United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

VOTE SHEET

DATE: SEP 10 1998

TO : The Commission
Sadye E. Dunn, Secretary

FROM : Jeffrey S. Bromme, General Counsel
Stephen Lemberg, Asst. General Counsel
Harleigh Ewell, Attorney, GCRA (Ext. 2217) HE

SUBJECT: Regulating Child-Play Risks of Multi-Purpose Lighters Under the Consumer Product Safety Act - Supplemental Vote Sheet

This vote sheet concerns the staff's supplemental briefing package on a draft proposed rule for multi-purpose lighters to address the hazard of fires started by young children who operate such lighters. A revised draft notice of proposed rulemaking ("NPR"), which would propose a consumer product safety standard for multi-purpose lighters, is at Tab G of the staff's briefing package.

Also, a draft NPR that would propose the Commission's determination, pursuant to section 30(d) of the Consumer Product Safety Act ("CPSA"), that it is in the public interest to regulate this risk under the CPSA is at Tab H of the staff's briefing package. 15 U.S.C. § 2079(d).

Please indicate your vote on the following options.

I. ISSUE A NPR TO REGULATE THE CHILD-RESISTANCE OF MULTI-PURPOSE LIGHTERS. Please check the relevant option(s) below.

____ 1. APPROVE THE DRAFT FEDERAL REGISTER NOTICE AT TAB G OF THE BRIEFING PACKAGE WITHOUT CHANGE.

____ 2. PUBLISH THE DRAFT FEDERAL REGISTER NOTICE WITH CHANGES (please specify).

____ 3. DO NOT ISSUE AN NPR FOR MULTI-PURPOSE LIGHTERS.

(Option I continued on page 2.)

CPSA 6 (b)(1) Cleared
9/10/98
____ No Mfrs/PrvtLbl
Products Identified
____ Excepted by
____ Firms Notified,
Comments Processed.

NOTE: This document has not been reviewed or accepted by the Commission.
Initial nh **Date** 9/10/98

____ 4. OTHER (please specify).

_____ _____
(Signature) (Date)

II. ISSUE A NPR TO REGULATE MULTI-PURPOSE LIGHTERS UNDER THE CPSA. Please check the relevant option(s) below.

____ 1. APPROVE THE DRAFT FEDERAL REGISTER NOTICE AT TAB H OF THE BRIEFING PACKAGE WITHOUT CHANGE.

____ 2. PUBLISH THE DRAFT FEDERAL REGISTER NOTICE WITH CHANGES (please specify).

____ 3. OTHER (please specify).

_____ _____
(Signature) (Date)

III. TAKE OTHER ACTION (please specify).

_____ _____
(Signature) (Date)

Comments/Instructions:

SUPPLEMENTAL INFORMATION

PROPOSED STANDARD FOR MULTI-PURPOSE LIGHTERS

For Further Information Contact:

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NOTE: This document has not been reviewed or accepted by the Commission.
Initial tlh **Date** 9/10/98

CPSA 6 (b)(1) Cleared
9/10/98
___No Mfrs/PrvtLblrs or Products Identified
X Excepted
___Firms Notified,
Comments Processed.

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United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

SEP 10 1998

MEMORANDUM

TO : The Commission
Sadye E. Dunn, Secretary

THROUGH : Jeffrey S. Bromme, General Counsel
Pamela Gilbert, Executive Director

FROM : Ronald Medford, Assistant Executive Director RM
for Hazard Identification and Reduction
Barbara J. Jacobson, Project Manager for MDW for BJJ
Multi-Purpose Lighters, Directorate for Epidemiology
and Health Sciences (301) 504-0477 ext. 1206

SUBJECT : Supplemental Information on Multi-Purpose Lighters

This memorandum forwards documents that provide additional information to support the staff recommendation to include all micro-torches within the scope of the proposed rule on multi-purpose lighters. As previously drafted, the scope excluded micro-torch "devices intended, or marketed, primarily for activities such as soldering, brazing, or welding." The staff now believes that it is important to include all micro-torches, regardless of how they are marketed, because they have some of the same uses as other types of multi-pupose lighters; e.g., igniting candles, fireplaces, charcoal or gas-fired grills, pilot lights, camp fires, and camping equipment such as camp stoves and lanterns. These uses, along with other general consumer uses such as hobbies and crafts, will make these products accessible to children and present the same potential risk of fire death and injury as other multi-purpose lighters.

The staff has updated the fire incident data and revised the supporting documents to reflect the staff recommendation. The supporting documents include the Preliminary Regulatory Analysis (TAB D) and the Initial Regulatory Flexibility Analysis (TAB E) which have been revised to include the known information about micro-torches. The draft Federal Register Notices for the proposed rule (TAB G) and the 30(d) rule (TAB H) have also been revised.

NOTE: This document has not been reviewed or accepted by the Commission.
Initial HL Date 9/10/98

CPSA 6 (b)(1) Cleared
9/10/98
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___Excepted
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Comments Processed.

The Summary of Supplemental Information following this memorandum also provides responses to the questions raised by the Commissioners at the July 29, 1998, briefing.

Attachments

Summary of Supplemental Information

A. Updated Fire Incident Data
(Refer to Staff Memorandum at TAB A)

A memorandum at TAB A provides updated incident data for child-play fires involving multi-purpose lighters. This memorandum replaces the memorandum provided in the July 15, 1998 briefing package. This memorandum includes information on an additional 29 fires resulting in an additional 6 deaths and 16 injuries. Twenty of the 29 fires were started by a child under the age of 5. The 6 additional deaths were associated with fires started by a child under age 5; 1 occurred in 1995 and 5 occurred in 1998. Thirteen of the 16 additional injuries were associated with fires started by a child under age 5.

Included in the above data is one fire started by a child under age 5 with a torch-type multi-purpose lighter. The child obtained the lighter near a furnace where it was being used to ignite the furnace pilot light. There were no deaths or injuries associated with this incident.

Based on the updated information, the staff has identified a total of 249 fires from January 1988 to the present that were reportedly started by children playing with multi-purpose lighters. These fires resulted in a total of 45 deaths and 97 injuries. For the incidents where the age of the fire starter was known, children under age 5 ignited 178 fires (76%) which resulted in 29 deaths and 71 injuries. Children age 5 and older ignited 57 fires that resulted in 16 deaths and 19 injuries. An additional 14 fires that resulted in 7 injuries were described as being caused by child play, but the ages of the children who ignited the fires were not cited.

B. Market Information
(Refer to Staff Memorandum at TAB D)

Based on information from industry sources, there are about 20 manufacturers and as many as 20 importers and private labelers of all types of multi-purpose lighters. Two Taiwan-based manufacturers that are known to supply micro-torches for import to the United States are Pro-Iroda, Inc., and Fu Ruey Enterprises. Major importers of micro-torches include Blazer Corporation and Master Appliance.

The retail prices of multi-purpose lighters have fallen significantly over the last couple of years. Retail prices start at less than $2.50 and most are less than

$8.00. However, some more expensive models retail for more than $20.00. Micro-torch multi-purpose lighters sell for as little as $12, but they more frequently sell for $20 or more.

As of 1998, an estimated 20 million multi-purpose lighters are being sold annually. Sales have been increasing at a rate of 5 to 10 percent annually. Micro-torch and other high-end lighters may represent less than 3 percent of the market for multi-purpose lighters.

C. Child-Resistant Design Feasibility
(Refer to Staff Memorandum at TAB B)

All multi-purpose lighters, including the micro-torch multi-purpose lighters, operate on the same principles. First, activation of a triggering mechanism releases fuel and produces a spark; and second, the spark ignites the fuel and generates a flame. The triggering mechanism may be a manually operated lever, knob, or button. Typically the spark originates from a piezo crystal or from a battery. The length of the nozzle, the flame intensity, and the flame temperature differ among various types of multi-purpose lighters.

A child-resistant mechanism could use a mechanical block to the triggering mechanism that most children under age 5 would not have the cognition, strength, or dexterity to overcome. Both the BIC SureStart™ child-resistant multi-purpose lighter and many child-resistant cigarette lighters use this concept. Another probable child-resistant mechanism would interrupt the spark-producing circuit.

A number of micro-torches have a feature that allows the fuel flow to continue after the lighter is released. This allows hands-free operation when the lighter is used for purposes such as soldering. To address the child-resistance issue with respect to lighters that have this hands-free feature, the staff recommends two requirements that are not in the cigarette lighter standard. The first new requirement (§ 1212.3(b)(2)) will help prevent the dangerous situation where a child who operates the child-resistant mechanism and lights the lighter could create a flame that would not go out when the lighter is released, even if it is dropped. The draft proposed rule specifies that, after the lighter is lit, an additional manual operation must be performed to activate the feature that allows the lighter to burn without being held by the user. This will prevent multi-purpose lighters from being lit when the hands-free feature is engaged.

The second new requirement is that a lighter that remains lit after it is released (hands-free operation) need not return automatically to the child-resistant condition when it is released. It must automatically reset, however, when or before the user lets go of the lighter after turning off the flame. This allows hands-free operation

but requires that, by the time the lighter is released, either without or after hands-free operation, the child-resistant mechanism will have reset automatically.

Alternatively, lighters would not be covered by a standard requiring a child-resistant mechanism if they did not have the self-ignition feature. Like some other types of torches, such micro-torches would be ignited with an external lighting device such as a flint spark generator, a match, or a cigarette lighter. Without a self-ignition feature, a micro-torch would not present the risk that a child would use it to ignite a fire.

Nothing about the design or function of micro-torches is inconsistent with what the staff has previously concluded - that it is technically feasible to design child-resistant features for multi-purpose lighters.

D. <u>Function, Appeal, and Availability to Children</u>
(Refer to Staff Memorandum at TAB C)

All multi-purpose lighters have the same function - to provide consumers with a useful tool for accomplishing a variety of household and recreational tasks requiring a flame. All multi-purpose lighters are hand-held, lightweight, compact, self-igniting, easy to carry, and convenient to store.

Uses for micro-torches and other types of multi-purpose lighters overlap. Product packaging and catalog descriptions promote some micro-torches for lighting grills, fireplaces, camp fires, camp stoves, and lanterns - the same types of tasks for which longer-nozzled multi-purpose lighters are promoted. In addition, micro-torches are tools for do-it-yourselfers, crafters, and hobbyists. The flames are claimed to be windproof and weatherproof, making micro-torch lighters more reliable for outdoor activities than other types of multi-purpose lighters.

The staff previously concluded that, for some children, the "toy-like" shape of multi-purpose lighters could enhance the attractiveness of these lighters over ordinary cigarette lighters or matches. This same conclusion applies to some micro-torch multi-purpose lighters. Children can find micro-torches attractive because their shape is appealing, they can be used during make-believe play, and they pique children's natural curiosity about fire.

The staff believes that micro-torches, like other multi-purpose lighters, are accessible to children because they are stored in and around the home. The staff is aware of one case in which a three-year-old boy ignited bedding materials with a micro-torch that had been used for lighting a furnace pilot light. The staff memorandum at TAB C lists a number of incidents where children accessed multi-purpose lighters kept in locations appropriate for tool storage. These locations include a tool box, a workbench, a tackle box, a tool shed, and storage areas.

E. Commissioner Questions

The following questions were asked by the Commissioners at the July 29, 1998 briefing on the proposed rule for multi-purpose lighters:

1. Why is a 12-month effective date needed?
(Refer to Staff Memorandum at TAB E - Section on Effective Date)

Staff Response:

The draft proposed rule provides for an effective date of 12 months from the date of publication of a final rule in the Federal Register. This 12-month effective date lessens the economic burden of the rule, especially on small firms and provides the time needed for those firms that have not yet begun research and product development.

While developing the Safety Standard for Cigarette Lighters, the staff estimated that it would take an average of 12 months to develop, test, retool, perform qualification tests, manufacture and ship the product. The results of the qualification testing must be reported to CPSC at least 30 days in advance of importation or distribution of the lighters. For foreign producers, the time required for importing complying lighters into the United States is a significant consideration since the importation date is considered the date of manufacture.

Some manufacturers have already begun working on child-resistant designs for multi-purpose lighters. These manufacturers, especially if they have developed child-resistant cigarette lighters in the past, may be able to meet an earlier effective date. In fact, one manufacturer introduced a child-resistant model in March 1998 and several others are working on designs.

Other manufacturers may not have begun any development work. Many small firms will not begin development work until the publication of a final rule. Additionally, many small firms, including some micro-torch manufacturers, do not have prior experience in developing child-resistant designs. The staff believes that these manufacturers may be adversely affected by an effective date shorter than 12 months. The staff does believe, however, based on our experience with the Safety Standard for Cigarette Lighters, that small manufacturers and importers should be able to develop or obtain complying product within 12 months.

A 12-month effective date does not mean that no benefits will occur prior to this date. As mentioned above, one model of a child-resistant multi-purpose lighter is already on the market. As was the case with child-resistant cigarette lighters, we expect other manufacturers to introduce their models as they get them developed in order to establish their position in the market.

2. What is the market share of the Olympian GM3X™ multi-purpose lighter?

Staff Response:

Based on information from the importer, the sales of the Olympian GM3X™ lighter represent substantially less than one percent of the market for multi-purpose lighters. Although the sales of this lighter are limited, the importer believes that over half of the sales of this multi-purpose lighter is for consumer use. The staff position is that any type of multi-purpose lighter sold to consumers will be accessible to children in and around the household. As demonstrated by the fire incidents, children are able to access multi-purpose lighters even when they are stored in locations that adults consider to be safely out of a child's reach. For these reasons, the staff continues to recommend that they be included in the proposed standard.

3. Why doesn't the draft standard <u>require</u> a child-resistant mechanism to allow for multiple operation attempts before the child-resistant feature resets automatically?

(Refer to Staff Memorandum at TAB F)

Staff Response:

To address the possibility of creating a hazardous use condition, the staff initially drafted the requirements of the proposed standard to "allow" multiple operation attempts of multi-purpose lighters before the child-resistant feature resets. The intent of this provision was to provide the manufacturers the flexibility they might need to assure that adding a child-resistant mechanism would not further delay the time it takes to operate a multi-purpose lighter. This concern has been expressed by manufacturers and is most relevant in situations such as igniting a gas grill where the potential for a flashback explosion increases as the time it takes to ignite the accumulating gas increases.

At the July 29, 1998 briefing the staff was asked why the provision in the draft proposed standard for the child-resistant mechanism "allowed" rather than "required" multiple operations before the child-resistant feature resets and requested the staff to look at the issue again.

The staff had concluded, based on limited testing with a gas grill at the CPSC Laboratory, that it was unlikely that sufficient gas would accumulate to create a greater risk as a result of adding a child-resistant feature. The most hazardous situation most likely exists when the lid of the grill is left closed (against manufacturer's warnings) and the gas is turned on.

The staff discussed this issue further and decided to revise Section 1212.2(b) of the draft standard. As revised, the reset feature must allow multi-operation attempts

unless the child-resistant mechanism can be disabled and the lighter operated in a single motion. If a manufacturer chooses to design a lighter which is operated in a single motion or that allows multiple lighting attempts, then the time it takes to operate the lighter should not be much different from a lighter without a child-resistant feature.

The staff has also revised Section 1212.3(b) of the draft proposed standard to accomodate the "hands free" operation feature specific to some micro-torch multi-purpose lighters. This feature allows the user to operate the micro-torch while it is in a stand in order to facilitate certain types of repair, hobby, and craft work. As drafted, for a lighter that can remain lit after it is released (hands-free operation), the child resistant feature need not return automatically to the child-resistant condition when it is released. It must automatically reset, however, when or before the user lets go of the lighter after turning off the flame. This allows hands-free operation but requires that, by the time the lighter is released, either without or after hands-free operation, the child-resistant mechanism will have reset automatically.

TAB A

United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

MEMORANDUM

DATE: August 20, 1998

TO : Barbara Jacobson, EH
Project Manager, Multi-Purpose Lighter Petition

Through: Mary Ann Danello, Ph.D., AED, Directorate for Epidemiology and Health Sciences MAD

FROM : Linda E. Smith, EHHA LES

SUBJECT: Fire Incidents Involving Multi-Purpose Lighters

This memorandum provides data on fires caused by children playing with multi-purpose lighters. These data are provided in support of the staff evaluation of a child-resistant standard for multi-purpose lighters.

Background

The Safety Standard for Cigarette Lighters required child-resistant features for cigarette lighters manufactured or imported after July 12, 1994. This standard is expected to be effective in reducing cigarette lighter fires started by young children, primarily those under age 5.

In 1995, the most recent year for which national fire loss estimates are available, there were an estimated 8,200 residential structure fires caused by children, of all ages, playing with lighters (Table 1). These fires resulted in 180 deaths and 1,220 injuries in 1995. Fire and injury estimates were lower for 1995 than for any of the four preceding years. Death estimates tend to fluctuate year-to-year due to their smaller numbers. Compared to 1994, when the Standard went into effect, 1995 data indicated that there was a greater reduction in child play lighter fires than in residential structure fires overall, reductions of 23 and 6 percent respectively. This could be the first indication of a reduction attributable to the lighter standard. However, other factors, such as general fire prevention efforts, also could be involved. Child play fires involving matches also decreased in 1995, a reduction of 15 percent compared to 1994.

Table 1. Estimated Residential Structure Fires, Deaths, and Injuries Caused by Children Playing with Lighters, 1991-1995.

Year	Fires	Deaths	Injuries
1991	8,500	240	1,430
1992	9,300	200	1,530
1993	9,900	170	1,600
1994	10,600	230	1,560
1995	8,200	180	1,220
Total	46,500	1,020	7,340
Mean	9,300	200	1,470

Note: These data include fires started by children under age 5 and by older children.

Source: Based on data from the National Fire Incident Reporting System, U.S. Fire Administration, and the National Fire Protection Association.[1]

National Fire Incident Reporting System (NFIRS) data, upon which national fire loss estimates are based, do not specify the age of the child who started the fire or the type of lighter involved. The U.S. Consumer Product Safety Commission (CPSC) currently is conducting a Cigarette Lighter Evaluation Study that will identify both the age of the child and the lighter type, i.e., cigarette or multi-purpose, involved in child play fires. Data collection for this Study, based on reports from participating fire departments, began in November 1997 and will continue through 1998. Fire estimates covering the Study period will require 1998 NFIRS data, which are not expected to be available until 2000 due to the time lag involved in local jurisdictions forwarding data to the U.S. Fire Administration.

Methodology

Lacking national fire loss estimates for multi-purpose lighters, CPSC data bases were searched for the period from January 1985 to the present, to identify fires caused

[1] Estimates were derived by computing the percentages of NFIRS residential structure fires, deaths and injuries that involved children playing with lighters and multiplying those percentages by the total number of U.S. residential structure fires, deaths, and injuries estimated from the National Fire Protection Association annual survey. Fire estimates were rounded to the nearest hundred. Death and injury estimates were rounded to the nearest ten.

by children playing with multi-purpose lighters. Data sources included consumer complaints, newspaper clippings, hospital emergency room-treated injuries, fire department reports, and investigation reports. Also included are incidents reported for the Cigarette Lighter Evaluation Study and incidents submitted with public comments on the Multi-Purpose Lighter Advance Notice of Proposed Rulemaking, January 16, 1997.

Results

EHHA identified a total of 249 fires reportedly started by children playing with multi-purpose lighters from January 1988[2] to the present. These fires resulted in a total of 45 deaths and 97 injuries (Table 2). Of these incidents, children under age 5 ignited 178 fires (76 percent of those where age of the fire starter was known). These 178 fires resulted in 29 deaths and 71 injuries (64 percent and 79 percent of deaths and injuries, respectively, where age of the fire starter was known). Children age 5 and older ignited 57 fires that resulted in 16 deaths and 19 injuries. An additional 14 fires that resulted in 7 injuries were described as being caused by child play but the ages of the children who ignited the fires were not cited.

One of the fires started by a 3-year-old child involved a multi-purpose lighter that was a micro-torch type. It was used by the household to light a furnace. The fire did not result in any deaths or injuries.

These data reflect frequency counts of incidents reported to CPSC. Therefore, they are considered a conservative indication of the extent of the total problem. Multi-purpose lighter fires often are reported as "lighter" fires, then identified as incidents involving multi-purpose lighters only after further investigation.

Table 2. Fires, Deaths, and Injuries Caused by Children Playing with Multi-Purpose Lighters, by Age of the Child Who Ignited the Fire, 1/1/88 - 8/6/98.

Loss Measure	Total	Age (Years) of Fire Starter		
		<5	5+	Unk.
Fires	249	178	57	14
Deaths	45	29	16	–
Injuries	97	71	19	7

Source: Consumer complaints, newspaper clippings, hospital emergency room-treated injuries, fire department reports, and investigation reports.

[2] No fire incidents involving multi-purpose lighters were identified for the period 1985 - 1987.

Since the regulatory action being considered is directed primarily to fires ignited by children under age 5, the characteristics associated with the two age groups, fire starters under age 5 versus age 5 and older, will be discussed separately.

A) Fires Caused by Children Under Age 5

Number of Incidents by Year

Among the 178 fires started by children under age 5 playing with multi-purpose lighters from January 1988 to the present, little change occurred in the annual number of reported fires until 1995 (Table 3). Part of the increase in 1995 and later years is believed to be related to CPSC's increased efforts to obtain more information on fires caused by children playing with lighters, to monitor the effectiveness of the 1994 Standard. When investigated, some fires were found to involve multi-purpose lighters. However, an increase in sales of multi-purpose lighters also has occurred.[3]

Table 3. Fires, Deaths, and Injuries Caused by Children Under Age 5 Playing with Multi-Purpose Lighters, by Year.

Year	Fires	Deaths	Injuries
1988	3	-	-
1989	1	-	2
1990	2	-	1
1991	2	-	-
1992	4	1	1
1993	7	3	4
1994	7	-	1
1995	17	6	8
1996	55	8	32
1997	47	4	8
1998*	33	7	14
Total	**178**	**29**	**71**

* Reports received through August 6, 1998.

Source: Consumer complaints, newspaper clippings, hospital emergency room-treated injuries, fire department reports, and investigation reports.

[3] Robert Franklin, EC, Multi-Purpose Lighters: Preliminary Regulatory Analysis, June 1998.

Fatalities, Injuries, and Property Loss

Twenty-four of the 29 fatalities were children under age 15 (Table 4). Twenty were under age 5; four were between the ages of 5 and 14. Fourteen of the children who died had started the fires themselves. Seven children who died were siblings of the fire starters. Four of the five adults who died were mothers of the children who started the fires. The four remaining fatalities involved other relatives, friends, and a child in a home child-care setting.

Seventeen of the 71 people who were injured required hospitalization. Several of the 17 were treated for extensive second and third-degree burns requiring long-term treatment (Attachment A). One 10-month-old child, burned over 80-90 percent of his body, lost all of his toes and most of his fingers. Most of the non-hospitalized persons who were injured received burns, smoke inhalation, or lacerations for which they were treated and released.

Table 4. Fatalities That Occurred in Multi-Purpose Lighter Fires Caused by a Child Under Age 5, by Age Group and Relationship to the Child Who Ignited the Fire, 1/1/88 - 8/6/98.

Relationship to Fire Starter	Age Group (Years) of Fatalities			
	Total	< 5	5-14	15+
Total	29	20	4	5
Self	14	14	-	-
Sibling	7	5	2	-
Mother	4	-	-	4
Other	4	1	2	1

Source: Consumer complaints, newspaper clippings, hospital emergency room-treated injuries, fire department reports, and investigation reports.

In addition to the fatalities and injuries that occurred, most fires also resulted in property damage. Many reports did not specify the amount of property loss; other reports cited relatively minor property loss. However, 35 of the 178 reports cited property damage of $50,000 or more.

Ages of the Children Who Ignited the Fires

Among the 178 multi-purpose lighter fires started by children under age 5, 146 (82%) of the children were either age 3 or 4 (Table 5). Three children were under age 2, indicating that even some very young children are able to operate these products.

Most reports did not specify the child's age in terms of both years and months. Among the 65 fires that involved 4-year-olds, only 19 incidents cited their ages in terms of months. Eight children were ages 4 years and 3 months or younger. Eleven children were ages 4 years and 4 months or older.[4]

Table 5. Age Distribution of Children Under Age 5 Who Ignited a Fire While Playing with a Multi-Purpose Lighter, 1/1/88 - 8/6/98.

Age (Years) of Fire Starter	Total	< 2	2	3	4	< 5*
Number	178	3	24	81	65	5

* Children were under age 5 but exact year of age was unreported.

Source: Consumer complaints, newspaper clippings, hospital emergency room-treated injuries, fire department reports, and investigation reports.

Product Brand Names

Review of the 178 fire incidents indicated that a product brand name was reported in 86 incidents. Of these, 77 (90 percent) involved one manufacturer. Each of the other nine incidents that reported a brand name cited one of eight other manufacturers.[5] Several reports cited the color of the product, but gave no information on brand name. Almost half the reports stated only that a multi-purpose lighter was involved.

B. Fires Caused by Children Age 5 and Older

Number of Incidents by Year

As among fires caused by younger children, little change in the number of identified child play fires caused by children age 5 and over occurred until 1995

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[4] The test protocol in the Safety Standard for Cigarette Lighters uses panels of children between the ages of 3 years and 6 months through 4 years and 3 months to establish the child resistance of the lighters.

[5] One of these lighters was a micro-torch type.

(Table 6). Among the 57 reported fires caused by children age 5 and over, 48 occurred since January 1995. This observed change is believed to be related, in part, to CPSC's increased efforts to obtain more information about lighter fires.

Table 6. Fires, Deaths, and Injuries Caused by Children Age 5 and Older Playing with Multi-Purpose Lighters, by Year.

Year	Fires	Deaths	Injuries
1988	1	-	1
1989	-	-	-
1990	-	-	-
1991	1	-	1
1992	3	1	1
1993	1	-	1
1994	3	3	4
1995	8	4	2
1996	10	1	-
1997	19	5	5
1998*	11	2	4
Total	**57**	**16**	**19**

*Reports received through August 6, 1998.

Source: Consumer complaints, newspaper clippings, hospital emergency room-treated injuries, fire department reports, and investigation reports.

Fatalities, Injuries, and Property Loss

Eleven of the 16 fatalities in fires caused by this age group were children; 5 were under age 5, and 6 were between the ages of 5 and 14 (Table 7). Five fatalities were the children who caused the fire. The remaining fatalities were other family members, when the relationship to the fire starter was reported.

Table 7. Age Group of Fatalities That Occurred in Multi-Purpose Lighter Fires Caused by a Child Age 5 or Older, 1/1/88 - 8/6/98.

Total	Age Group (Years) of Fatalities				
	Total	< 5	5-14	15+	Unk
	16	5	6	3	2

Source: Consumer complaints, newspaper clippings, hospital emergency room-treated injuries, fire department reports, and investigation reports.

Among the 19 reported injuries, at least six involved burns serious enough to be hospitalized. Five fires resulted in property damage of $50,000 or more. Many reports did not indicate amount of property loss.

Ages of the Children Who Started the Fires

Among the 57 children age 5 and older who ignited a multi-purpose lighter fire, more than half (37) were age five or six (Table 8). The oldest age reported was 14. There is no uniform definition in the fire community of the maximum age at which a child can cause a child play fire. However, a child play fire commonly is defined as a situation involving a child playing, without knowledge that fire can do damage.

Table 8. Age Distribution of Children Age 5 and Older Who Ignited a Fire While Playing with a Multi-Purpose Lighter, 1/1/88-8/6/98.

Age (Years) of Fire Starter	Total	5	6	7	8	9	10+
Number	57	22	15	8	4	1	7

Source: Consumer complaints, newspaper clippings, hospital emergency room-treated injuries, fire department reports, and investigation reports.

Summary

CPSC data indicate that children playing with multi-purpose lighters have caused a minimum of 249 fires that resulted in 45 deaths and 97 injuries, from 1988 to the present. Of these, children under age 5 caused 178 fires that resulted in 29 deaths and 71 injuries. Twenty of the 29 fatalities were children under age 5. The regulatory action being considered is directed to younger fire starters, those under age 5. These

data are considered a conservative indication of the extent of the hazard due to the nature of the incident identification process discussed earlier.

A distinctive characteristic of these fires is the severity of the injuries. Among the fires caused by children under age 5, three children received burns over 70% or more of their bodies, burns that will require extensive long-term treatment. Several others received burns that were less extensive, but serious enough to require hospitalization.

The high proportion of deaths of children under age 5, and the severity of the injuries illustrate the hazard associated with children playing with multi-purpose lighters. Nationally, 39 percent of the estimated 780 children under age 5 who died in home fires annually between 1991 and 1995, were in fires started by a child playing, usually with lighters or matches.[6] The data presented in this memorandum indicate that children playing with multi-purpose lighters have become a part of this problem.

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[6] John R. Hall, Jr., "Patterns of Fire Casualties in Home Fires by Age and Sex, 1991-1995," National Fire Protection Association, January 1998, p. 14.

Attachment A. Description of Hospitalized Injuries in Fires Caused by Children Under Age Five Playing with Multi-Purpose Lighters

No.	Date	Age of Victim	Injury/Treatment Description
1	2/2/89	1 yr	Hospitalized in fair condition
2	2/2/89	3 yrs	Hospitalized in critical condition
3	3/5/92	2 yrs	Burns to back & upper right thigh. Hospitalized, seen later for treatment of scarring.
4	1/22/95	12 mos	Hospitalized 1 month for 2nd & 3rd degree burns to arms, chin, chest. Will require skin grafts about age 15.
5	1/27/95	2 yrs	10 days in hospital.
6	4/4/96	15 mos	3rd deg burns to 70% of body. Will need several surgeries & skin grafts.
7	5/26/96	18 mos	3rd deg. burns to 70% of body.
8	6/13/96	49 yrs	Burns to 10% of body.
9	6/14/96	4 yrs	3rd deg. burn to 50% of upper body.
10	11/9/96	3 yrs	2nd deg. burn to 50% of back, also burns to arm & hand.
11	12/21/96	4 mos	2nd & 3rd deg. burns to hand & arm. Lost tips of 2 fingers.
12	12/24/96	18 yrs	Lacerations & burns.
13	1/6/97	6 yrs	2nd deg burns, knee to armpit.
14	1/16/97	adult	Burns to arms & smoke inhalation.
15	1/20/97	10 mos	Burns to 80-90% of body. Lost all fingers & thumb on one hand, 2 fingers & thumb on other hand. Lost all toes on both feet and one ear. Bones growing through skin.
16	1/16/98	4 yrs	Hospitalized several days for smoke inhalation.
17	4/5/98	3 yrs	1st or 2nd deg burns to 20% of body. Possible 3rd deg burns to small areas.

Source: CPSC Investigation Reports

TAB B

United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

MEMORANDUM

DATE: August 19, 1998

TO : Barbara Jacobson
Project Manager, Multi-Purpose Lighter Petition
Directorate for Epidemiology and Health Sciences

Through: Nicholas V. Marchica NVM
Acting Associate Executive Director
Directorate for Engineering Sciences
Roy W. Deppa RWD
Acting Director Mechanical Engineering

FROM : Eleanor Perry E.P.
Caroleene Paul C.P.
Division of Mechanical Engineering
Directorate for Engineering Sciences

SUBJECT: Feasibility Of Making Multi-purpose Lighters Child-Resistant

This memorandum examines the feasibility of making multi-purpose lighters child-resistant.

Multi-purpose lighters are hand-held, self-igniting, flame-producing devices that operate on fuel. The length of the nozzle and the flame intensity and temperature may differ. "Micro-torch" multi-purpose lighters have nozzles that are typically about one-half inch long. Nozzles of these lighters are designed to provide a fuel-air mixture capable of producing a very hot, almost invisible 2400 to 2500 degrees F blue flame. In contrast, other multi-purpose lighters have four to eight inch nozzles that function to extend the distance between the user's hand and the flame. These lighters produce cooler, very visible yellow-tipped flames.

All multi-purpose lighters operate on the same principle: 1. activation releases fuel and produces a spark; 2. the spark ignites the fuel and generates a flame. The triggering mechanism is a manually operated lever, knob or button. Typically, the spark originates from a piezo crystal or a battery.

Flame production in multi-purpose lighters depends upon successful operation of a triggering mechanism. Thus, a child-resistant mechanism could employ a mechanical block to prevent trigger activation that most children under age five would not have the cognition, strength, or dexterity to overcome. The BIC "SureStart" child-resistant multi-purpose lighter currently on the market uses a mechanical trigger block concept. Many child-resistant cigarette lighters also use some type of trigger block.

Another probable child-resistant mechanism would interrupt the spark producing circuit. Most multi-purpose lighters employ a piezo crystal to produce a spark. In these lighters a wire extends from the crystal to the spark location to complete the spark-producing circuit. A switch controlled by the child-resistant mechanism could interrupt this circuit.

The geometry and designs of "micro-torch" lighters make them suitable for some uses that are not practical for other multi-purpose lighters. The short nozzle and hot flame allow their use in soldering, melting and other repair and hobby activities. Most multi-purpose lighters extinguish on release of the triggering mechanism but some "micro-torches" have a feature that allows fuel flow to continue after the lighter is released. This feature gives a continuous flame for hands-free operation. There is no reason to believe that the proven trigger block type child-resistant mechanism or the conceptual electrical circuit interrupter would not work for all multi-purpose lighters. However, to address the child-resistance issue with respect to hands-free lighters, the staff has recommended two provisions that are not in the cigarette lighter standard. The first provision requires an additional manual operation to activate the continuous flame feature after the lighter is lit. This provision will help prevent the dangerous situation where a child who operates the child-resistant mechanism could create a flame that would not extinguish when the lighter is released, or even dropped. The second provision stipulates that a lit continuous flame lighter need not return automatically to the child-resistant condition when it is released. However, it must automatically reset when or before the user turns off the flame and releases the lighter. This allows hands-free operation but requires that the child-resistant mechanism automatically reset by the time the user has finished using the lighter

Alternatively, manufacturers could avoid developing a child-resistant mechanism for any multi-purpose lighter by eliminating the self-ignition feature. Such a lighter would need an external ignition source to produce a flame and could not be used "as is" by a child to set a fire.

United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

MEMORANDUM

DATE: August 6, 1998

TO : Barbara Jacobson, Project Manager, Multi-Purpose Lighter Project

Through: Jacqueline Elder, Deputy Assistant Executive Director
Office of Hazard Identification and Reduction

Dr. Robert B. Ochsman, Director, Human Factors Division
Directorate for Engineering Sciences

FROM : Carolyn Meiers, Engineering Psychologist, Human Factors Division
Directorate for Engineering Sciences (x1281) CM

SUBJECT: Micro-torches

INTRODUCTION

The U.S. Consumer Product Safety Commission (CPSC) is considering a mandatory standard that would require multi-purpose lighters to be child resistant. The Commission staff views micro-torches as multi-purpose lighters and therefore believes that they should be included within the standard. This memorandum discusses the functions and features of micro-torches and how they are similar to other types of multi-purpose lighters. It also addresses the appeal and availability of micro-torches to children.

DISCUSSION

Common Functions and Features

Micro-torches serve the same function as other types of multi-purpose lighters—to provide consumers with a useful tool for accomplishing a variety of household and recreational tasks requiring a flame. Multi-purpose lighters and micro-torches share the same features; they are hand-held, lightweight, compact, self-igniting (e.g., by pressing a trigger or button), easy to carry, and convenient to store.

TAB C

Uses for micro-torches and other types of multi-purpose lighters overlap. Product packaging and catalog descriptions promote micro-torches for lighting grills, fireplaces, camp fires, camp stoves, and lanterns. In one fire incident (IDI # 980428HWE7137), a micro-torch had been used by a consumer to light a furnace pilot light. These are the same types of tasks for which longer-nozzled multi-purpose lighters are promoted.

The higher-temperature flame of micro-torches increases their usefulness since they can be used as heat tools by do-it-yourselfers, crafters, and hobbyists. Promotional material claims that the torch flame is wind and weatherproof which makes it especially good for outdoor activities.

Appeal and Availability to Children

Human Factors believes that micro- torches are likely to appeal to and be attractive to children because of their shapes, which, for some pocket-type micro-torches, resemble toy "ray" guns or hose nozzles that children often play with in the summer. At age two, children begin true role play and symbolic play[1], therefore, some children may want to use micro-torches during make-believe play to imitate adults' behaviors with tools. In addition, upon seeing them operated, some children may play with micro-torches because of a natural curiosity about fire.

Like other multi-purpose lighters, micro-torches are often used and stored in and around the home, making them accessible to children. Staff is aware of one case (IDI # 980428HWE7137, referred to earlier) in which a three-year-old boy ignited bedding materials with a micro-torch that had been used for lighting a furnace pilot light. Micro-torches are likely to be stored in home tool boxes, tackle boxes, workbenches—anywhere tools are located. The following incidents further demonstrate that children access these areas:

> IDI # 940520CBB1490
> A three-year old saw a multi-purpose lighter on a basement **workbench**, started playing with it and set a fire.
>
> IDI # 9606CCC5285
> While his home was being remodeled, a three-year old took a multi-purpose lighter out of a **toolbox**. He is believed to have hidden it in the toy closet in his room for two weeks prior to setting a fire.

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[1] Goodson, B.D. & Bronson, M.B. (1985). *Guidelines for Relating Children's Ages to Toy Characteristics* (Contract No. CPSC-85-1089). Prepared for the U.S. Consumer Product Safety Commission, Washington, DC.

IDI # 960701CCC5304
A four-year old took a multi-purpose lighter out of a **tackle box** while his parents thought he was asleep. He took it to his bedroom and ignited his curtains.

IDI # 970811HCC2364
A two-year old retrieved a multi-purpose lighter stored on a **high shelf in a tool shed**. The child apparently moved a box in front of a work bench, climbed on the work bench, and then climbed up five shelves to where he could reach the top shelf and the lighter.

IDI # 980109HCC2176
A three-year old started a fire with a multi-purpose lighter kept in a **storage area** with a grill.

CONCLUSION

Micro-torches have functions and features that are consistent with multi-purpose lighters. The high-temperature flame of micro-torches provides a greater variety of uses than other multi-purpose lighters. Because micro-torches are intended for household and recreational use, they will be stored in places that are accessible to children. Children can find micro-torches attractive because their shape is appealing, they can be used during make-believe play, and they pique children's natural curiosity about fire.

For children, micro-torches and other types of multi-purpose lighters are the same product perceptually and cognitively, with the same attraction and the same potential hazard.

TAB D

Multi-Purpose Lighters:
Preliminary Regulatory Analysis

Robert Franklin
Directorate for Economic Analysis
U.S. Consumer Product Safety Commission
August 21, 1998

Executive Summary

Multi-purpose lighters are commonly used to light charcoal and gas grills, pilot lights, camping stoves, candles and similar objects. Most use butane as a fuel source, which is ignited by a piezo crystal. Micro-torch lighters, a type of multi-purpose lighter, also have applications in activities such as soldering, bending plastics, and heat shrinking.

As of 1998, an estimated 20 million multi-purpose lighters (including micro-torch lighters) are being sold annually. Sales have been increasing at a rate of 5 to 10 percent annually. There are an estimated 20 manufacturers and as many more firms that import or privately label multi-purpose lighters. The number of firms is increasing as the market expands. The largest manufacturer has an estimated 90 percent of the market.

The retail prices of multi-purpose lighters have fallen significantly over the last couple of years. Retail prices start at less than $2.50 and most are less than $8.00. However, some more expensive models retail for more than $20.00. There is at least one model currently on the market that is child-resistant; at least one other company is believed to be actively developing a child-resistant model.

Based on available data, the societal costs of fires (deaths, injuries and property damage) resulting from children under the age of 5 operating multi-purpose lighters (including micro-torches) averages about $1.77 annually for each multi-purpose lighter in use. Based on the estimate of more than 20 million multi-purpose lighters in use, the total societal cost totals more than $35 million annually. A rule is expected to reduce such fires by 75 to 84 percent, resulting in a benefit (reduction of societal costs) of $1.33 to $1.49 for each child-resistant multi-purpose lighter for each year the lighter is available for use.

Manufacturers would incur costs to comply with the requirements of the proposed rule. The costs of designing, testing, retooling, and producing child-resistant multi-purpose lighters is expected to be about $0.40 per unit for most types of multi-purpose lighters. The retail prices of most multi-purpose lighters may increase by about $0.80 per unit as a result of a rule. The per-unit costs will likely be higher for other types of multi-purpose lighters, such as micro-torches.

Compliance with the proposed rule is expected to result in substantial net benefits to society. There are several alternatives the Commission could consider, including taking no action and relying on voluntary efforts to reduce childplay fires, establishing labeling requirements, and narrowing the scope of the rule. However, these alternatives would be expected to decrease the level of consumer safety.

Introduction

The U.S. Consumer Product Safety Commission (CPSC) is considering whether to propose a rule to address the risk of residential fires started by children under the age of 5 years playing with multi-purpose lighters (hereafter called "the proposed rule"). A multi-purpose lighter is a hand-held, self-igniting, portable device with a fuel source that is commonly used to ignite another fuel or other object, such as gas and charcoal grills, stoves, fireplaces, pilot lights, camping stoves, range burners, candles, and other things. The proposed rule does not cover matches or lighters intended primarily to ignite tobacco products, which are subject to the Safety Standard for Cigarette Lighters, 16 CFR 1210.

The CPSC is aware of 119 fires caused by children under age 5 playing with multi-purpose lighters, including micro-torches -- a type of multi-purpose lighter, that occurred in the three-year period from 1995 to 1997.[1] These fires resulted in 18 deaths and 48 injuries (See Table 1). Because these are only the known fires, the actual number of incidents is likely to be higher.

The CPSC initiated this rulemaking proceeding after it was petitioned, in February 1996, to amend the safety standard for cigarette lighters (codified at 16 CFR 1210) to include the Scripto Aim 'n Flame disposable butane lighter within the scope of that standard. The Commission published an advance notice of proposed rulemaking on January 16, 1997. The proposed rule recommended by the staff would cover the Scripto Aim 'n Flame, as well as other multi-purpose lighters and micro-torches.

The proposed rule is published under the authority of the Consumer Product Safety Act ("CPSA"), 15 U.S.C. 2051-2084. This report provides (1) a summary of the requirements of the proposed rule (2) background product and market information and (3) a discussion of the likely benefits and costs of the proposed rule and (4) a discussion of reasonable alternatives to the proposed rule.

In addition to the requirements of the CPSA, the Commission is required by the Regulatory Flexibility Act of 1980 (RFA) to address and give particular attention to the economic effects of the proposed rule on small entities. The RFA requires that an agency publish an initial regulatory flexibility analysis if the agency does not certify that the proposed rule will not have a significant economic impact on a substantial number of small entities.

The Commission is required by the National Environmental Policy Act of 1969 (NEPA) to consider potential environmental impacts of any proposed rule. This report also contains a preliminary environmental impact review.

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[1]The analysis is limited to this 3-year period because the data available for other years are less complete.

Requirements of the Proposed Rule

The proposed rule addresses the risk of death and injury caused by children under the age of 5 playing with multi-purpose lighters, including micro-torches. Manufacturers or importers of products meeting the definition of "multi-purpose lighters" would have to certify that their products comply with the rule and provide evidence of a reasonable testing program to support the certification. The proposed rule would contain a protocol that provides specific minimum requirements and features of a required testing program to establish that multi-purpose lighters are child-resistant. The proposed rule also establishes certain minimum recordkeeping and reporting obligations for manufacturers, importers, and distributors. The proposed effective date of the rule is one year after the date of publication of a final rule in the Federal Register. All multi-purpose lighters manufactured in the U.S. or imported after that date will have to comply with the requirements of the rule.

The test protocol is intended to determine the percentage of children in a specified age range that could be expected to be able operate the lighter. The protocol requires that modified, non-fuel-containing surrogates be used in the tests in place of production lighters. These surrogates must operate in the same manner as production lighters. If a child succeeds in operating the surrogate, a visual or audible signal is produced. If at least 85 percent of the children in the test panel are unable to operate the surrogate lighter, the production lighter complies with the child-resistance requirements.

Product and Market Information

The Product

Multi-purpose lighters are used around the home for lighting barbecue grills, other gas appliances, pilot lights, candles, camping equipment, and other products. The type of multi-purpose lighter known as "micro-torches" also has applications in soldering, bending plastics, heat shrinking, various types of repair work, and hobbies and crafts. Micro-torches are also often marketed as "cigar torches" or "cigar lighters." Most multi-purpose lighters have an extended nozzle from which the flame is emitted. The nozzle is typically four to eight inches in length, but can be less, and in some cases may be 18 inches or more. Some higher-priced models have flexible nozzles that can be bent to reach difficult places. Most micro-torches do not have an extended nozzle, but have a relatively long, thin, and steady flame that can be directed to its target. Most multi-purpose lighters use butane fuel. While some multi-purpose lighters are refillable, especially the high-end multi-purpose lighters and micro-torches, the models that are dominant in the market are not refillable.

These lighters are operated by applying pressure to a trigger, button, or sliding mechanism. This action releases the butane fuel and activates a spark at the end of the nozzle that ignites the fuel. Because the fuel must travel from the reservoir, usually located in the handle, to the end of the nozzle, the spark is sometimes activated before the fuel reaches the

end of the nozzle. When this happens, the fuel will not be ignited. This often occurs when the user attempts to operate the lighter too rapidly. The user of a multi-purpose lighter often must make several attempts before successfully producing a flame. This problem is less common in other types of lighters, such as cigarette lighters, since the fuel reservoir is much closer to the spark. Some higher-priced multi-purpose lighters overcome this problem by using a battery that causes a spark to be continuously generated, ensuring the fuel will be ignited.

Sales and Useful Product Life

Multi-purpose lighters were introduced by Scripto-Tokai in 1985. Micro-torches, representing a small portion of the annual unit sales of multi-purpose lighters, were also introduced around 1985. According to Scripto-Tokai, it sold one million units the first year. Sales of multi-purpose lighters have been increasing rapidly since their introduction. An estimated 16 million units were sold in 1995, and an estimated 20 million units or more are expected to be sold in 1998. Industry sources expect sales to increase at the rate of 5 to 10 percent annually over the next several years. More than 100 million multi-purpose lighters have been sold since 1985.

The useful life of a multi-purpose lighter depends on the frequency with, and purpose for, which it is used. If a typical multi-purpose lighter contains enough fuel for an average of 1,000 lights[2], a multi-purpose lighter that is used several times a day would be expected to last less than one year. On the other hand, a lighter that is used less than once a day, or only seasonally, could be expected to be used for 2 or more years. The useful life of a multi-purpose lighter may also be limited if its operating mechanisms break or wear out before the usable fuel is exhausted, or if the lighter is lost. While as many as 20 million lighters were sold in 1997, a study based on a panel of 20,000 households indicated that fewer than 8 million U.S. households purchased multi-purpose lighters between October 1996 and October 1997.[3] This suggests that most multi-purpose lighters have a useful life of less than one year, and/or that a large proportion of households that have multi-purpose lighters use more than one lighter over the course of a year.

The useful life of the more expensive models and micro-torches can be substantially longer. These are refillable lighters that retail for $20 to more than $100. Since these products are not designed to be disposable, they can be expected to have useful lives of several years. Thus, although the unit sales of these products account for a very small portion of the annual

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[2]What constitutes an "average" light is less certain than with cigarette lighters, where the average time to light a cigarette is fairly predictable. While using a multi-purpose lighter to light a candle may require little time (and fuel), lighting a gas grill may require more time. The multi-purpose lighter would first have to be lit, the gas for the grill turned on, and then the gas would have to build up to the level where it is ignited.

[3]Information Resources Inc. study. Results provided by BIC Corporation.

sales of multi-purpose lighters, they can be expected to account for an increasing proportion of the number in use at any one time.

Manufacturers

Although the precise number is unknown, based on information from industry sources, there are about 20 manufacturers of all types of multi-purpose lighters and as many more importers and private labelers. Some manufacturers supply more than one importer or private labeler. The number of firms participating in the market may increase as sales increase. Three manufacturers are members of the Lighter Association, a trade association representing manufacturers of cigarette lighters. The Lighter Association estimates that its members have more than 95 percent of the market for multi-purpose lighters in the United States. The manufacturer with the largest market share is Scripto-Tokai Corporation. Industry sources indicate that Scripto-Tokai may have 90 percent of the market. Other major manufacturers include Swedish Match ("Cricket" brand), BIC, and Flamagas.

There appears to be little overlap between the manufacturers and importers of micro-torches and the manufacturers and suppliers of the other types of multi-purpose lighters. Most micro-torches are imported from Asian countries, especially Japan, Taiwan, and China. Two Taiwan-based manufacturers that are known to supply micro-torches for import to the United States are Pro-Iroda, Inc., and Fu Ruey Enterprises. Major importers of micro-torches include Blazer Corporation and Master Appliance.

Retail prices for multi-purpose lighters generally start at less than $2.50, and most retail for less than $8.00. However, some high-end multi-purpose lighters retail for $20 to $40 or more. Micro-torches have been observed retailing for as little as $12, but they more frequently retail for around $20 to more than $100. The high-end and micro-torches combined may have less than three percent of the market for multi-purpose lighters.

BIC Corporation recently introduced a multi-purpose lighter that it reports to be child-resistant. BIC expected that its multi-purpose lighter would sell for between $3.99 and $4.99, but its observed retail prices have been as low as $3.49 and as high as $5.49. Since BIC is a major manufacturer of cigarette lighters with a national distribution network already established, its entry into the market for multi-purpose lighters may absorb a significant share of the market from other manufacturers. However, since the market for multi-purpose lighters is growing, even though the market share of some manufacturers may be reduced by BIC's entry into the market, the effect on each manufacturer's total sales of multi-purpose lighters is less certain.

BIC Corporation manufactures its multi-purpose lighter at a facility in South Carolina. Only one other manufacturer, Donel, is known to produce multi-purpose lighters domestically. Scripto-Tokai imports its lighters from Mexico. Flamagas (Clipper brand) lighters are

produced in Spain. Most other lighters are manufactured in Asian countries, such as Japan, the Philippines, Taiwan, Korea, and China.

Substitutes for Multi-Purpose Lighters

Several products are reasonable substitutes for multi-purpose lighters (with the exception of some uses of micro-torches). Indeed, these substitutes are probably used by more households than use multi-purpose lighters. The most likely and versatile substitute for multi-purpose lighters is probably ordinary box or book matches. Compared with about 8 million households purchasing multi-purpose lighters in 1997, a 1991 study for the CPSC indicated that more than 60 million households had matches (either book or box matches). Cigarette lighters can also be used for many of the purposes for which multi-purpose lighters are used.

Assuming that the typical multi-purpose lighter has enough fuel for 1,000 lights, the consumer cost per light is between 0.25 cents (i.e., one-fourth of one cent) and 0.8 cents.[4] The consumer cost per light for box matches is estimated to be less than 0.3 cents.[5] Other types of matches, such as book matches, cost less per light. The cost per light of cigarette lighters is about 0.1 cents.

There are also reasonable substitutes for micro-torches when they are used in applications such as soldering. The closest substitutes would likely be non-self-igniting butane torches. These are functionally identical to self-igniting micro-torches when used for torch applications, except that they must be ignited with a match or other external lighter. Electric soldering irons can also be used for many of the same applications. The cost to consumers of these substitutes may be reasonably similar to the cost of micro-torches when used in some applications.

Regulatory Analysis

Potential Benefits of the Proposed Rule

The proposed rule is intended to reduce fires resulting from young children playing with multi-purpose lighters, including micro-torches. The benefits to society of the proposed rule are the expected reduction in fires and the deaths, injuries, and property damage associated with these fires. While the proposed rule is intended to address such fires caused by children under the age of 5 years, there may also be some reduction in the number of fires

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[4]If the retail price of a multi-purpose lighter is $2.50, then $2.50/1,000 lights is $0.0025/light. If the retail price of a multi-purpose lighter is $8.00, then $8.00/1,000 lights is $0.008/light.

[5]Based on retail prices observed in the Washington, DC area; 750 box matches typically sold for $2.05, or $0.0027 each.

started by children who are 5 years of age and over, since some portion of these children may not be able to operate a child-resistant multi-purpose lighter.

The Commission is aware of 119 from 1995 through 1997 fires started by children under age 5 years playing with multi-purpose lighters. These incidents include the fires started with micro-torches, which according to ESHF staff, present a risk pattern similar to other types of multi-purpose lighters.[6] These incidents, which are summarized in Table 1 below, resulted in 18 deaths, 48 injuries, and substantial property damage. The analysis is limited to this 3-year period because the data available for other years is less complete. If we assume a cost of $5 million for each fatality, an estimate that is consistent with the existing literature, a point estimate of the societal costs of the known fatalities between 1995 and 1997 is approximately $90 million. Of the 48 non-fatal injuries, 12 involved victims that were hospitalized with burns, some severe. An earlier CPSC study estimated that the average cost of a hospitalized fire burn was $898,000; the average cost of a non-hospitalized burn injury was estimated to be $15,000.[7] These estimates include medical treatment, lost income, and pain and suffering. Using these estimates, the total cost of known injuries from Table 1 is approximately $11.3 million (12 x $898,000 plus 36 x $15,000). The property damage associated with cigarette lighter fires from childplay was estimated to be an average of $15,000 per incident. Assuming the incidents with multi-purpose lighters are similar to the those resulting from cigarette lighters, the total property damage associated with the incidents in Table 1 is estimated to be at least $1.8 million ($15,000 x 119 fires).

Table 1. Fire Losses Resulting from Children Under 5 Operating Multi-Purpose Lighters

Year	1995	1996	1997	Total
Fires	17	55	47	119
Deaths	6	8	4	18
Injuries	8	32	8	48

The total societal cost of the known incidents for the three years, including the costs associated with deaths, injuries, and property damage, is about $103 million. It is important to note that these cost estimates are based only on the incidents reported to CPSC, not on national fire loss estimates. There are likely to be other incidents of which CPSC is not aware. Therefore, the $103 million figure is probably an underestimate of the societal cost of fires that occurred between 1995 and 1997.

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[6]CPSC Memorandum dated August 6, 1998, from Carolyn Meiers (ESHF) to Barbara Jacobson, Project Manager, Multi-Purpose Lighter Project.

[7]Ray, Dale R. and William W. Zamula, Societal Costs of Cigarette Fires, U. S. Consumer Product Safety Commission, August, 1993.

The proposed rule is not expected to eliminate all fire incidents involving children under the age of 5. Some children will probably be able to operate multi-purpose lighters that meet the requirements of the rule. Indeed a multi-purpose lighter will meet the requirements of the proposed rule provided no more than 15 percent of the subjects in the test panel can operate the lighter (or the surrogate used in place of the lighter).

On the other hand, some children under the age of 5 cannot operate the non-child-resistant multi-purpose lighters currently on the market. CPSC baseline testing indicates that, depending on the model, 4 to 41 percent of test subjects cannot operate non-child-resistant multi-purpose lighters.[8] Therefore, all other things equal, the proposed rule for multi-purpose lighters is expected to reduce the number of children under the age of 5 that can operate multi-purpose lighters by 75 to 84 percent, depending on the model.[9] Assuming that this reduces the number of fires started with multi-purpose lighters by children under the age of 5 by the same percentage, the societal costs of the fires will be reduced. For example, during the 1995 through 1997 time frame, societal costs would have been reduced by $77.3 million to $86.6 million had all multi-purpose lighters been child-resistant, based only on the fire incident data collected by the Commission.

The expected benefits of the proposed rule will be even higher if manufacturers achieve a child-resistance level greater than 85 percent to ensure that their designs will achieve at least the minimum level of child resistance required by the proposed rule. The experience with cigarette lighters indicates that most manufacturers achieve 90 percent or higher child resistance. If manufacturers of multi-purpose lighters achieve the same level of child resistance the estimated societal benefits of the proposed rule could be 6 to 11 percent higher than previously estimated.

Potential Costs of the Proposed Rule

There will be several types of costs associated with the proposed rule. Manufacturers will have to devote some resources to the development or modification of technology to produce child-resistant multi-purpose lighters. Before being marketed the lighters must be tested and certified to the new standard. It is also possible that manufacturing child-resistant lighters may require more labor or material than non-child-resistant lighters. Finally, the utility that consumers derive from lighters may be diminished if the new lighters are more difficult to operate.

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[8]CPSC did not conduct baseline testing on micro-torches; however, this analysis assumes that the child-resistance of micro-torches is similar to that of other multi-purpose lighters.

[9]For lighters that already have a high baseline child resistance (e.g., could not be operated by 41 percent of the test subjects, the improvement will be 75 percent [(0.85-0.41)/(1.0-.41)=0.75]. For lighters that do not have a high degree of baseline child resistance (e.g., could not be operated by only 4 percent of the test subjects, the improvement will be 84 percent [(.85-.04)/(1-.04)=.84].

Manufacturing Costs

Manufacturers will have to modify their products to comply with the proposed rule. In general, costs that would be incurred by the manufacturers in developing, producing, and selling new complying lighters include the following:

- Research and development toward finding the most promising approaches to improving child resistance, including building prototypes and surrogate lighters for preliminary child-panel testing;

- Retooling and other production equipment changes required to produce child-resistant multi-purpose lighters, beyond normal periodic changes made to the plant and equipment;

- Labor and material costs of the additional assembly steps, or modification of assembly steps, in the manufacturing process;

- The additional labeling, recordkeeping, certification, testing, and reporting that will be required for each model.

- Various administrative costs of compliance, such as legal support and executive time spent at related meetings and activities; and

- Lost revenue if sales are adversely affected by the child-resistant features.

Industry sources have not provided firm estimates of these costs. One major manufacturer, BIC, has introduced a child-resistant multi-purpose lighter. However, because BIC previously did not manufacture a non-child-resistant lighter, they were unable to estimate the incremental cost of developing and manufacturing child-resistant multi-purpose lighters.

A representative of another manufacturer speculated that the costs of developing, testing, and retooling for production of multi-purpose lighters might be $1 million per manufacturer, if it is possible to adapt the same technology used to make cigarette lighters child-resistant. However, according the manufacturer's representative, if it were not possible to adapt the cigarette lighter technology, the costs could be as high as $5 million per manufacturer. Another manufacturer expected these costs to be significantly less than $1 million.

Although it is conceivable that some manufacturers will spend as much as $5 million to develop and retool to produce child-resistant multi-purpose lighters, especially if they have to make several attempts before they come up with acceptable designs, the investment in

research and development by most manufacturers will likely be closer to $1 million.[10] If, however, it is assumed that there are 15 manufacturers of multi-purpose lighters (not including micro-torches) and that each invests an average of $2 million to develop and market complying lighters, the total industry cost for research, development, retooling, and compliance testing would be approximately $30 million. If amortized over a period of 10 years, and assuming a modest 3-percent sales growth each year, the average of these costs would be about $0.13 per unit.[11] For a manufacturer with a large market share (i.e., selling several million units or more a year), the cost per unit of the development costs could be lower than the estimated $0.13 per unit, even at the high end of the estimates. On the other hand, for manufacturers with a small market share, such as the manufacturers of the high-end lighters, the per-unit development costs would be greater. Some manufacturers with small market shares may drop out of the market (at least temporarily) or delay entering the market.

The costs per unit to develop and retool to produce child-resistant designs may be substantially higher for micro-torches since these costs would be amortized over a significantly lower production volume. If we assume that the cost to develop and retool for producing child-resistant micro-torches averages $2 million per manufacturer (as was assumed for other multi-purpose lighters), and we assume that there are 5 manufacturers, the total industry costs would be $10 million.[12] If an average of 500,000 micro-torches were sold annually, the cost per unit to develop and retool for producing child-resistant micro-torches would be about $2/unit. These numbers are used more to provide an illustration of the issues involved rather than provide estimates of the impact of the rule under consideration. The number of micro-torches sold annually is not known. One industry source estimated that sales are at least in the "tens of thousands." Another stated that industry sales were in "thousands rather the millions." Thus, the actual sales could differ from the 500,000 units used in the above example.

Another factor that may increase the development costs for micro-torches over the costs to develop other multi-purpose lighters is the fact that some micro-torches can be set to allow "hands-free" operation. Therefore, some manufacturers may have to develop modifications in child-resistant technologies to allow for this feature.[13] Alternatively, manufacturers could eliminate the self-igniting features from micro-torches intended to allow

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[10]This estimate is similar to the estimate used in evaluating the cigarette lighter standard.

[11]If 20 million lighters are sold in the first year (approximately the current annual sales volume) and sales increase at the rate of 3 percent a year (industry sources indicate that they have been growing at 5 to 10 percent annually) then over a 10 period approximately 230 million lighters would be sold. $30 million/230 million = $0.13/unit.

[12]Some firms that produce micro-torches may have more than one model to redesign and therefore, may incur even higher costs.

[13]CPSC Memorandum dated August 12, 1998, from Eleanor Perry and Caroleen Paul (ESME) to Barbara Jacobson, Project Manager, Multi-Purpose Lighter Project.

for hands-free operation. Although this option would not likely impose a substantial cost on manufacturers, it could reduce the convenience and utility of multi-purpose lighters for some users.

In addition to the research, development, and retooling costs just discussed, material and labor costs are likely to increase. For example, additional labor will be required to add the child-resistant mechanism to the lighter during assembly. Additional materials may also be needed to produce the child-resistant mechanism. While we were unable to get reliable estimates, some industry sources indicated that these costs would be relatively low, probably less than $0.25 per unit.

Multi-purpose lighters will also be required to have a label that identifies the manufacturer and the approximate date of manufacture. However, virtually all products are already labeled in some way. Since the requirement in the proposed rule allows substantial flexibility to the manufacturer for things such as color, size, and location, this requirement is not expected to increase the costs significantly.

Certification and testing costs include costs of producing surrogate lighters, conducting child panel tests, and issuing and maintaining records for each model. The largest component of these costs is believed to be building surrogates and conducting child-panel tests which, based on CPSC experience, may cost about $25,000 per lighter model. Administrative expenses associated with the compliance and related activities are difficult to quantify, since many such activities associated with the proposed rule would probably be carried out anyway and the marginal impact of the rule is probably slight. Overall, certification, testing, and administrative costs are expected to add about $0.02/unit to the manufacturing costs.[14] Because of the lower sales volume, the per-unit costs for micro-torch multi-purpose lighters is expected to be higher.

Multi-purpose lighters are sold in countries other than the United States. Some manufacturers may develop lighters that meet the requirements of the proposed rule for distribution in the United States, but continue to distribute the current, non-child-resistant models in other countries. Thus, some manufacturers may incur the incremental costs associated with producing multiple lines of similar products. These costs could include extra administrative costs required to maintain different lines and the incremental costs of producing different lines of similar products, such as using different molds or different assembly steps. These costs would, however, be mitigated if similar or identical standards were adopted by other countries.

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[14]This estimate assumes there are 15 manufacturers with 1 multi-purpose lighter model each and an average of $30,000 for certification, testing, and administrative costs per lighter the total costs would be $450,000. Dividing this by 20 million (estimated annual sales) comes to $0.02/unit. Although the estimate assumes that these costs are incurred annually, in fact, these costs are likely to be lower in subsequent years.

In total, the proposed rule will likely increase the cost of manufacturing multi-purpose lighters by about $0.40 per unit for most multi-purpose lighters.[15] This estimate is in the range provided by the Lighter Association in response to the ANPR of $0.25 to $0.75 per unit. The proposed rule will likely increase the cost of manufacturing micro-torch lighters by a greater amount per unit. The range for the increase in manufacturing costs per unit for micro-torch lighters is likely to be higher than $0.40 per unit. However, the available information is insufficient to provide a reliable estimate of the cost.

The proposed rule contains anti-stockpiling provisions, authorized by section 9(g)(2) of the CPSA, to prohibit excessive production or importation of non-complying lighters during the 12-month period between the publication date and the effective date of the proposed rule. The provision would limit the production or importation of non-complying products to 120 percent of the amount produced or imported in the most recent calendar year before the issuance of the final rule. While the anti-stockpiling provision should have little impact on the market as a whole, it may, however, have an adverse impact on small importers or manufacturers that were just entering the market for multi-purpose lighters. Such firms may have had low sales volume in their first year or two of operation, and thus their base volume would be low. In the absence of the anti-stockpiling provisions, they may have been able to increase their sales volume by a greater proportion than would be allowed under the anti-stockpiling provision.

Effects on Competition and International Trade

At the present time, one manufacturer has about 90 percent of the market for multi-purpose lighters. The other manufacturers, importers, and private labelers divide up the remaining 10 percent of the market, with none of the other manufacturers thought to have more than 2 or 3 percent of the market. Thus, there is already a very high degree of concentration in the market. Even so, at least one manufacturer has already entered the market with a model that meets the requirements of the proposed rule, and at least one other firm is believed to be actively developing a child-resistant lighter. Therefore, the proposed rule is not expected to have any significant impact on competition. Moreover, other firms are expected to enter the market for multi-purpose lighters, and thereby increase competition, as the market expands.

With the exception of BIC, which manufactures its multi-purpose lighters in South Carolina, and one smaller manufacturer, most multi-purpose lighters, including micro-torches, are imported. To the extent that BIC has developed a child-resistant multi-purpose lighter before other manufacturers have, they may benefit from the proposed rule. However, any

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[15]This estimate is based on the following estimates: $0.13/unit for research, development and retooling; $.25/unit for labor and materials; and $.02/unit for certification, testing and administrative costs. The per unit cost for high-end and torch-type lighters may be higher because the research, development, and retooling costs are amortized over much lower production volumes.

differential impact is likely to be slight and short-lived. Based on the experience with child-resistant cigarette lighters, an effective date 12 months after the publication of a final rule should give manufacturers sufficient time to develop child-resistant multi-purpose lighters. Therefore, other manufacturers are expected to have child-resistant multi-purpose lighters developed and ready to market before the effective date of the final rule. Some may enter the market with child-resistant models earlier.

Impact on Small Business

The Commission gives special consideration to the potential impact of its rules on small businesses. There are more than 30 manufacturers, importers, or private labelers of multi-purpose lighters. The number of firms participating in the market is increasing as the market grows. Although the dominant firms are not small, about half of the other firms may be small businesses. It is possible that the cost of developing a product that complies with the proposed rule could cause some of the small importers or private labelers to stop offering multi-purpose lighters, at least temporarily. However, many of the smaller importers and private labelers are believed not to manufacture the lighters themselves, but instead import or distribute the lighters for manufacturers based, for the most part, in other countries. It is the manufacturers that will likely bear most of the costs for development of the child-resistant models. Since these manufacturers often supply multi-purpose lighters to more than one importer or private labeler, the research and development costs are spread over a higher production volume. Moreover, multi-purpose lighters account for only a small percentage of many of the smaller importers' and private labelers' sales. Therefore, even if a small importer or private labeler stopped importing or distributing its own line of multi-purpose lighters, it is not likely to suffer a significant adverse effect if multi-purpose lighters accounted for a small percentage of its total sales. Some small firms that manufacture or import their own proprietary multi-purpose lighters may be more severely impacted. There are at least two small firms that market high-end and micro-torch multi-purpose lighters that market their proprietary designs.

The staff examined the information available on 30 firms that were identified as being manufacturers, importers, or private labelers of multi-purpose lighters. Of these, 16 have fewer than 100 employees and, thus, are considered to be small businesses according to guidelines established by the Small Business Administration. Of the 16 small businesses, one is known to manufacture its own lighters and 12 are believed to be importers. At least two of the importers have products that are produced exclusively for them by foreign manufacturers. Sufficient information was not available on the other three firms to make these determinations.

Impact on Consumers

Aside from increased safety, the proposed rule is likely to affect consumers in two ways. First, the increased cost for producing the child-resistant models will likely result in higher retail prices for multi-purpose lighters. Second, it is also possible that the utility derived from child-resistant lighters may be decreased if complying lighters are more difficult to operate.

The increased cost of manufacturing multi-purpose lighters will, for the most part, ultimately be borne by consumers. Generally, the increased cost of production will be passed on to the consumer in the form of higher prices. Assuming a typical 100 percent markup over the incremental cost to manufacturers (estimated at $0.40/unit) the proposed rule may be expected to increase the retail price of multi-purpose lighters by $0.80 per unit. However, some manufacturers may be unable to pass all of the incremental costs directly to the consumers. This may be especially true in the case of the up-front research and development costs. In these cases the costs may be indirectly borne by consumers in such forms as generally higher prices on the range of products produced by the manufacturer, or in the form of reduced earnings on investments in the company. The retail prices for micro-torch multi-purpose lighters will probably increase by a greater amount since the manufacturing costs per unit are greater.

The utility that consumers receive from multi-purpose lighters may be reduced if the rule makes the lighters more difficult to operate. This could result in some consumers switching to substitute products, such as cigarette lighters or matches. However, as has happened with child-resistant cigarette lighters, we expect that manufacturers will be able to develop child-resistant multi-purpose lighters that are only slightly, if any, more difficult for adults to operate than the non-child-resistant lighters. Therefore, the number of consumers who stop using multi-purpose lighters because of the child-resistant mechanisms is expected to be small. Moreover, even if some consumers do switch to other products, the risk of fire is not expected to increase significantly. Most cigarette lighters must already meet the same child-resistance standard being proposed for multi-purpose lighters. Although consumers that switch to using matches (as opposed to using child-resistant cigarette or multi-purpose lighters) may increase the risk of child-play fires somewhat, matches are probably inherently more child-resistant than non-child-resistant multi-purpose lighters. Previously, the staff determined that non-child-resistant cigarette lighters were 1.4 times as likely as matches to be involved in childplay fires and 3.9 times as likely to be involved in a childplay death.[16] Thus, even if some consumers did switch to using matches, the risk of child-play fires would still likely be less than if they continued to use non-child-resistant multi-purpose lighters.

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[16]Smith, Linda E., Charles L. Smith, and Dale R. Ray, Lighters and Matches: An Assessment of Risks Associated with Household Ownership and Use," U.S. Consumer Product Safety Commission, Washington, D.C. (June 1991).

Some manufacturers of micro-torches may respond to a rule requiring all multi-purpose lighters to be child-resistant by no longer offering micro-torches that are self-igniting. The consumer would have to use an external ignition source to light the torch. Although this option may not increase manufacturing costs, it could reduce the convenience and utility of the multi-purpose lighters. Consumers will have to provide external ignition sources, such as matches or other multi-purpose lighters, to ignite the torches. For example, it was previously estimated that the cost per light from a disposable cigarette lighter was about one-tenth of a cent per light. It will also take a more time to ignite such a torch, since both hands will be required and the worker or consumer will have to put down what they were working with to pick up the ignition source.

Estimated Net Benefits of the Proposed Rule

As previously stated, between 1995 and 1997 the total societal costs of fires known to have been started by young children playing with multi-purpose lighters was approximately $103 million or approximately $34.4 million per year. This is probably an underestimate, since it only includes the cases of which the staff is aware. Thus, the actual societal costs during those years was likely higher. During the same time period there were an average of 19.4 million multi-purpose lighters, including micro-torches, available for use each year.[17] Therefore, the societal cost of the incidents of the fires started by young children playing with multi-purpose lighters is about $1.77 per lighter in use ($34.4 million/19.4 million lighters). The proposed rule is expected to reduce this cost by 75 to 84 percent. Therefore, the expected societal benefit of the proposed rule in terms of reduced fires, deaths, injuries, and property damage is expected to be $1.33 to $1.49 per complying lighter sold for each year the lighter is in use. Based on the number of multi-purpose lighters now in use (over 20 million), the total societal cost of these fires exceeds $35 million annually.

The computation of the net benefits of the proposed rule depends on the expected number of years that a multi-purpose lighter is available for use. We estimate that the useful life of most multi-purpose lighters, excluding micro-torches, is about one year. Therefore, since the proposed rule would increase manufacturing costs by about $0.40/unit and increase the retail prices by an estimated $0.80 per unit, the net benefit to society will be at least $0.53 per unit ($1.33 - $0.80). If it is assumed that 20 million units are sold annually, the resulting net benefit to society would be about $10.6 million.

Some multi-purpose lighters, especially the micro-torch type, have useful lives of greater than one year. Therefore, the gross benefit of the proposed rule per lighter of this type is computed by summing the expected annual net benefit (estimated as $1.33 per unit above)

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[17]The average number of multi-purpose lighters, excluding micro-torches, that were in use was 18 million. This estimate was based on estimated annual sales and an estimated useful life of 1 year. The number of micro-torches available for use was estimated to be about 1.4 million. This estimate is based on less certain data and the assumption that micro-torches have an expected life of 10 years.

over the expected life of the lighter. For example, if a multi-purpose lighter, such as a micro-torch, had an expected useful life of 10 years, the gross benefit would be $11.14 per lighter, assuming a discount rate of 4 percent. As stated earlier, the costs/unit for manufacturing these micro-torch type multi-purpose lighters is likely to be higher. Assuming a markup at retail of 100 percent over manufacturing costs and a 10-year product life, if the cost increase per unit to manufacture child-resistant micro-torches is less than $5.57/unit, net social benefits would result. However, if the expected useful life of a micro-torch was only 5 years, the gross benefit would be $6.14/unit. This would suggest positive net benefits if the per unit manufacturing costs increase by less than $3.12 per unit. At this time, the staff does not have adequate information to estimate precisely the increase in manufacturing costs per unit.

The actual level of benefits observed could be higher if some multi-purpose lighters are stored with the ON/OFF switch in the "ON" position. CPSC tested the child resistance of 7 different, non-child-resistant lighters. The models tested were found to have a baseline child-resistance ranging from 4 percent to 41 percent. The expected effectiveness of the rule would thus be 75 percent to 84 percent. However, CPSC tests were conducted with the switches in the "OFF" position. In other words, the test subjects first had to turn the switch to the "ON" position before they could operate the surrogates. It is possible that the baseline child resistance would have been lower had the test been conducted with the switch initially set to the "ON" position. If a significant number of consumers commonly store multi-purpose lighters with the switch in the ON position, the effective level of child resistance of multi-purpose lighters currently in use may be lower than indicated by CPSC's baseline testing. This would have the impact of increasing the effectiveness of the rule and the value of the net benefits.

Alternatives to the Proposed Rule

There are possible alternatives to the proposed rule. These alternatives include not taking any action and relying on voluntary efforts, having only labeling requirements, and narrowing the scope of the rule. A different effective date could also be established.

No Action/Rely on Voluntary Efforts

One alternative is to take no action to reduce the occurrence of fires started by children playing with multi-purpose lighters. If no mandatory rule is issued, some manufacturers may still introduce child-resistant multi-purpose lighters. While these manufacturers can emphasize the safety of their product, they would be at a competitive price disadvantage compared to manufacturers who continue to sell non-child-resistant lighters. Although the portion of the market that would be captured by manufacturers of child-resistant lighters is not known, it is reasonable to assume it would be substantially less than 100 percent. Perhaps only 2 or 3 firms would offer such products. The benefits to society would be lower if voluntary efforts were relied upon than under a mandatory rule. For example, if

only 20 percent of the multi-purpose lighters were child-resistant if a mandatory rule were not issued, the benefits to society would be 20 percent of the benefits of a mandatory rule. Currently, there is no voluntary standard for child-resistant multi-purpose lighters. However, the Commission could work with appropriate standards-setting organizations to develop such a standard. However, even if a voluntary standard were developed, conformance with such a standard may be low since many of the products are imports.

Labeling Requirements

The Commission could choose not to issue a performance standard, but instead opt to require additional warning labels on multi-purpose lighters. However, the Federal Hazardous Substances Act already requires multi-purpose lighters be labeled "Keep out of reach of children." The effectiveness of additional labeling would likely be low.

Narrowing the Scope

The staff considered exempting the more expensive lighters from the rule. This would have been similar to the exemption in the cigarette lighter standard for lighters with a customs value or ex factory value greater than $2.00. This was intended to exempt certain luxury cigarette lighters for which there was little evidence of involvement in childplay fires. However, the CPSC does not have evidence that the more expensive multi-purpose lighters are less likely to be involved in childplay fires than the less expensive models. There is no evidence that the more expensive multi-purpose lighters, those retailing for more than $20, are stored or used differently around the home than are the more common and less expensive lighters. Furthermore, baseline testing indicates that some of the expensive lighters are at least as easy for children to operate as less expensive models. Therefore, there is not sufficient evidence to conclude that exempting the more expensive multi-purpose lighters from the proposed rule would significantly reduce the costs without significantly reducing the benefits.

The staff also considered exempting micro-torch lighters from the rule. The basis for this discussion was the fact that these products are best suited for use in activities such as soldering, welding, heat shrinking, and household repairs rather than lighting grills, candles, campfires, and other objects. However, many firms are promoting micro-torch lighters for these latter uses. The staff is also aware of at least one incident involving a fire started by a child under the age of 5 with a torch-type lighter. The lighter was being used to light the pilot light of a gas furnace, a use more characteristic of multi-purpose lighters than of torches. Although this is the only known childplay incident involving a torch-type lighter, the staff believes that they are attractive to children and that there is a potential for more incidents to occur.

Furthermore, micro-torch lighters represent only a small portion of the multi-purpose lighters in use. Micro-torches probably account for less than 5 percent of the multi-purpose

lighters in use and perhaps one percent of unit sales of multi-purpose lighters. Therefore, the lack of other incidents may be related to the low number of these products in use and not because these products are used more safely around the house. Although the per-unit costs to make torch-type lighters child-resistant may be higher than for other multi-purpose lighters, the benefits may also be higher since torch-type lighters have a longer useful life which would result in exposure to children over a longer period of time.

Alternative Effective Date

The proposed rule incorporates an effective date of 12 months from the date of publication in the Federal Register. However, the Commission could consider shorter or longer effective dates. The 12-month effective date lessens the economic burden of the rule, especially on small firms, while providing protection to consumers in a reasonably expeditious manner.

While developing the Cigarette Lighter Safety Standard the staff estimated that it would take an average of 12 months to develop, test, retool for production, perform production tests, and manufacture and ship the product.[18] The results of the compliance testing must be reported to CPSC at least 30 days in advance of the importation or distribution of the lighters. In addition, the time required for importing complying lighters into the United States will be a significant consideration for many firms. Some manufacturers, especially those that have been following the Commission's activities with regard to cigarette lighters and the development of the proposed rule may have already begun working child-resistant models. Manufacturers who have had experience with developing child-resistant cigarette lighters may be able to take advantage of their experience with the cigarette lighter standard and be able to manufacture and market child-resistant lighters sooner than 12 months. These manufacturers may be able to meet a 6 or 9-month effective date. In fact, at least one model is already on the market and we are aware of other manufacturers that are working on child-resistant designs.

On the other hand, manufacturers who have not to date or until very recently started following the Commission's activity with regard to this rulemaking procedure have not begun any development work. Additionally, manufacturers that do not also produce cigarette lighters, such some micro-torch manufacturers, do not have prior experience developing child-resistant designs. These manufacturers may be adversely affected by an effective date shorter than 12 months. However, based on our experience with the Safety Standard for Cigarette Lighters, most small manufacturers and importers should be able to develop or obtain complying product within 12 months.

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[18]CPSC Memorandum dated February 8, 1991, from Dale R. Ray (ECPA) to Barbara Jacobson (HS).

A twelve-month effective date does not mean that no benefits will occur until one year after the publication of the rule in the Federal Register. Indeed, one manufacturer already has a child-resistant multi-purpose lighter on the market. Other manufacturers can be expected to introduce their own models as they get them developed. Therefore, we expect that the number of child-resistant multi-purpose lighters on the market to begin increasing prior to the effective date of the rule.

Preliminary Environmental Assessment

Pursuant to the National Environmental Policy Act and in accordance with CPSC's procedures, consideration has been given to the potential environmental effects of the proposed rule. Less than 1 percent of the non-child-resistant multi-purpose lighters that are sold in this country are manufactured domestically. One manufacturer produces lighters domestically, but these lighters are already child-resistant.

The proposed rule is not expected to significantly alter the amount of materials, energy, or waste generated during production of the lighters. Nor is the proposed rule expected to cause manufacturers to shift production to other countries or locations. Molds and other tools used by manufacturers in the production of multi-purpose lighters or their components are periodically replaced. Potentially, the proposed rule may cause some manufacturers to replace the molds and other tools earlier than they would have otherwise. However, an effective date of one year from the publication date of a final rule should allow most manufacturers time to plan and minimize any impact.

The proposed rule does not require any recall of existing non-child-resistant lighters; therefore, there are no disposal issues with regard to the non-child-resistant lighters in use when a final rule becomes effective. The proposed rule, if issued, is not expected to affect the manner in which multi-purpose lighters are packaged for sale, or to affect the amount of butane or other fuel used in the operation of the lighters.

The staff concludes, from the available information, that the proposed rule would not significantly affect raw material usage, air or water quality, manufacturing processes, or disposal practices in a way that would significantly impact the environment.

Conclusion

The proposed rule would have substantial net benefits to consumers. The rule should approach its maximum effectiveness within a couple of years after its effective date, since most multi-purpose lighters typically have useful lives of about one year. At that time, as a result of the rule, the number of fires started by young children playing with multi-purpose lighters should be about 75 percent lower than what would be expected in the absence of the proposed rule.

There is at least one model of multi-purpose lighter on the market now that complies with the provisions of the proposed rule. It is expected that other manufacturers should be able to produce complying multi-purpose lighters before a final rule goes into effect. Therefore, there should be no disruption in the supply of multi-purpose lighters.

It is possible that some manufacturers, especially those with a small share of the market, may decide not to make the needed investment to develop child-resistant multi-purpose lighters. This required investment could be more than $1 million per manufacturer. Some small manufacturers or importers may stop producing multi-purpose lighters for the U.S. market, at least temporarily. However, since the market for multi-purpose lighters is growing, other firms can be expected to enter the market as the market expands. Therefore, any adverse impact on competition in the market would be small and temporary. Any adverse impacts would be further mitigated if similar requirements were adopted internationally.

A number of alternatives to the rule exist, including options regarding various aspects of the proposed rule itself. While some of the options may reduce the total costs of the rule, the level of safety would be reduced.

The proposed rule is not expected to have any significant impact on raw material usage, air or water quality, manufacturing processes, or disposal practices in a way that would significantly impact the environment.

TAB E

Proposed Rule on Multi-Purpose Lighters: Initial Regulatory Flexibility Analysis

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U.S. Consumer Product Safety Commission
August 21, 1998

Introduction

The Consumer Product Safety Commission (CPSC) is considering a proposed consumer product safety rule (hereafter referred to as "the proposed rule") and certification requirements for multi-purpose, including micro-torches. The Commission published an advance notice of proposed rulemaking (ANPR) initiating a regulatory development proceeding for multi-purpose lighters on January 16, 1997. As noted in the ANPR, the proposed rule addresses the risk of accidental fire-related death and injury associated with young children, particularly those under age 5, playing with multi-purpose lighters. The rule is being proposed under the Consumer Product Safety Act (CPSA), and would apply to manufacturers and importers of multi-purpose lighters, including micro-torches, sold in the U.S.

The Regulatory Flexibility Act (RFA) requires that rules proposed by the Commission be reviewed for their potential economic impact on small entities, including small businesses. Section 603 of the RFA calls for the Commission to prepare and make available for public comment an initial regulatory flexibility analysis describing the impact of the proposed rule on small entities and identifying impact-reducing alternatives. The initial regulatory flexibility analysis is to contain:

1) a description of the reasons why action by the agency is being considered;

2) a succinct statement of the objectives of, and legal basis for, the proposed rule;

3) a description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply;

4) a description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities subject to the requirements and the type of professional skills necessary for the preparation of reports or records; and

5) an identification, to the extent possible, of all relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule.

In addition, the initial regulatory flexibility analysis must describe of any significant alternatives to the proposed rule that would accomplish the stated objectives of the applicable statutes and that would minimize any significant economic impact of the proposed rule on small entities. RFA-suggested alternatives for discussion include: different compliance or reporting requirements for small entities; clarification, consolidation, or simplification of compliance or reporting requirements for small entities; the use of performance rather than design standards; and partial or total exemptions from coverage for small entities.

The Commission routinely considers potential effects on competition and small businesses as part of the agency's overall evaluation of potential economic effects of rulemaking actions. A summary of these effects is included in the preliminary regulatory analysis of the proposed rule required under Section 9(c) of the CPSA. Since some number of the affected firms are considered to be small companies, the Commission gives particular consideration to the potential economic effects of the proposed rule on such firms, and is issuing this initial regulatory flexibility analysis of the proposed rule.

Small Business Impact

Reasons for Agency Action

The Commission's proposed rule on multi-purpose lighters addresses the risk of death and injury from accidental residential fires started by young children playing with multi-purpose lighters. Since 1988, the Commission has identified 178 fires that were started by children under age 5 who were playing with multi-purpose lighters. These fires resulted in a total of 29 deaths and 71 injuries. Because these data are actual incidents rather than national estimates, the extent of the total problem may be greater. Based only on the fire incident data for the years 1995 through 1997, the societal costs of the known fires started by children under age 5 was $103 million. Fires started by young children (under age 5) are those against which the proposed rule would be most effective.

The Commission is required to consider whether appropriate voluntary standards could adequately address the problem rather than imposing a mandatory rule. However, no voluntary standard was submitted to the Commission for its consideration in response to the ANPR, and the Commission is not aware of any voluntary standard that addresses the problem. Therefore, deferring to a voluntary standard does not represent an alternative to the proposed mandatory rule.

Objectives of and Legal Basis for the Proposed Rule

In February 1996, the Commission received a petition to "Initiate Rulemaking Proceedings to amend 16 CFR 1210 Safety Standard for Cigarette Lighters to include the Scripto® Tokai Aim 'n Flame™ disposable butane multi-purpose lighter within the scope of the standard and its child resistant performance requirement." In January 1997, the Commission granted the petition and commenced rulemaking by publishing the ANPR. The proposed rule developed by the Commission would cover all lighters that meet the definition of a "multi-purpose" lighter contained in the proposed rule, including micro-torches, not just the Scripto® Tokai Aim 'n Flame™. Other than the definition of the covered product, the provisions of the proposed rule are essentially the same as the Safety Standard for Cigarette Lighters.

The purpose of the proposed rule is to reduce the risk of accidental child-play multi-purpose lighter fires. It is expected that making multi-purpose lighters child-resistant will substantially reduce the incidence and cost to society of these fires. The rule is being proposed under the authority of the CPSA. Section 9(c) of the CPSA requires the agency to consider economic effects of the proposed rule on industry and consumers, and to consider alternatives that might reduce the burden of the rule generally.

Requirements of the Proposed Rule

The proposed rule contains performance requirements that would require all lighters that meet the definition of a multi-purpose lighter, including micro-torches, to be child-resistant. Multi-purpose lighters are hand-held, self-igniting, flame-producing products that operate on fuel and is used by consumers to ignite items such as candles, fuel for fireplaces, charcoal or gas-fired grills, camp fires, camp stoves, lanterns, fuel-fired appliances or devices or pilot lights. Devices intended primarily for igniting smoking materials that are within the definition of "lighter" in the safety standard for cigarette lighters (16 CFR 1210.2(c)), matches, and products containing more than 10 ounces of fuel, are not considered to be multi-purpose lighters. The proposed rule also describes the test protocol to be used in establishing and verifying compliance. The protocol prescribes tests in which panels of young children attempt to operate modified or non-fuel-containing multi-purpose lighters. Manufacturers and importers would be required to label individual lighters, certify that their products comply with the rule, provide evidence of a reasonable testing program to support such certification, maintain testing and production records, and provide reports and product samples to the Commission.

Most manufacturers would build modified or surrogate lighters to perform the test protocol. However, manufacturers of models that have distinct operating sounds, such as click when the trigger is pulled, may not have to build surrogate models to perform the testing. These manufacturers may be able to use unfueled production lighters for the certification testing. Complying lighter designs would be those for which the test lighters or surrogates were successfully operable by fewer than 15 percent of children tested. All multi-purpose lighters manufactured or imported 12 months after the date of publication of a final rule in the Federal Register would have to comply. In addition, proposed anti-stockpiling provisions would limit the production or importation of non-complying lighters between the publication date and the effective date of a final rule.

Firms Subject to the Proposed Rule and Possible Impacts

The proposed rule covers manufacturers and importers of multi-purpose lighters, including micro-torches, intended for sale to consumers. The number of firms that manufacture or import these lighters is increasing. While at least 30 firms have been identified, there probably are other companies that manufacture or import multi-purpose

lighters in the U.S. that have not been identified. With the exception of one large manufacturer and perhaps one other smaller manufacturer, all firms are believed to be importers rather than domestic manufacturers. Several of the firms are affiliates or subsidiaries of larger firms or foreign manufacturers.

The staff examined the information available on 30 firms that were identified as being manufacturers, importers, or private labelers of multi-purpose lighters. Of these, 16 are believed to have fewer than 100 employees and are, therefore, considered to be small businesses according to the size standards established by the Small Business Administration (13 CFR 121.601). Of these 16 small businesses, 12 are believed to be importers that also sell products other than multi-purpose lighters. One may manufacture its own multi-purpose lighters. At least two importers have lighters that are produced exclusively for them by foreign manufacturers. The information available was not sufficient to make such determinations on the remaining 3 small businesses. One small firm claims that its multi-purpose lighter has child-resistant features. However, it has not tested its product according to the requirements of the proposed rule.

Most of the small importers and private labelers distribute lighters produced by foreign manufacturers. It is likely that the manufacturers will bear most of the costs for development and testing of the child-resistant models and amortize these costs over several years of production. These costs, as well as increases in the costs of production attributable to the child-resistant mechanism are expected to be passed through importers and private labelers to the consuming public.

Some small importers may experience some disruption in their supply of multi-purpose lighters if some of the foreign suppliers opt not to develop child-resistant multi-purpose lighters. However, the 12-month period between the publication of the final rule and its effective date should allow time for most importers to take action to ensure that they have a source for child-resistant multi-purpose lighters. Many of the smaller importers of multi-purpose lighters appear to be primarily engaged in manufacturing or importing other products, such as housewares, kitchen and barbecue utensils, hardware products, cigarette lighters and other tobacco accessories. Even if a small importer stopped distributing multi-purpose lighters, it probably would not suffer a significant adverse effect if sales of multi-purpose lighters accounted for only a small percentage of the firm's total sales.

The rule contains performance requirements rather than requiring a specific technology Therefore, it allows some flexibility to firms in designing child-resistant mechanisms. This should reduce the burden of compliance on many firms, both large and small. However, some small firms that manufacture their own multi-purpose lighters may not have the technical or financial resources to develop multi-purpose lighters that would meet the proposed rule. It is also possible that some small manufacturers will determine that the cost of developing a product that complies with the proposed rule is too high relative to their market share or output level. This could lead some small manufacturers to leave the market. Currently we are aware of only one small firm that may manufacture its own lighters and two small firms that

have their own proprietary designs of lighters that are manufactured for them by foreign manufacturers.

Small manufacturers and importers would be subject to all of the performance, testing, certification, and reporting provisions of the proposed rule. Although some small manufacturers and importers may not possess the necessary skills to conduct the required testing, there are independent quality control and engineering laboratories, and other private consultants that could perform the required testing with which these firms could contract. Records of the testing would probably be compiled by the testing laboratory and be maintained by the manufacturer's personnel. Copies of the reports and certification records would probably be maintained by the importers or their legal counsels.

The proposed rule allows importers to rely on testing that has been performed by or for a foreign manufacturer to support the proposed rule's certification and reporting requirements, provided that the records (1) are in English, (2) are complete, (3) can be provided to the Commission within a reasonable time period, if requested, and (4) provide reasonable assurance the multi-purpose lighters are child-resistant. This provision may reduce the testing burden on some small importers, since some manufacturers may supply lighters to more than one importer.

The reporting requirements of the proposed rule are necessary for the CPSC staff to monitor compliance. The staff is not aware of any method by which the reporting burden on small businesses could be reduced while still accomplishing the purpose of the proposed rule. The estimated reporting burden, however, is low. We estimate it will be about 100 hours per model per year.

Effective Date

The proposed rule incorporates an effective date of 12 months from the date of publication of the final rule in the Federal Register. The 12-month effective date lessens the economic burden of the rule, especially on small firms, while providing protection to consumers in a reasonably expeditious manner.

While developing the Cigarette Lighter Safety Standard the staff estimated that it would take an average of 12 months to develop, test, retool for production, perform production tests, and manufacture and ship the product.[1] The results of the compliance testing must be reported to CPSC at least 30 days in advance of the importation or distribution of the lighters. In addition, the time required for importing complying lighters into the United States will be a significant consideration for many firms. Some manufacturers, especially those that have been following the Commission's activities with regard to cigarette lighters and the

[1]CPSC Memorandum dated February 8, 1991, from Dale R. Ray (ECPA) to Barbara Jacobson (HS).

development of the proposed rule may have already begun working child-resistant models. Manufacturers who have had experience with developing child-resistant cigarette lighters may be able to take advantage of their experience with the cigarette lighter standard and be able to manufacture and market child-resistant lighters sooner than 12 months. These manufacturers may be able to meet a 6 or 9-month effective date. In fact, at least one model is already on the market and we are aware of other manufacturers that are working on child-resistant designs.

On the other hand, manufacturers who have not to date or until very recently started following the Commission's activity with regard to this rulemaking procedure have not begun any development work. Additionally, manufacturers that do not also produce cigarette lighters, including some small manufacturers and some micro-torch manufacturers, do not have prior experience developing child-resistant designs. These manufacturers may be adversely affected by an effective date shorter than 12 months. However, based on our experience with the Safety Standard for Cigarette Lighters, most small manufacturers and importers should be able to develop or obtain complying product within 12 months.

Other Federal Rules

The staff is not aware of any Federal rules that may duplicate, overlap, or conflict with the proposed rule. Although the Cigarette Lighter Safety Standard is similar to the proposed rule, multi-purpose lighters are not subject to that rule, since multi-purpose lighters are not intended primarily for lighting tobacco products.

Alternatives to the Proposed Rule

The staff considered three basic alternatives to certain elements of the proposed rule. Specifically, the staff considered (1) narrowing the scope to exclude high-end and micro-torch multi-purpose lighters, and (2) requiring additional labeling only, and (3) taking no action and relying on voluntary efforts.

Narrowing the Scope

The staff considered excluding from coverage of the proposed rule the high-end multi-purpose lighters, some of which retail for more than $20, as opposed to the less than $8 for which most multi-purpose lighters retail. This would have been similar to the exemption in the cigarette lighter standard for lighters with a customs value or ex-factory value greater than $2.00. The staff also considered excluding the micro-torch lighters from coverage.

Industry sources believe that the market share of the high-end multi-purpose lighters, including micro-torches, is low, probably accounting for around one percent of the unit sales.

There are 3 firms that are known to market high-end multi-purpose lighters; all three of these firms have fewer than 100 employees and are considered to be small businesses. (One firm claims that its multi-purpose lighter has features that should make it child-resistant.) Of the 6 firms that are known to distribute micro-torches, three have fewer than 100 employees and are considered to be small businesses.

While excluding the high-end multi-purpose lighters and micro-torch lighters from the scope of the proposed rule might reduce the impact of the rule on some small businesses, the CPSC does not have evidence that these multi-purpose lighters are less likely to be involved in child-play fires than the less expensive models. Baseline testing indicates that some of the high-end models are at least as easy to operate as some less expensive models. And, there is no evidence that the high-end multi-purpose lighters are stored differently around the home than are the less expensive lighters. Therefore, the staff determined that the high-end multi-purpose lighters and micro-torches should be required to meet the same child-resistance standard that the less expensive ones must meet.

Labeling Requirements

Although a labeling-only requirement would significantly reduce the burden of the proposed rule on all firms, large and small, the staff did not believe that any additional labeling would have a significant impact on the incidence of child-play fires. Furthermore, all multi-purpose labels are already labeled "Keep out of reach of children." Therefore, a labeling-only rule was not considered to be a preferable alternative to the proposed rule.

Taking No Action or Relying on a Voluntary Standard

Because there currently is no voluntary standard for child-resistance for multi-purpose lighters in existence or in the process of being developed, relying on (or deferring to) a voluntary standard is not an alternative for the Commission. Additionally, it seems unlikely that many firms would voluntarily market child-resistant multi-purpose lighters in the absence of a mandatory standard. If the non-child-resistant multi-purpose lighters cost less than the child-resistant lighters, the manufacturers of child-resistant lighters would be at a cost disadvantage in the marketplace. Consequently, not issuing a mandatory rule would not adequately address the hazard associated with multi-purpose lighters.

Summary and Conclusions

The proposed rule on multi-purpose lighters will affect all manufacturers and importers of multi-purpose lighters, including micro-torches, in the U.S. Perhaps half or more of these firms would be considered to be small businesses. Most of the small firms are believed to be importers of lighters manufactured by foreign suppliers. These importers will be impacted by

the proposed rule's certification, recordkeeping, and reporting requirements. The higher costs of manufacturing child-resistant lighters incurred by their suppliers will likely be passed onto to these firms as well. Some of the firms may have temporary disruptions in their supply of multi-purpose lighters because of the proposed rule. However, it is uncertain whether any of these effects would be "significant."

In addition to the small importers, there are a few small firms that manufacture their own multi-purpose lighters or have their own proprietary designs manufactured for them. The proposed rule may have a significant impact on these firms if the firms do not have the technical expertise or resources to develop child-resistant mechanisms for their multi-purpose lighters.

Some alternatives to the proposed rule were considered that may have reduced the burden on small manufacturers. However, these alternatives were rejected since the level of safety that would be achieved was lower under these alternatives than under the proposed rule. These alternatives included taking no action, requiring additional labeling only, and exempting the high-end multi-purpose lighters from the scope of the proposed rule.

TAB F

United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

MEMORANDUM

DATE: August 26, 1998

TO : Barbara Jacobson
Project Manager, Multi-Purpose Lighter Petition
Directorate for Epidemiology and Health Sciences

Through: Nicholas V. Marchica NVM
Acting Associate Executive Director
Directorate ~~for~~ Engineering Sciences
Roy W. Deppa
Acting Director Mechanical Engineering

FROM : Eleanor Perry for E.P.
Caroleene Paul CP.
Division of Mechanical Engineering
Directorate for Engineering Sciences

SUBJECT: Flash-Back Prevention

This memorandum examines the feasibility of allowing multiple operations of a multi-purpose lighter's ignition mechanism before child-resistant feature reset.

Ignition of a multi-purpose lighter utilizing a piezo device requires activation of a trigger which releases fuel and provides a spark. The fuel may not always reach the spark location at the same time the spark is generated. Consequently, the consumer may need to activate the trigger more than once in order to create multiple sparks. This unreliability in lighter ignition was cited as a reason they should not be made child-resistant. It was claimed if multiple attempts are required to light a barbecue grill, for example, the delay caused by resetting a child-resistant mechanism before each attempt could allow dangerous gas build-up and result in a flash-back fire.

The staff recognized a minimal possibility of gas build-up during ignition delay but does not agree that child-resistant multi-purpose lighters will create hazardous use conditions. Based on testing using gas barbecue grills, the risk of flame-up or small explosion for some grills is minimal for short periods of delayed ignition, such as 5-10 seconds. This risk can be avoided altogether by igniting the lighter before turning on the gas.

To further minimize the possibility of creating a hazardous condition, the staff has added a provision to require that multi-purpose lighters allow multiple lighting attempts during activation of the child-resistant feature. Allowance for multiple operations without reactivation of the child-resistant mechanism can be obtained by designing it to reset on release. One currently marketed multi-purpose lighter, with a child-resistant mechanism which has passed the cigarette lighter protocol for child-resistance, uses this approach. Another lighter provided to the Commission, but not tested for child resistance, also has a mechanism that resets on release. Both lighters use a trigger block mechanism. Activation in each case requires the mechanism to be placed and held in the off position during trigger activation. Thus, both lighters allow multiple activations as long as the child-resistant mechanism is held in the off position. Releasing this mechanism causes it to reset and block the trigger.

The provision that requires multiple lighting attempts during activation of the child-resistant feature does not apply if the lighter requires only one motion to overcome the child resistant mechanism and ignite the fuel. If a manufacturer designs a child-resistant lighter which is activated in a single motion, then the time it takes to operate that lighter should not be noticeably different from a lighter without a child-resistant feature.

A child-resistant feature that allows multiple lighting attempts or requires only one motion to activate the lighter will not further delay lighter ignition. With such designs, the lighting efficiency of a child-resistant multi-purpose lighter should be equal to that of a non-child-resistant multi-purpose lighter after the initial activation attempt.

TAB G

DRAFT - 9/9/98

Billing Code 6355-01P

CONSUMER PRODUCT SAFETY COMMISSION

16 CFR Part 1212

Multi-purpose lighters; Notice of Proposed Rulemaking

AGENCY: Consumer Product Safety Commission.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Commission has reason to believe that unreasonable risks of injury and death are associated with multi-purpose lighters that can be operated by children under age 5. Multi-purpose lighters are hand-held, self-igniting, flame-producing products that operate on fuel and typically are used to light devices such as charcoal and gas grills and fireplaces. Devices intended primarily for igniting smoking materials are excluded; such products are already subject to a child-resistance standard at 16 CFR Part 1210.

The Commission is aware of 178 fires from January 1988 through August 6, 1998, that were started by children under age 5 using multi-purpose lighters. These fires resulted in 29 deaths and 71 injuries.

DRAFT

This notice of proposed rulemaking ("NPR") proposes a rule mandating performance standards for the child resistance of multi-purpose lighters. The Commission solicits written comments from interested persons on the proposed rule.

DATES: Written comments and submissions in response to this notice must be received by the Commission by [insert date that is 75 days after publication in the FEDERAL REGISTER].

Comments on elements of the proposal that, if issued, would constitute collection of information requirements under the Paperwork Reduction Act may be filed with the Office of Management and Budget ("OMB") and with the Commission. Comments will be received by OMB until [insert date that is 60 days after publication].

ADDRESSES: Comments to CPSC should be mailed, preferably in five copies, to the Office of the Secretary, Consumer Product Safety Commission, Washington, D.C. 20207-0001, or delivered to the Office of the Secretary, Consumer Product Safety Commission, Room 502, 4330 East-West Highway, Bethesda, Maryland; telephone (301) 504-0800. Comments may also be filed by telefacsimile to (301) 504-0127 or by email to cpsc-os@cpsc.gov. Comments should be captioned "NPR for Multi-purpose lighters."

Comments to OMB should be directed to the Desk Officer for the Consumer Product Safety Commission, Office of

Information and Regulatory Affairs, OMB, Washington, DC 20503. The Commission asks commenters to provide copies of such comments to the Commission's Office of the Secretary, with a caption or cover letter identifying the materials as comments submitted to OMB on the proposed collection of information requirements for multi-purpose lighters.

FOR FURTHER INFORMATION CONTACT: Barbara Jacobson, Project Manager, Directorate for Epidemiology and Health Sciences, Consumer Product Safety Commission, Washington, D.C. 20207; telephone (301) 504-0477, ext. 1206; email bjacobson@cpsc.gov.

SUPPLEMENTARY INFORMATION:

A. Background

1. The product. Utility lighters are defined in § 1212.2(a)(1) of the rule proposed below as follows:

> (a)(1) "Multi-purpose lighter," also known as grill lighter, fireplace lighter, utility lighter, micro-torch, or gas match, means: a hand-held, self-igniting, flame-producing product that operates on fuel and is used by consumers to ignite items such as candles, fuel for fireplaces, charcoal or gas-fired grills, camp fires, camp stoves, lanterns, fuel-fired appliances or devices,

or pilot lights, or for uses such as soldering or brazing.

(2) Exclusions. The following products are not multi-purpose lighters:

(i) Devices intended primarily for igniting smoking materials that are within the definition of "lighter" in the Safety Standard for Cigarette Lighters (16 CFR 1210.2(c)).

(ii) Devices that contain more than 10 oz. of fuel.

(iii) Matches.

Multi-purpose lighters often have a nozzle long enough to reach hard-to-light places. Further, the long nozzle allows safer ignition of products, such as gas grills, where the fuel may flare up when ignited. On certain lighters, the nozzle is flexible. Multi-purpose lighters also include lighters with shorter nozzles. Some of this group include a burner that operates at a higher flame temperature than other multi-purpose lighters. These lighters are sometimes referred to as micro-torches.

Multi-purpose lighters are activated by applying pressure to a trigger or button mechanism, which initiates fuel flow and causes a spark. Most multi-

purpose lighters now sold include some type of on/off switch. Usually, this is a two-position slider-type switch that must be in the "on," or unlocked, position before the lighter can be activated.

Some multi-purpose lighters (micro-torches) may have a control that allows the lighter to remain lit after the user lets go of the lighter. This, in conjunction with a stable base or stand, allows hands-free operation of the lighter during operations such as soldering.

The on/off switch currently provided on multi-purpose lighters would not comply with the requirements for child resistance in the cigarette lighter standard, since the on/off switch is easy for young children to operate and does not reset to the "off" position automatically after each operation of the ignition mechanism of the lighter. 16 CFR 1210.3(b)(1).

2. Procedural background. On July 12, 1993, the Commission published a consumer product safety standard that requires disposable and novelty cigarette lighters to have a child-resistant mechanism that makes the lighters difficult for children under 5 years old to operate.[1] 16 CFR 1210. The cigarette lighter standard excludes lighters that are primarily intended for

[1] 58 FR 37554. The standard became effective July 12, 1994.

igniting materials other than cigarettes, cigars, and pipes.

In February 1996, Judy L. Carr petitioned the Commission to "initiate Rulemaking Proceedings to amend 16 CFR 1210 Safety Standard for Cigarette Lighters to include the Scripto® Tokai Aim 'n Flame™ disposable butane 'multi-purpose' lighter within the scope of that standard and its child resistant performance requirements."

On May 7, 1996, the Commission published a FEDERAL REGISTER notice soliciting comments on topics related to issues raised by the petition. 61 FR 20503. The Commission received nine comments in response to that notice. After considering these comments and the other available information, the Commission voted to grant the petition and commence a rulemaking proceeding that could result in a mandatory standard for the child resistance of multi-purpose lighters.

The rulemaking was commenced by publication in the FEDERAL REGISTER of an advance notice of proposed rulemaking ("ANPR"). 62 FR 2327 (January 16, 1997). In a notice published January 8, 1998, the Commission extended the time for publishing a notice of proposed rulemaking until September 30, 1998. 63 FR 1077.

Nine comments were received in response to the ANPR. The Commission responds to these comments, and to three

comments received earlier, in Section H of this notice. After considering these comments, the results of baseline testing of currently-marketed multi-purpose lighters for child resistance, and other available information, the Commission voted to propose the mandatory standard for multi-purpose lighters set forth below.

B. Incident Data

The CPSC's staff identified a total of 249 fires reportedly started by children playing with multi-purpose lighters from January 1988 to the present. These fires resulted in a total of 45 deaths and 97 injuries. For the incidents where age of the fire starter was known, children under age 5 ignited 178 fires (76%). These 178 fires resulted in 29 deaths and 71 injuries. See Table 1. Children age 5 and older ignited 57 fires that resulted in 16 deaths and 19 injuries. An additional 14 fires, which resulted in 7 injuries, were described as being caused by children, but their ages were not given.

DRAFT

Table 1. Fires, Deaths, and Injuries Caused by Children Under Age 5 Playing with Utility Lighters, by Year

Year	Fires	Deaths	Injuries
1988	3	-	-
1989	1	-	2
1990	2	-	1
1991	2	-	-
1992	4	1	1
1993	7	3	4
1994	7	-	1
1995	17	6	8
1996	55	8	32
1997	47	4	8
1998*	33	7	14
Total	**178**	**29**	**71**

* Reports received through August 6, 1998.

Source: Consumer complaints, newspaper clippings, hospital emergency room-treated injuries, fire department reports, and investigation reports.

Twenty-four of the 29 fatalities were children. See Table 2. Twenty were under age 5; four were between the ages of 5 and 14. Fourteen of the children who died had

started the fire. Seven of the children who died were siblings of the fire starter. Four of the five adults who died were mothers of the children who started the fires. The four remaining fatalities were other relatives, friends, and a child in a home child-care setting.

Table 2. Fatalities That Occurred in Multi-Purpose Lighter Fires Caused by a Child Under Age 5, by Age and Relationship to the Child Who Ignited the Fire, 1/1/88 - 8/6/98

Relationship to Fire Starter	Ages (years) of Fatalities			
	Total	< 5	5-14	15+
Total	29	20	4	5
Self	14	14	-	-
Sibling	7	5	2	-
Mother	4	-	-	4
Other	4	1	2	1

* Reports received through August 6, 1998.

Source: Consumer complaints, newspaper clippings, hospital emergency room-treated injuries, fire department reports, and investigation reports.

Seventeen of the 71 people who were injured required hospitalization. Several were treated for extensive second- and third-degree burns requiring long-term treatment. In addition to the fatalities and injuries, most fires resulted in property damage. Thirty-five of the 178 reports cited property damage of $50,000 or more.

One hundred forty-six of the 178 children starting the fires were either 3 or 4 years old (about 82 percent). Three children were under age 2, indicating that even some very young children are capable of operating multi-purpose lighters. See Table 3.

Table 3. Age Distribution of Children Under Age 5 Who Ignited a Fire While Playing with a Multi-Purpose Lighter, 1/1/88 - 8/6/98

Age of Child (years)	Total	< 2	2	3	4	< 5*
Number of Children	178	3	24	81	65	5

* Children were under age 5, but the exact year of age was not reported.

Source: Consumer complaints, newspaper clippings, hospital emergency room-treated injuries, fire department reports, and investigation reports

Many of the children found the multi-purpose lighters in easily accessible locations, such as on kitchen counters or furniture tops. Others, however, obtained the lighters from more inaccessible locations, such as high shelves or cabinets, where parents tried to hide them.

Reports of these fires were received from many sources, including the petitioner, ANPR commenters, fire