FILE NAME: Asbestos in Hair Dryers (HD)

DATE: мфтп Wdzy Ŝ мн

DOC#: HD0po

5OCUMENT DESCRIPTION: [ŜűűŜ₦ ₹₦2Y DλftŜűűŜ ű2 / t { / ø λűK wŜăLJ2yãŜ ű2 wŜljdzŜăű ű2 Ly₹2₦YlűλzY ! ō2dzű {LJŜŎλ₹λŎ I l·λ₦ 5₦èŜ₦ a 2ŘŜťă

FILE GATL
MAX HAIR DRYERS

The Gillette Company
Prudential Tower Building
Boston, Massachusetts 02199
(617) 421-7000

James Robert Lajoie
Senior Attorney

June 12, 1974

Mr. Carl Blechschmidt
Director, Division of Product
Defect Identification
Consumer Product Safety Commission
Room 202
5401 Westbard Avenue
Washington, D.C. 20207

Re: CPSC 15P - 129
CPSC 15P - 130

Dear Mr. Blechschmidt:

This letter is in response to your above-referenced requests for information regarding The Gillette Company's Max hair dryer THD-2 and Super Max hair dryer HD-7. As I noted to Mr. Kitzes of your office in a telephone conversation on May 29, 1974, Gillette recently moved its Appliance Division from Chicago to Boston; your mailgrams were forwarded to us from Chicago and were received on May 29, 1974. This letter will discuss the issues you raised with regard to the THD-2 and HD-7 and supply you with the information you requested with respect thereto.

Evaluation of Possible Risk

In your mailgrams you suggest that the heating coils in the THD-2 and HD-7 might short circuit. In order to evaluate the risk, if any, which such short circuiting might present, it is necessary to consider the possible consequences thereof. Short circuits in the heating coils produce arcing--minute, momentary electrical discharges. Arcing is to be distinguished from sparking: the latter exists only where incandescent matter is expelled. The arcing caused by heating coil short circuits is the same sort of brief electrical discharge one gets when plugging in any household appliance.

The only danger to which such arcing could conceivably lead is the igniting of nearby flammable material which could only happen if the arcing occurred outside the unit. There is apparently no standard test to evaluate this sort of risk;

It is our understanding that Underwriters' Laboratories, Inc. is currently working to devise such a test. In lieu of any standard test, we attempted to ignite two highly flammable fabrics by means of the arcing from 14 HD-7 dryers which had exhibited coil shorts in a previous test. (In that same test, no THD-2s had exhibited arcing outside the unit, which means that the likelihood of ignition of flammable materials is extremely low.) The materials chosen were surgical cotton and cheesecloth. These are among the most highly flammable of fabrics and are or will be used by Underwriters' Laboratories in ordinary flammability hazard testing. In the test, half of the HD-7s were wrapped in surgical cotton and half in cheesecloth. The exhaust grille on each dryer was removed to allow as much arcing as possible to contact the material (most arcing occurs inside the dryer - in only two out of eighty HD-7s examined in a previous test was there arcing outside the unit). A total of over 400 coil shorts were then generated by impacting the units.

In no instance did the flammable material ignite, scorch or discolor. In our opinion, such arcing as is generated by impact cannot ignite highly flammable materials, is not capable of causing any other damage and cannot be considered hazardous.

You suggest in your mailgram relating to the HD-7 that the plastic casing might burn. All HD-7 cases are made of polycarbonate, a material with excellent impact resistance characteristics. This plastic is not flammable in the sense that paper is flammable. It will not sustain combustion after being subjected to the flame from a match or a 30 second application of the flame from a butane cigarette lighter. Application of hotter and/or more prolonged flames will result in burning of the plastic, but even this will gradually self-extinguish: the case material is classified as self-extinguishing by Underwriters' Laboratories.

Apart from these characteristics of the plastic casing, all dryers made for the Appliance Division contain various structural safety features. There is, for instance, a thermostat which prevents the build-up of intense heat. One hundred percent of these are inspected twice during production. Furthermore, the possible sources of ignition in the HD-7 are insulated from the plastic casing by heat-resistant materials. For example, the heater box containing the coils is made from high density, heat resistant phenolic. The open ends of the heater box are shielded by a screen and phenolic grille on one end and an aluminum fan on the other.

We conclude that, although the plastic casing of the HD-7 can be made to burn, such an occurrence is extremely unlikely in actual use and in no case could be caused by heating coil arcing. Case flammability accordingly presents no substantial risk of injury to users of the HD-7.

Consumer Complaints

We have previously furnished the Consumer Product Safety Commission certain consumer complaint data for 1973 regarding the entire line of hand-held hair dryers sold

by the Appliance Division of The Gillette Company. In the present letter we would like to particularize this information for the THD-2 and HD-7, update to include available 1974 data and offer further information.

We classify certain of our consumer correspondence as "non-routine" complaints. These include instances where the consumer complained of personal injury (burned or singed hair, other hair damage, shock, burned skin) or property damage, or where our tests confirmed a serious product defect (thermostat failure, failure of dielectric test, actual signs of intense heat). It should be emphasized that, since almost all consumers are satisfied with repair or replacement of their dryer, complaints of personal injury or property damage are not in fact verified.

In 1973 the Appliance Division received a total of ten non-routine complaints on the THD-2. This represents .0006% of the number of THD-2 dryers estimated to be in the hands of consumers in 1973. One of the ten units was not returned, two were not examined (replacement of units under warranty), and three files have been misplaced following the Division's move to Boston. Three of the remaining four were found to have component defects or malfunctions unrelated to the possible heating coil defect referred to in your mailgram. The remaining unit exhibited a short circuit which may have been caused by heating coil shorting. Consumer complaints on the THD-2 for 1973 can be summarized as follows: four persons complained of burned or singed hair, three of shock, two of fire, flame or smoke, and one of property damage.

In 1973, three non-routine complaints were received on the HD-7, which represents .0003% of the number of units estimated to be in the hands of consumers in 1973. In two cases no apparent malfunction was discovered; one unit was not returned. Two persons complained of burned skin and one of shock.

For the first four months of 1974, the Appliance Division received 14 non-routine complaints on the THD-2; this represents .0008% of the number of dryers estimated to be in the hands of consumers as of April 30, 1974. Eleven of the units involved were returned and examined; of these, eight were found to contain component defects or malfunctions unrelated to coil shorting. Three of the remaining units had unspecified heating coil malfunctions (not necessarily short circuiting due to the mounting of the coils). Early 1974 complaints on the THD-2 can be summarized as follows: eight complaints of burned or singed hair, one of other hair damage, one of property damage, two of shock, and two of fire, flame or smoke. The THD-2 is no longer in production due to the introduction of new models.

For the same four months in 1974, the Appliance Division recieved 69 non-routine complaints on the HD-7, representing .0017% of the number estimated to be in the hands of consumers as of April 30, 1974. Fifty-one of the units involved were returned and examined; of these, 48 were found to have component defects or mal-

functions unrelated to loose heating coils; the remaining three contained unspecified heating coil malfunctions. The 69 complaints break down as follows: 30 complaints of burned or singed hair, two of other hair damage, one of property damage, ten of shock, 18 of burned skin, and eight of fire, flame or smoke.

In evaluating these statistics, it must be emphasized that the conditions complained of, if in fact they occurred, cannot be attributed to coil shorting for the reasons discussed above: coil arcing cannot cause shock or ignition of flammable materials. In the great majority of cases, various isolated component defects unrelated to loose heating coil mounting can be found which may have caused the conditions complained of; in some cases we simply do not know what, if anything, went wrong with the unit in the field. Arcing due to coil shorting leaves no traces on the unit.

In addition to the letters described above, we also receive letters complaining of incidents which are not borne out by the condition of the returned dryer (e.g., "fire" or "flame" is complained of, but the dryer shows no sign of heat; "explosion" is complained of but the dryer is returned intact) or incidents which we do not believe represent safety hazards (e.g., "blown house fuses", where of course other appliances may have contributed to the occurrence). We do not believe that these are sufficiently serious to be treated in the same fashion as the complaints described previously; nonetheless the number thereof is as follows: for the THD-2 for 1973 and the first four months of 1974, a total of 21 (representing approximately .0012% of the number in the hands of consumers on April 30); for the HD-7 since its introduction in August of 1973 through April 30, 1974, a total of 101 (representing approximately .0069% of the number in the hands of consumers on April 30).

Corrective Action

In order to estimate the incidence of heating coil short circuiting due to loose mounting of the coils, the Appliance Division subjected both the THD-2 and HD-7 to an energized impact test. Eighty units (40 new and 40 used) of each model were dropped one meter onto a hardwood block in all possible orientations. The incidence of coil shorting was determined by visual observation and by monitoring current draw. The incidence of coil support cord breakage was determined by visual observation. The used units are estimated to have been in the hands of consumers from 3-18 months (THD-2) or 4-10 months (HD-7). A total of six incidents of coil shorting were observed on the THD-2, and 43 on the HD-7. There was no correlation between coil shorting and unit age or impact surface. There was no evidence of heater support cord breakage, which means that the shorting was temporary only: the dryers tested could continue to be used after impact. There were two incidents of arcing outside the unit for the HD-7, and none for the THD-2.

As we have documented in the earlier sections of this letter, coil shorting is not hazardous; therefore, we would estimate the number of product units containing a

safety hazard due to such shorting as none. We estimate that as of April 30, 1974 there were approximately 1,726,000 THD-2s and 1,463,000 HD-7s in the hands of consumers. Based on the results of the impact test described above, we estimate that 130,000 THD-2s (7.5%) and 786,000 HD-7s (54%) could exhibit temporary coil shorting; of this number, based on the same test, no THD-2s and only 37,000 HD-7s (2.5%) could exhibit arcing outside the dryer.

Although the shorting is not hazardous, the Appliance Division realized that such a condition could be of concern to consumers who notice it and reflect on the quality of our product. Accordingly, as a result of a meeting held on May 6, 1974 with engineers of the Consumer Product Safety Commission, the following corrective actions were or are being taken with regard to the HD-7:

1. The manufacturer has been instructed to add to his present extensive quality control procedures a careful examination of all units produced for excessively loose heater coils; units which exhibit this condition will be scrapped or reworked. This is now being done.

2. A pilot lot of units is now being produced with several improvements, among which is a repositioning of coils to maximize the distance between coils. If subsequent evaluations show that these changes improve the quality and safety of the product, the changes will be made to production units as soon as possible.

3. There is a mica support in the center of the heater box which keeps the coils from hitting each other. Some prototypes are being made with two mica supports rather than one to provide more rigidity. This change will be made in production units as soon as is possible if evaluation results indicate an improvement in product quality and safety. Preliminary investigations in this area have shown that the additional mica support increases the loads required to cause short circuiting from about 60 G's to about 200 G's. A very severe impact against a hand generates about 70 G's.

4. The mica support mentioned above holds the coils in a slot which allows some movement between the coil and the support. Prototypes are now being made with holes rather than slots. This should hold the coils more securely and will become a part of production units as soon as possible after evaluation, if results show an increase in product quality and safety.

No changes to the plastic case material are contemplated since we feel that case "flammability" is not hazardous. In addition, the material presently used has excellent impact resistance characteristics.

No corrective action is contemplated on the THD-2 since it is no longer being produced due to marketing obsolescence.

In closing, we wish to emphasize again that we do not believe that either the THD-2 or the HD-7 contains a defect which would render it a substantial hazard to consumers using these products. If you have any questions or require any further information, please feel free to call at your convenience.

Very truly yours,

James R. Lojas

JRL/dd