1995-2005. According to the National Fire Data Center, residential heating between 1987 and 1996 was the second leading cause of fires, was the fifth leading cause of fire injuries, and was the third leading cause of fire deaths in the United States.

Accordingly, a project involving Fixed-Position Electric Heaters was initiated in FY2000. The objectives of this project are to 1) assess the adequacy of the voluntary standards (UL 1042 and UL 2021), 2) recommend any warranted improvements to those standards, and 3) dialog with the industry and standards developer concerning adoption of those improvements.

The methodology utilized in this project includes investigating field incident data and samples, and two types of laboratory studies. After a period of heater characterization as to operating temperatures, time to disconnect power to the heating element after the exhaust is blocked, etc., evaluation of hypotheses developed from previous data will be undertaken. Added to the field and laboratory studies will be economic analyses of the fixed-heater market, and a study of the human interface with the products.

To date, field and laboratory data acquisition is still underway. Some field incident samples have been retrieved for subsequent examination. After the completion of the 2000 heating season, the collected data will be analyzed; and plans will be made for the second year of this two-year project. During that time, field data acquisition will continue, and hypothesis testing will commence.

Mr. Wozniak, from Underwriters Laboratories stated that no major efforts at updating UL 2021 are underway now. There has been no general industry call for harmonization of UL air heater standards to the applicable international standards.

## Clothes dryer discussions with UL

- CPSC staff provided a brief overview of the tests conducted at CPSC.
- UL's Mr. Don Grob received copies of the CPSC and FTI reports on clothes dryers.
- Mr. Grob inquired about a peer review for the reports. CPSC staff indicated that the reports have gone through internal reviews and accurately reflect the views of the authors, and a peer review was not considered necessary.
- Discussions with UL covered numerous technical aspects of clothes dryer designs and the characteristics of lint. UL indicated that since 1996, the UL standard has required a non-resettable thermal device to function in the event of a failure of the high temperature-limiting thermostat in a dryer.
- UL indicated their concern regarding plastic venting and how important it is to install metal venting.
- When the discussions concluded, there was consensus that sufficient information exists to pursue a new level of safety requirements for clothes dryers and in the UL standards. The new level would be the ability of the appliance to sense and respond to inadequate exhaust venting that could eventually lead to fire hazard conditions. There is an understanding that UL and AHAM will contact us in near future for further discussion with the industry.

**SUBJECT:** Discussion of Countertop Cooking Appliances

**SUMMARY:**

United States Consumer Product Safety Commission (CPSC) staff met with Underwriters Laboratories (UL) and Association of Home Appliance Manufacturers (AHAM) staff to discuss issues related to deep fat fryers, toasters and toaster ovens.

Deep Fat Fryers. UL presented revisions to new requirements to UL 1083, *Standard of Safety for Household Electric Skillets and Frying-Type Appliances* that were proposed in an October 29, 1999 UL Bulletin. The changes to the proposal were to include a procedure to set the static friction force for the test surface to determine the deep fat fryer plug separation force. Although AHAM and CPSC agreed that the changes were acceptable, AHAM indicated that the requirements were very difficult to meet and may require a longer development time than was being proposed. CPSC staff indicated that further discussion of effective dates would be made at a later time, possibly at a meeting with AHAM, deep fat fryer manufacturers and UL.

Toasters: UL presented revisions to new requirements to UL 1026, *Standard of Safety for Electric Household Cooking and Food Serving Appliances* that were proposed in an October 29, 1999 UL Bulletin. The changes related to an alteration of the method for testing if the toaster meets the requirement to separate movement of the food load to de-energize the heating elements. Both AHAM and CPSC staff agreed that the substance of the changes were in accordance with the intent of the requirements. AHAM indicated that an 18-month effective date for the new requirements for toasters would be acceptable.

Toaster Ovens: Discussions were on the CPSC staff proposal to make toaster ovens with failed controls resistant to igniting adjacent combustible materials. AHAM and UL both expressed reservations regarding the effectiveness of using a performance test with a selected fire indicator to address the fire hazard related to toaster ovens with failed controls. At a November 1998 meeting on this topic, an alternative approach, proposing additional tests on reliability of control components was presented. During the March 29, 2000 meeting, AHAM reiterated that this approach may offer promise. CPSC, UL and AHAM tentatively agreed to meet again to work toward a resolution of the best approach to address the root cause of the fire risk.