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LOG OF MEETING

SUBJECT: Meeting of Underwriters Laboratories (UL) 858 Standards Technical Panel

DATE: June 27, 2000

PLACE: Underwriters Laboratories
Northbrook Illinois

DATE OF LOG ENTRY: August 9, 2000

SOURCE OF LOG ENTRY: Andrew Trotta, ESEE *AMJ*

CPSC PARTICIPANTS:

Ron Medford, Office of Hazard Identification and Reduction
Andrew Trotta, Engineering Sciences Directorate

NON-CPSC PARTICIPANTS:

See Attached List

SUMMARY:

This was the first meeting of the Standards Technical Panel (STP) on UL 858 (*Standard of Safety for Household Electric Ranges*). UL established the STP in response to an August 1999 request from CPSC to consider changes to UL 858 to address cooking fires. The STP chairman is Don Grob from UL. The STP Secretary, Ms. Walker, started the meeting with a brief explanation of the STP process. The objective of the STP is to act as a consensus body, which contributes to the development, maintenance and improvement of UL 858. The STP consists of a balanced representation of producers, users and general interest parties. Minutes of the meeting will be issued by UL.

U.S. Consumer Product Safety Commission (CPSC) staff presented a brief overview of the CPSC project on cooking range fires. The Association of Home Appliance Manufacturers (AHAM) presented the industry viewpoint on the cooking fires problem, concerns with the CPSC approach and other possible solutions. Joe Erdelsky/Invensys, the Chairman of the Cooking Fires Working Group (WG) for the gas range standard (ANSI Z21.1) reviewed the WG's first meeting on April 18, 2000. Dave Dubiel/UL presented results of a limited series of preliminary cooking fire tests that UL staff performed to assist in developing test criteria for the standard.

The STP also discussed a draft proposal that UL staff developed and distributed to the STP members prior to the meeting (see attachment). STP members disagreed whether the group should discuss the draft proposal or look at the cooking fires problem from a wider perspective. UL will send a letter ballot to the STP members to vote which perspective the group should follow.

The STP then discussed a list of success criteria - design goals related to safety and performance of prospective systems for addressing cooking fires (see attachment). The STP opted to discuss the success criteria in more detail through a subcommittee. It was decided that STP members would join the Z21 task group that was formed at the April 18, 2000 meeting to

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discuss definitions for cooking fire prevention and management approaches, draft test methods and develop pass/fail criteria for performance.

The next meeting of the STP is tentatively scheduled for October 5, 2000.

NON-CPSC PARTICIPANTS (Partial List):

Taro Amamoto	Figaro USA
Sandeep Ahuja	Amana
Lee Bishop	General Electric
Norman Chiu	GE
Theodore Doege	Independent
Dave Dubiel	UL
Joe Erdelsky	Invensys
Rick Fort	CSA International
Sharon Franke	Good Housekeeping Institute
William Freivald	Texas Instruments
Albert Garlatti	Intertek Testing Services
Peter Gerhardinger	Engineered Glass Products
Barbara Gressel	Department of Consumer Services, City of Chicago
Donald Grob	STP Chairman, Underwriters Laboratories (UL)
Paul Hedrick	National Electrical Manufacturers Association
Keith Howard	Tutco
Joe Howver	Harper-Wyman
Pat McCallister	Eastern Illinois University
Wiley Miller	Frigidaire
Wayne Morris	Association of Home Appliance Manufacturers
Robert Powitz	R.W. Powitz & Assoc.
Rick Rynkiewicz	UL
Issac Sargunam	Maytag
Ned Schiff	Technology Research Corporation
Randal Schwalich	Whirlpool Corporation
Rick Seib	Whirlpool
Faith Silvers	National Consumers League
Amy K. Walker	STP Secretary, UL
Marty Walsh	BSH Home Appliances
Judith Wessel	The Ohio State University
David Wolbrink	Broan-Nutone
Chung S. Yee	Canadian Standards Association
George S. Zelazny	Sears, Roebuck and Co.

The complete list of attendees will be provided by UL with minutes of the meeting.

CONSIDERATIONS OF COOKTOP FIRE STANDARD

The following is provided for consideration of the STP. The considerations combine work progressing under the standards development process for the gas ranges and the preliminary considerations for electric ranges. Therefore there is some duplication. Also the considerations will need to be considered with respect to whether or not the principle applies to safety [or performance] and what test or construction method is to be used to demonstrate compliance with the requirement. The hope is that a common standard can be developed, if possible.

Fire Injury Prevention Standard (gas section)

1. Definition

When _____ ounces of _____ (vegetable, peanut, olive?) cooking oil in a _____ pan is placed over an _____" gas burner or electric element set at the highest setting for _____ minutes, the oil shall not ignite and cause a visible flame.

2. Scope of Activities

The intent of the standard is to reduce deaths, injuries, and property damage from unattended fires resulting from ignition of oil in a common cooking utensil placed unattended on a surface gas burner or electric heating element set at the highest setting. Controls are to be set at the initiation of the test and not adjusted by hand throughout the test. Generation of smoke will not be relevant to this test.

The proposed standard shall define a set of test criteria to address the following scenarios:

- 1) ignition of an appropriate test material does not occur within a specified time, or
- 2) if ignition occurs, the fire is managed by either being extinguished or adequately contained or removed through venting.

3. Sources of Information

In developing this standard, information from a variety of sources will have to be reviewed, and potentially new information will have to be generated. Information from the CPSC, hospitals and fire departments are important in understanding the extent and source of injuries from cooking fires, to ensure that any new standard is designed to address the most significant risks. In addition, the standard must also preserve cooking utility with a minimum of degraded performance. Important data in this area includes industry information on product reliability, consumer cooking preferences and practices, as well as actual cooking tests using prototype ranges equipped to meet a proposed standard. Finally, UL

and CSA standards and test procedures to ensure the reliable performance of safety features must be consulted and complied with.

4. Success Criteria

The device shall demonstrate that it will:

1. not degrade normal cooking styles, behavior or recipes (including blackening, wok cooking, and other high-heat styles). The time for frying foods or boiling water of various quantities will not be extended beyond the current times for a coil element electric or gas burner range.
2. work with various size pans (diameter and thickness), woks, including smaller pans used for melting butter, etc. In addition, the device should work within acceptable limits with pans of various composition, including ceramic, glass, stainless steel, aluminum, copper clad, etc. The device will work within acceptable limits with pans of various quality and degrees of flatness (concave and convex).
3. work when subjected to a normal life test for all components on ranges and shall have a failure incidence rate of less than or equal to other similar components on the range.
4. be able to be cleaned thoroughly at a rate equivalent to once per day with normal cleaning cloths, scrubbing pads, dishrags, and standard household cleaners, and not degrading performance.
5. allow the cleaning of burner bowls under an electric element and for removal of the burner bowl for cleaning. The burner bowls should be water tight to collect any spills. In addition, the gas burner or electric element assembly should be replaceable by the consumer or service technician without need for factory calibration.
6. function for ___ years of product life when subjected to normal cooking utensil and pot/pan interface.
7. function properly while cooking with used oil, used bacon grease, or other oil materials.
8. Comply with UL 858, 858A and manufacturer's abnormal operation tests for temperature extremes in the vicinity of the electronic controls, to the extent that electronic controls are used.
9. not vary in performance when subjected to field testing conducted by a culinary school or independent food laboratory (i.e. Good Housekeeping).

10. show acceptable results when used on different cooking designs, i.e. gas burner, coil element, solid cast iron element, smooth top ceramic/glass, open and sealed element gas ranges.
11. function properly with various BTU gas burners and wattage coil elements.
12. not change its operation characteristics when subjected to soil build-up, oxidation, water or other liquid spills, baked on or burnt-on food materials.
13. function properly in various environmental conditions, such as: with hoods on, ceiling fans on, windows open, in high humidity, low humidity, and high altitudes.
14. operate over reasonably anticipated assembly locations or tolerances without requiring unit specific calibrations.
15. comply with UL923 (microwave oven) Fire Isolation Test (UL923 sect. 49) for any flame management or extinguishing device:
 - a. The surface temperature of any point of the top building cabinet should not exceed 300C (572F) and
 - b. A fuse rated 3A connected between exposed dead-metal parts of the cooking appliance and ground should not open.

COOKTOP FIRE SUPPRESSION TEST (electric considerations)

An aluminum pan with approximately 5 inch high sides containing 3.38 fluid ounces (100 ml) of previously unused corn oil is to be placed on each surface element, one at a time. The pan is to have approximately vertical sides with a nominal thickness of 0.070 in. \pm 0.0025 in. (1.78 \pm 0.0634 mm) and the diameter of the bottom plane surface of the pan is to be 10 \pm 1 inches (254 \pm 25.4 mm). (re: definition above)

Test method:

The control for the surface element covered with the pan containing the corn oil is to be adjusted to the position or setting resulting in maximum intended heating conditions. All other burner and oven controls are to be in the off position.

The range or counter-mounted cooking unit, (as applicable) is to be installed as required for the Normal Temperature Test except that all exposed surface of the enclosure visible after the appliance is installed are to be covered with a single layer of cheesecloth.

The range (or cooktop) is to be operated continuously until ultimate results have

been attained, all oil has been burned away or 7 h, whichever occurs first. As a result of this test there shall be no ignition of the oil.

Exception: If the oil ignites, additional suppression means shall be provided to extinguish the fire within a period of 30 seconds after the first evidence of flame in the pan. There shall also be no charring or ignition of cheesecloth located on the enclosure walls

Compliance criteria depending on the method used:

If the means to avoid ignition employs solid-state circuitry (such as one that controls the input to a heating element), the circuit and associated suppression means shall comply with the Standard for Safety-Related Solid-State Controls for Electric Ranges, UL858A. If the programming of software whose failure could result a risk of injury to persons or loss of property, the software and associated circuitry, as applicable, shall comply with the requirements in the Standard for Safety-Related Software, UL1998.

If the circuitry described above incorporates a smoke detection system, it shall comply with the requirements in the Standard for Single and Multiple Station Smoke Alarms, UL217. In addition, if the detection means operated in conjunction with an extinguishing means, the extinguishing means shall comply with the requirements in the Standard for Halogenated Agent Extinguishing System Units, UL1058 in conjunction with the Standard for Fire Testing of Fire Extinguishing Systems, UL300.

If the means to avoid ignition employs a timer or manual shut-off means is provided for compliance, the timer and/or shut off shall be located within 3 feet of the appliance, it shall be readily visible to the user and shall clearly state it's intended purpose.

If the means to avoid ignition employs a fire sensing means which may be incorporated into a surface element, it shall be located such that cleaning can be accomplished without damaging or disturbing the intended operation of the device as determined by wiping the sensor with a 3 by four inch (76 by 102 mm) sponge wetted with water. In addition, parts of the sensor that are intended to be removed for cleaning shall be subjected to 6,000 cycles of insertion and removal with no damage to the sensor's operation.

If the means to avoid ignition employs visual, infrared, motion or other sensing means, it shall be designed such that the sensing means can be installed to prevent unintentional operation during normal cooking. Such a device shall be provided with clear and complete instructions for the installation and shall be arranged so that it cannot be defeated by the user.