



**U.S. CONSUMER PRODUCT SAFETY COMMISSION**  
WASHINGTON, D.C. 20207

September 25, 1997

Ms. Nancy Schnell  
Marketing Counsel  
Lever Brothers Company  
390 Park Avenue  
New York, NY 10022

**Re: FOIA Requests S709105 and S709106: Detergent Comparison Tests**

Dear Ms. Schnell:

We have identified the enclosed records about your firm as responsive to a Freedom of Information Act (FOIA) requests sent to us. We have not decided yet whether to release this information. Under the law, we must provide you with the opportunity to comment on and review this information when your firm's product identity may be readily ascertained by the public. (To assist you, please see the enclosed Section 6(b)(1) of the Consumer Product Safety Act and the regulations.) We will consider your comments when we respond to the FOIA requests. These comments must be specific and include documentary evidence, where available. Comments lacking specific information may not support a claim of inaccuracy or a request for confidentiality.

After taking your comments into consideration, we may decide to disclose the information to the FOIA requesters. This disclosure may include explanatory statements putting the information into proper context. These statements may be based, in part, on your comments, so please include all relevant information. In addition, we also may release to the public your comments (or a summary), unless you request otherwise.

We often receive multiple requests for the same information. To avoid overburdening you, after initially seeking your comments under section 6(b), we do not customarily send you each subsequent request for information, unless you specifically request this.

Ms. Nancy Schnell, Marketing Counsel  
Lever Brothers Company  
Page 2

For full consideration, your written comments must be received within 20 calendar days of the date of this letter with three additional days allowed if you receive the material by mail. Comments should be sent to me. Please refer to the FOIA request numbers.

If you have no comments or objections to the public disclosure of these records, you are not required to respond. Thank you for your assistance.

Sincerely,

Todd A. Stevenson  
Deputy Secretary and  
Freedom of Information Officer  
Office of the Secretary

Enclosures

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services
- Complete items 3, 4a, and 4b
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee)

- Addressee's Address
  - Restricted Delivery
- Consult postmaster for fee.

3. Article Addressed to: **5709105 + 709106**

**JAMES O'REILLY**

**THE PROCTER + GAMBLE COMPANY**

**P.O. BOX 599**

**CINCINNATI, OH 45201**

4a. Article Number

**067 249 854**

4b. Service Type

- Registered
- Express Mail
- Return Receipt for Merchandise
- Certified
- Insured

7. Date of Delivery

**MAY 17 1994**

8. Addressee's Address (Only if reduplicated and fee is paid)

**CINCINNATI, OH 45201**

**THE PROCTER + GAMBLE COMPANY**

**P.O. BOX 599**

**CINCINNATI, OH 45201**

**102595-97-R-0179**

**Domestic Return Receipt**

**PS Form 3811, December 1994**

**102595-97-R-0179**

**Domestic Return Receipt**

**PS Form 3811, December 1994**

Thank you for using Return Receipt Service.

**9/30/94**

**MFR/PRVLR NOTIFIED**

**No Comments attached**

**Excisions/Revisions**

**Firm has not requested further notice**



U.S. CONSUMER PRODUCT SAFETY COMMISSION  
WASHINGTON, D.C. 20207

May 6, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James O'Reilly  
Corporate Counsel  
The Procter & Gamble Company  
P.O. Box 599  
Cincinnati OH 45201

**Re: FOIA Requests S709105 and S709106: Detergent Comparison Tests**

Dear Mr. O'Reilly:

This letter concerns the above-identified Freedom of Information Act requests. In accordance with section 6(b) of the Consumer Product Safety Act, we provided you with the opportunity to comment on disclosure of the information responsive to those requests. 15 U.S.C. § 2055(b). We then reviewed the comments contained in your October 6, 1997 letter.

We have discussed your comments with the Commission's compliance staff. We do not believe that the test results, including the chart, are misleading. In addition, we are disclosing to the requester the full text of your clarifying points (see enclosed letter that we intend to send to the requester). Overall, we have taken the reasonable steps required by section 6(b), and we believe that disclosure is consistent with that provision.

This constitutes notice that we will disclose the responsive information ten (10) working days after your receipt of this certified letter.

Sincerely,

Todd A. Stevenson  
Deputy Secretary and  
Freedom of Information Officer

Enclosure: proposed disclosure letter

# Procter & Gamble

The Procter & Gamble Company  
Legal Division  
1 Procter & Gamble Plaza, Cincinnati, Ohio 45202-3315

James T. O'Reilly  
Associate General Counsel

Phone: (513) 983-4225  
Fax: (513) 983-8768

October 6, 1997

Mr. Todd Stevenson  
Office of Secretary/FOIA  
Consumer Product Safety Commission  
Washington DC 20207

via fax and original by mail

Re: S709105 Flammable Fabrics

Dear Mr. Stevenson:

Thank you for sharing the above file. By copy I am informing Ms. Fairall of our response because of her intent to use the document on Oct. 9.

We object under section 6(b)(1) to this disclosure of two brand names of our products. We request that the specific product identities not be disclosed. Reasonable steps for purposes of 6(b)(1) include more than merely providing a responsive statement of the manufacturer, as the GTE Sylvania court provided in that landmark interpretation of the provision and as 16 CFR 1101.32(a)(2) provides. Here the misleading content of the chart and attached document create the incorrect presumption that named detergents have worse effects than water; they do not. In addition, the data suggests worse effects from our detergents than the effects of a phosphate AATCC 124 detergent, but this is of no relevance since U.S. consumers cannot buy a phosphate detergent at retail sale. AATCC has removed the 124 detergent from its method, as being obsolete, and replaced it with the 1993 detergent.

The 1101.32(a)(2) "reasonable step" we request is the issuance by the Commission of a warning not to purchase FR-treated cotton children's sleepwear and if consumers have any of it, to warn consumers not to depend on the flame-resistant treatment to be effective after laundering.

In the event that the Commissioners vote to override this objection under section 6, and release the documents, we request that as a minimum this statement be released with the documents.

1. Detergent disclosure adds nothing to the reality that the FR treatment on cotton is NOT effective even after washing with water. This FR finish is not a durable fabric finish.

2. The proposed disclosure would mislead the public into an erroneous belief that the named products have some adverse effect different from the effect of water alone, upon the finish. The chart also suggests that consumers have available detergents which have a lesser effect on FR cotton, such as AATCC 124, but these are not marketed. Even the garments washed in the current 1993 AATCC detergent will fail. There are no

Todd Stevenson

-2-

current phosphate detergents available for consumer use in the U.S., so the result of passing with the older AATCC 124 phosphate detergent does not indicate a result that consumers could obtain with retail-sale product available in the U.S.

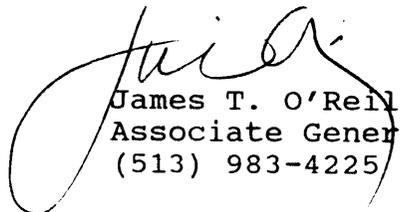
3. In the opinion of our fabric-care experts, it is not likely that the FR-treated cotton children's sleepwear imported into the U.S. could pass after 50 washes with water or with current AATCC 1993 standard detergents. We note that the FFA does not allow sale of garments that fail FFA tests, even with a warning label. It would be misleading to claim that consumers could safely care for imported FR-treated cottons even with a label attached to the garments.

4. It is appropriate for the CPSC and Customs to block imports of any FR-treated cotton children's sleepwear because the FR treatment is not likely to withstand the 50-washing requirement.

5. Ultimately, the focus of this CPSC FFA import investigation is on the treatment as applied to the cottons. Pyrovatex-type finishes are not being applied to cotton for child sleepwear in the U.S. Imported cotton garments are not believed by our experts to be capable of sustaining their claimed FR properties after 50 washes with water or the AATCC 1993 standard detergent. We submitted that comparative testing data to the Commission in the early 1990s, based on tests run at a reputable outside test laboratory. But we withdrew our petition when the maker of Pyrovatex removed it from the U.S. market.

Therefore a section 6(b) objection to disclosure of the identities of specific brands should be sustained by the Commissioners. If disclosure occurs with the brand names deleted, as we request, the Commission still should provide appropriate context as to detergents generally and the FR properties of laundered FR-treated cotton garments.

Sincerely,

  
James T. O'Reilly  
Associate General Counsel  
(513) 983-4225

cc Ms. Patricia Fairall

"sixbee8.req"

Michael H. Runyan, Esq.  
Lane, Powell, Spears & Lubersky  
1420 Fifth Avenue, Suite 410D  
Seattle, Washington 98101-2338

Re: FOIA Request 709106 on detergents in sleepwear tests

Dear Mr. Runyan:

This responds to your August 22, 1997 Freedom of Information Act (FOIA) request for Commission test results on the laundering of fabrics containing flame-resistant treatments. These results, which were previously made public with the names of the two detergent brands deleted, are now enclosed with the two names included.

Please note the following comments submitted by the manufacturers of the detergents:

Lever Brothers

"Lever Brothers took no part in the detergent testing and we in no way endorse the validity of the test design or the test results. Indeed, we noted certain irregularities in the testing protocol which may have affected the results."

Procter & Gamble

"1. Detergent disclosure adds nothing to the reality that the FR treatment on cotton is NOT effective even after washing with water. This FR finish is not a durable fabric finish.

2. The proposed disclosure would mislead the public into an erroneous belief that the named products have some adverse effect different from the effect of water alone, upon the finish. The chart also suggests that consumers have available detergents which have a lesser effect on FR cotton, such as AATCC 124, but these are not marketed. Even the garments washed in the current 1993 AATCC detergent will fail. There are no current phosphate detergents available for consumer use in the U.S., so the result of passing with the older AATCC 124 phosphate detergent does not indicate a result that consumers could obtain with retail-sale product available in the U.S.

3. In the opinion of our fabric-care experts, it is not likely that the FR-treated cotton children's sleepwear imported into the U.S. could pass after 50 washes with water or with current AATCC 1993 standard detergents. We note that the FFA does not allow sale of garments that fail FFA tests, even with a warning label. It would be misleading to claim that consumers

could safely care for imported FR-treated cottons even with a label attached to the garments.

4. It is appropriate for the CPSC and Customs to block imports of any FR-treated cotton children's sleepwear because the FR treatment is not likely to withstand the 50-washing requirement.

5. Ultimately, the focus of this CPSC FFA import investigation is on the treatment as applied to the cottons. Pyrovatex-type finishes are not being applied to cotton for child sleepwear in the U.S. Imported cotton garments are not believed by our experts to be capable of sustaining their claimed FR properties after 50 washes with water or the AATCC 1993 standard detergent. We submitted that comparative testing data to the Commission in the early 1990s, based on tests run at a reputable outside test laboratory. But we withdrew our petition when the maker of Pyrovatex removed it from the U.S. market.'

Sincerely,

Todd Stevenson  
FOI Officer  
Office of the Secretary

Enclosures

James T. O'Reilly  
Corporation Counsel

Phone: (513) 983-4225  
Fax: (513) 983-4274

December 13, 1993

D. Stephen Lemberg, Esq.  
Consumer Product Safety Commission  
Washington, DC 20207

MR/PRVLR NOTIFIED  
Public Comments made  
Comments attached  
12/14/93  
12/13/93

Dear Mr. Lemberg:

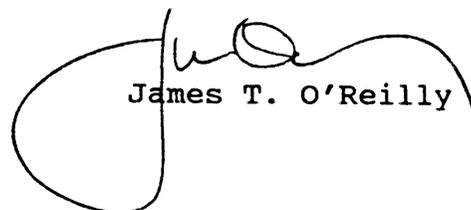
This letter withdraws our proposed petition, filed in January 1993, regarding technical changes to the laundering method of 16 CFR 1615.4(g) regarding the flammability test preparation methods for certain garments.

We received your request for additional data, and your advice that the petition would not be filed without additional data. We responded that we would perform the further testing, which has taken several months of protocol design and laboratory work.

After performing the further research, we have found that the proposed petition need not be filed, so we withdraw it in order to free the Commission from unnecessary further work. The AATCC 124-1969 standard method stipulates the use of a 1960 detergent, which AATCC is no longer recommending as a reference. We also understand that the AATCC methods may in the near future be recommending the use of cooler, consumer-relevant laundering water temperature, so there is no need to pursue that point. As to the third point in the petition, we had proposed recommending the use of a fabric softener, but we found in the further research that the fabric conditioner products affected the technical capability of polyesters to satisfy the char length allowed under the test method (see attachment). Thus we are not pursuing that issue and we are labeling the fabric conditioners to communicate that information to consumers.

Because the three elements of our proposed petition are no longer operative we withdraw the proposed petition, prior to filing. Should you have any questions, please advise.

Cordially yours,

  
James T. O'Reilly

# Procter & Gamble

The Procter & Gamble Company  
Legal Division  
1 Procter & Gamble Plaza, Cincinnati, Ohio 45202-3315

James T. O'Reilly  
Corporation Counsel

Phone: (513) 983-4225  
Fax: (513) 983-8768

January 15, 1993

Secretary  
Consumer Product Safety Commission  
Washington DC 20207

Re: FFA Petition

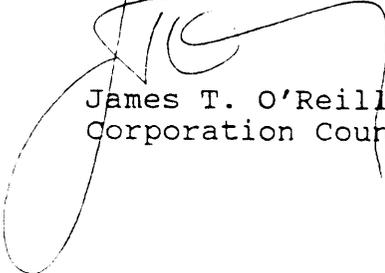
Dear Secretary:

Please find enclosed a Petition for Rulemaking under the FFA in the format prescribed by regulations.

The Commission staff member likely to be responsible for this area is Ms. Patricia A. Fairall.

If there are any questions regarding format, please contact me at (513) 983-4225.

Sincerely,



James T. O'Reilly  
Corporation Counsel

enc. 5 copies

BEFORE THE UNITED STATES  
CONSUMER PRODUCT SAFETY COMMISSION

PETITION FOR RULEMAKING  
UNDER THE  
FLAMMABLE FABRICS ACT

PETITION FF93-\_\_\_\_  
January 15, 1993

This petition requests amendment of Commission regulations at 16 CFR 1615.4(g)(4), relating to childrens' sleepwear flammability tests, specifically the laundering conditions under which the test samples are prepared for the test. The specific amendment requested is as follows (brackets indicates deletion; additions are in caps):

16 CFR 1615.4(g)

(4) Laundering. (i) ....

...50 times [according to AATCC Test Method 124-1969, etc.....] ACCORDING TO THE PROCEDURE DESCRIBED IN (ii) BELOW. Items which do not withstand 50 laundering shall be tested at the end of their useful service life.

(ii) [Delete first sentence and substitute] THE TESTED ITEMS SHALL BE WASHED IN A CONVENTIONAL HOME WASHING MACHINE USING A NONPHOSPHATE DETERGENT PRODUCT AND A FABRIC SOFTENER PRODUCT, ALL OF WHICH SHALL BE READILY AVAILABLE FOR CONSUMER SALE IN THE UNITED STATES. WATER TEMPERATURE OF 95 DEGREES F. AND DRYING IN A CONVENTIONAL HOME-USE DRYER AT 66 DEGREES C.(+/- 5 DEGREES) SHALL BE USED. Maximum load ..... etc.

Pursuant to 16 CFR 1051.5(a)(4), the need for the amendment is as follows:

1. Untreated cotton childrens' sleepwear would fail the standard flammability test now in place in 16 CFR Part 1615. Petitioner believes that about 30,000 garments per year are sold as flame-retardant treated cotton childrens' sleepwear using the FR chemical treatment Pyrovatex (R).

2. The Commission's test method for laundering childrens' sleepwear garment samples before the flammability test is conducted is 23 years old (older than the Commission). The laundering product that is mandated in that test method is very different from normal consumer use products of 1992. Petitioner, at the request of the industry, makes up special batches of and is the sole source of the standard 1969-recipe detergent that is utilized by the garment industry for the laundering procedure specified in the current regulation.

3. Petitioner studied the flammability of childrens' sleepwear

in preparation for making a request for amendment of the current laundering procedure.

4. Petitioner is not a garment or fabric supplier subject to Part 1615 and does not manufacture flammability resistance (FR) chemicals used for Part 1615 childrens' sleepwear.

5. Petitioner observed flammability results from independent testing laboratories which suggest to petitioner that current cotton sleepwear treated with FR chemicals will commonly fail when tested with the marketed products available in today's consumer market. The garments will presumably pass when tested with the historically mandated 1969 form of laundering product, though insufficient data is available to state that they will always pass. Because that 1969 product cannot be purchased by consumers, and 1993 consumers in fact use products of non-phosphate formulations with fabric softeners, the fact that cotton sleepwear garment samples that had been treated with FR chemicals fail when handled under today's home laundering conditions is extremely significant.

6. Failing results for FR-treated cottons occur with the very widely used non-phosphate detergents; with the popular detergents containing bleach activators; and with the majority of marketed fabric softeners. Data shows this effect is not caused by simply one brand or one product.

7. The significance of this information for the 1993 consumer is that childrens' cotton sleepwear will lose the effectiveness of FR chemical treatments in home laundering. Consumers who place reliance on childrens' sleepwear labels of FR treatment cannot get the benefit of those expectations, because they cannot avoid the routine inactivation of those chemicals in normal 1993 washing conditions. This inactivation appears to be a common phenomenon.

8. Petitioner also notes the 140 degree heat specified in the current standard contradicts current CPSC safety standards for home water heater settings. Thus the Commission would not wish home laundry conditions in 1993 to reflect its current regulation's water heater requirement for this portion of the test method.

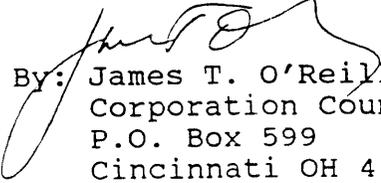
9. Therefore the obsolescence of the 1969 laundry detergent product must be rectified by an updating of the standard. The proposed amendment substitutes for the 1969 voluntary standard a "performance standard" requiring the use of conventional marketed products. Those seeking to comply in the future would need to show the use of conventional, readily marketed products that are in use in the United States. This is "technologically practicable" and more appropriate than the 1969 product, within the meaning of 15 USC 1193(b). It allows the evolution of future products rather than fixing a method as of a particular point in time.

10. For purposes of 15 USC 1193(a), the amended rule is needed to protect the public against the very real concern that products claimed to have flammability resistance do not retain that property during normal home use under 1993 laundering conditions. Petitioner's concern is with the updating of the test methods. The updated test method will better protect children from potential incidents that may occur with cotton sleepwear treated with flame retardant chemicals such as Pyrovatex (R).

A set of laboratory research data documenting the above findings is attached. No confidentiality claims are presented.

We request that prompt action be taken to update the test method so that flame retardant chemical-treated cotton sleepwear will adequately protect the wearer, under conditions of normal 1993 fabric care methods by consumers.

THE PROCTER & GAMBLE COMPANY



By: James T. O'Reilly  
Corporation Counsel  
P.O. Box 599  
Cincinnati OH 45201  
(513) 983-4225

# LAUNDRY PRODUCT CODING

FOR ATTACHED FLAMMABILITY RESISTANCE CHAR LENGTH DATA SHEETS

## Test 45

### PRODUCT

- A – AATCC Standard Detergent 124 (Phosphate Detergent without Optical Brighteners)
- B – Zero Phosphate Detergent (powder)
- C – Liquid Detergent
- D – Liquid Detergent
- E – Zero Phosphate Detergent–plus–Fabric Softener (powder)
- F – AATCC Standard Detergent 124 – 140 – 50 – pass (2) ✓
- G – Zero Phosphate Detergent (powder)
- H – Liquid Detergent
- I – Liquid Detergent
- J – Zero Phosphate Detergent–plus–Fabric Softener (powder)

## Test 46

### PRODUCT

- A – Zero Phosphate Detergent–plus–Fabric Softener (powder)
- B – Zero Phosphate Detergent–plus–Fabric Softener (powder)
- C – Zero Phosphate Detergent–plus–Fabric Softener (powder)
- D – Zero Phosphate Detergent–plus–Fabric Softener (powder)
- E – Zero Phosphate Detergent–plus–Fabric Softener (powder)
- F – AATCC Standard Detergent 124 – 140 – 50 – pass (2) ✓

## Test 47

### PRODUCT

- A – Zero Phosphate Detergent–with–Activated Bleach (powder) }
- B – Zero Phosphate Detergent–with–Activated Bleach (powder) }
- C – AATCC Standard Detergent 124 – 95 – 50 – pass (3) ✓
- D – Zero Phosphate Detergent–with–Activated Bleach (powder) }
- E – Zero Phosphate Detergent–with–Activated Bleach (powder) }
- F – AATCC Standard Detergent 124 – 140 – 50 – pass (4) ✓

## Test 48

### PRODUCT

- A – Zero Phosphate Detergent–plus–Fabric Softener (powder)
- B – Zero Phosphate Detergent–plus–Fabric Softener (powder)
- C – Zero Phosphate Detergent–plus–Fabric Softener (powder)
- D – Zero Phosphate Detergent–plus–Fabric Softener (powder)
- E – Zero Phosphate Detergent–plus–Fabric Softener (powder)
- F – AATCC Standard Detergent 124 – 140 – 50 – pass (5) ✓

### Test 49

#### PRODUCT

- A – Zero Phosphate Detergent (powder)
- B – Zero Phosphate Detergent (powder)
- C – AATCC Standard Detergent 124 and liquid Preformed Peracid Bleach Additive ✓
- D – AATCC Standard Detergent 124 and powder Oxygen Bleach Additive ✓
- E – Liquid Detergent-plus-Fabric Softener
- F – AATCC Standard Detergent 124 140-50-pow 6 ✓

### Test 50

#### PRODUCT

- A – Zero Phosphate Detergent (powder)
- B – Zero Phosphate Detergent (powder)
- C – AATCC Standard Detergent 124 - 140-50-pow 8 ✓
- D – AATCC Standard Detergent 124 and liquid Oxygen Bleach Additive ✓
- E – AATCC Standard Detergent 124 and liquid Preformed Peracid Bleach Additive ✓
- F – AATCC Standard Detergent 124 Tap 8 ✓

### Test 51

#### PRODUCT

- B – Zero Phosphate Detergent (powder)

### Test 52

#### PRODUCT

- A – AATCC Standard Detergent 124 and Fabric Softener Dryer Sheet
- B – AATCC Standard Detergent 124 and Fabric Softener Dryer Sheet
- C – AATCC Standard Detergent 124 and Fabric Softener Dryer Sheet
- D – AATCC Standard Detergent 124 and Fabric Softener Rinse Additive
- E – AATCC Standard Detergent 124 - 140-50-pow 8 ✓
- F – Zero Phosphate Detergent (powder)

### Test 53 A

#### PRODUCT

- A – Zero Phosphate Detergent (powder)
- B – Zero Phosphate Detergent (powder)
- C – Zero Phosphate Detergent (powder)
- D – Zero Phosphate Detergent (powder)
- E – AATCC Standard Detergent 124 140-50-pow 9 ✓
- F – AATCC Standard Detergent 124 and Activated Bleach/Preformed Peracid Bleach Additive

**Test 53 B**

**PRODUCT**

B – Zero Phosphate Detergent (powder)

F – AATCC Standard Detergent 124 and Activated Bleach/Preformed Peracid Bleach Additive ✓

U – Unwashed

**Test 54**

**PRODUCT**

B – Zero Phosphate Detergent (powder)

**Test 55**

**PRODUCT**

A – Zero Phosphate Detergent (powder)

B – Zero Phosphate Detergent–with–Activated Bleach (powder) ✓

C – Zero Phosphate Detergent–plus–Fabric Softener (powder)

D – AATCC Standard Detergent 124 - 140 - 10 Full 70

# Flammability Test Fabric Descriptions

## FOR ATTACHED FLAMMABILITY RESISTANCE CHAR LENGTH DATA SHEETS

	Code No.	CBD*	Fiber Content	Fabric Construction	Color	Supplier
1.	FR-P10	C	Polyester	Embossed Tricot Warp Knit	Lt. Blue	Guilford Mills
2.	FR-P11	L	Polyester	Brushed Tricot Warp Knit	Red	Guilford Mills
3.	FR-P12	L	Polyester	Terry Jersey Weft Knit	White	Collins & Aikman
4.	FR-P13	L	Polyester	Fleece Weft Knit	White	Scott Mills
5.	FR-P14	C	Polyester	Single Jersey Weft Knit	Pink	Scott Mills
6.	FR-CW22	C	Cotton w/ Pyrovatex®	Interlock Weft Knit	White	Kayby Mills**

\* Critical Burn Direction: C= Crosswise (weft/filling direction)  
L = Lengthwise (warp direction)

\*\*Ordered through Trimfit, Inc.

MERCHANDISE  
TESTING  
LABORATORIES

FILE COPY

# REPORT

MTL LAB NO. MC 40711  
TEST NO. 45  
DATE: OCTOBER 31, 1991



PROCTER & GAMBLE CO.  
IVORYDALE TECHNICAL CENTER  
5299 SPRING GROVE AVENUE  
CINCINNATI, OH 45217

ATTN: GAIL DeWEESE

Sample Description: Six (6) Fabrics washed in ten (10) different detergents at two (2) conditions.

Purpose of Test: Evaluation of the fabrics for sleepwear flammability.

Executive Summary: The following Test Result sheets include all data recorded

*Glenn Sylvia*  
\_\_\_\_\_  
Supervisor - Glenn Sylvia

*B. J. Park*  
\_\_\_\_\_  
Executive Director  
Dr. B. J. Park

BJP/ds

U.S.A. : 244 LIBERTY STREET, BROCKTON, MA 02401 TEL: 508 580-8353 FAX: 508 580-2669  
HONG KONG : UNIT 19, 13/F, VANTA INDUSTRIAL CENTRE, 21-33 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG. TEL: 852-418-1222 FAX: 852-480-6666  
TAIWAN : 2F, 226 KUANG MING ROAD, PEITOU, TAIPEI, TAIWAN TEL: 886-02-894-9722 FAX: 886-02-895-9209  
SINGAPORE : 161 KAMPONG AMPAT, 05-02, GOLDJON BLDG. SINGAPORE, 1336 TEL: 65-283-8366 FAX: 65-283-8966  
KOREA : C/O KOTTEL 819-5, YEOK-SAM DONG, KANG-NAM-KU, SEOUL, KOREA TEL: 822-02-567-7991 FAX: 822-02-557-3799

FLAMMABILITY TEST # 115  
CHAR LENGTH DATA

60 115

Wash Interval 50

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CRITICAL BURF DIRECTION

L

(C)

std Det

(L)

C

(L)

C

(L)

C

L

(C)

L

(C)

PRODUCT A - AATCC

Condition 105/12P

Specimen #1

Specimen #2

Specimen #3

Specimen #4

Specimen #5

AVERAGE CHAR LENGTH:

2.5"	3.6	1.0"	2.0	2.0	3.5
1.75"	3.7	1.6"	1.4	2.2	1.4
4.5"	4.25	2.6"	3.2	3.7	1.85
4.3"	3.3	1.25	1.55	1.9	1.9
4.3"	3.25	1.7	1.3	2.0	3.8
3.5	3.6	1.5	1.9	1.8	2.1

*Handwritten signature/initials*

PRODUCT B - zero P detergent (pounds)

Condition 105/12P

Specimen #1

Specimen #2

Specimen #3

Specimen #4

Specimen #5

AVERAGE CHAR LENGTH:

2.7	3.4	1.5	2.6	1.35	1.65
2.55	2.7	1.35	2.0	2.4	2.8
2.3	2.5	1.3	2.3	1.6	2.0
3.3	3.3	1.7	3.5	2.7	4.6
3.1	1.5	1.7	1.75	3.4	4.4
2.8	2.7	1.5	2.3	2.4	3.1

*Handwritten signature/initials*

L = Lengthwise or warp direction

C = Crosswise or filling direction

GDW#1

FLAMMABILITY TEST #  
CHAR LENGTH DATA

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

Wash Interval 50

FABRIC CODE	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
CRITICAL BURN DIRECTION	CHAR LENGTH					
PRODUCT C	L (C)	(L) C	(L) C	(L) C	L (C)	L (C)
Condition <u>105 / T240</u>	Liquid	Detergent				
Specimen #1	2.8	3.0	1.5	2.4	1.5	5.9
Specimen #2	3.8	2.8	1.7	5.1	1.1	5.3
Specimen #3	3.7	2.2	3.4	4.1	1.9	6.7
Specimen #4	1.6	3.4	1.5	1.3	2.2	6.6
Specimen #5	3.7	2.5	1.4	3.1	2.25	5.1
AVERAGE CHAR LENGTH:	3.1	2.9	1.9	3.3	1.9	5.9

pass

PRODUCT	Liquid Detergent					
Condition <u>105 / T240</u>						
Specimen #1	2.8	3.7	1.4	3.2	1.25	* 7.3
Specimen #2	2.8	2.4	1.7	0.8	1.3	3.9
Specimen #3	2.9	3.6	1.7	1.95	1.5	6.8
Specimen #4	1.0	2.6	1.9	3.2	2.3	* 8.9
Specimen #5	2.85	2.2	1.0	3.3	2.55	4.1
AVERAGE CHAR LENGTH:	2.7	3.1	1.5	2.5	2.0	6.2

pass

L = Lengthwise or warp direction

C = Crosswise or filling direction

3DW#1

FLAMMABILITY TEST # 45  
CHAR LENGTH DATA

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

Wash Interval 50

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
CHAR LENGTH						
L	(C)	(L)	(L)	(L)	(C)	(C)
C						

Condition 105/12P

Zero D detergent plus fabric softener (powder)

Specimen #1	9.4	3.4	1.7	3.1	1.8	3.3
Specimen #2	3.3	2.5	2.1	3.0	2.5	3.8
Specimen #3	1.6	2.6	1.6	4.5	2.3	4.4
Specimen #4	3.9	3.0	2.0	2.7	1.9	2.5
Specimen #5	2.9	2.95	1.15	3.1	2.0	3.5
AVERAGE CHAR LENGTH:	2.8	4.9	1.7	3.3	2.1	3.5

power

PRODUCT \_\_\_\_\_

Condition \_\_\_\_\_

Specimen #1						
Specimen #2						
Specimen #3						
Specimen #4						
Specimen #5						
AVERAGE CHAR LENGTH:						

L = Lengthwise or warp direction  
C = Crosswise or filling direction

GDW#1

FLAMMABILITY TEST # 45  
CHAR LENGTH DATA

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

Wash Interval 50

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CRITICAL BURN DIRECTION

FR-P10 CHAR LENGTH  
L  C

FR-P11 CHAR LENGTH  
L  C

FR-P12 CHAR LENGTH  
L  C

FR-P13 CHAR LENGTH  
L  C

FR-P14 CHAR LENGTH  
L  C

FR-CW22 CHAR LENGTH  
L  C

PRODUCT F  
A A T C C Std Det.

Condition 140/105

Specimen #1	4.8	2.7	2.0	3.5	3.0	5.9
Specimen #2	2.5	2.9	1.9	2.3	1.8	4.0
Specimen #3	2.7	2.4	1.9	1.7	2.1	3.6
Specimen #4	3.1	2.9	1.5	3.4	2.4	3.2
Specimen #5	3.1	2.95	1.8	2.6	2.1	3.15
AVERAGE CHAR LENGTH:	3.0	2.6	1.8	2.7	2.3	1.1

*Pass*

PRODUCT G

Condition 140/105

Specimen #1	2.9	3.0	1.9	2.0	1.9	2.6
Specimen #2	3.55	3.1	1.75	3.3	2.0	5.4
Specimen #3	3.2	3.2	1.6	3.5	2.2	4.7
Specimen #4	3.7	3.25	1.8	3.1	1.7	4.5
Specimen #5	3.55	3.15	1.75	4.5	2.2	4.9
AVERAGE CHAR LENGTH:	3.2	3.1	1.8	3.3	2.0	4.4

*Pass*

Zero P detergent (powder)

L = Lengthwise or warp direction

C = Crosswise or filling direction

GDW#1

FLAMMABILITY TEST #  
CHAR LENGTH DATA

415

Wash Interval 50

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CRITICAL BURN DIRECTION

PRODUCT H

Condition 140/105

CHAR LENGTH L  C

Liquid detergent

Specimen #1	2.4	2.2	1.9	3.5	1.2	6.2
Specimen #2	2.7	2.7	1.3	2.3	2.0	2.6
Specimen #3	2.8	2.7	1.6	2.1	3.4	3.0
Specimen #4	2.9	3.4	1.3	6.6	1.9	5.0
Specimen #5	2.7	3.2	1.3	3.1	1.6	5.4
AVERAGE CHAR LENGTH:	2.7	2.9	1.5	3.5	2.1	4.4

AVERAGE CHAR LENGTH:

PRODUCT I

Condition 140/105

Liquid detergent

Specimen #1	1.8	2.9	1.3	4.2	2.1	7.5
Specimen #2	0.9	2.9	1.2	3.2	2.1	5.8
Specimen #3	3.0	2.9	4.1	6.5	2.1	4.8
Specimen #4	1.0	2.1	1.3	3.3	2.0	6.4
Specimen #5	1.6	2.0	1.6	2.5	1.7	5.3
AVERAGE CHAR LENGTH:	1.7	2.6	1.9	3.9	2.0	6.0

AVERAGE CHAR LENGTH:

L = Lengthwise or warp direction

C = Crosswise or filling direction

FLAMMABILITY TEST # 15  
CHAR LENGTH DATA

Wash Interval 50

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CRITICAL BURN DIRECTION

CHAR LENGTH L (C)

CHAR LENGTH L (L) C

CHAR LENGTH L (L) C

CHAR LENGTH L (L) C

CHAR LENGTH L (C)

CHAR LENGTH L (C)

PRODUCT J

zero P detergent - plus fabric softener (powder)

Condition 140/105

Specimen #1	2.5	3.5	1.5	3.6	2.65	3.95
Specimen #2	3.8	3.15	1.8	1.75	2.4	3.7
Specimen #3	3.1	3.1	1.3	4.0	2.15	3.0
Specimen #4	2.75	2.7	2.0	4.3	3.2	3.3
Specimen #5	3.25	2.5	4.2	*10.0	5.1	4.7
AVERAGE CHAR LENGTH:	3.1	3.0	2.2	4.7	2.5	3.4

AVERAGE CHAR LENGTH:

WASH INTERVAL 30

PRODUCT J zero P detergent plus fabric softener (powder)

Condition 140/105

Specimen #1	4.5
Specimen #2	0.6
Specimen #3	4.0
Specimen #4	3.2
Specimen #5	1.6
AVERAGE CHAR LENGTH:	2.8

AVERAGE CHAR LENGTH:

L = Lengthwise or warp direction

C = Crosswise or filling direction

GDW#1

WASH Interval

PRODUCT J

Condition 140/105

50  
FR-P13  
char length

Zero P detergent plus fabric softener (powder)

- Specimen #1
- Specimen #2
- Specimen #3
- Specimen #4
- Specimen #5

5.5"									
4.95"									
4.875									

AVERAGE CHAR LENGTH:

L = Lengthwise or warp direction  
 C = Crosswise or filling direction  
 GDW#1

MERCHANDISE  
TESTING  
LABORATORIES

FILE COPY

# REPORT

MTL LAB NO. MC 41678  
TEST NO. 46  
DATE: DECEMBER 31, 1991



PROCTER & GAMBLE CO.  
IVORYDALE TECHNICAL CENTER  
5299 SPRING GROVE AVENUE  
CINCINNATI, OH 45217

ATTN: GAIL DeWEESE

Sample Description: Six (6) Fabrics washed in six (6) different detergents.

Purpose of Test: Evaluation of the fabrics for sleepwear flammability.

Executive Summary: The following Test Result sheets include all data recorded

*Glenn Sylvia*  
Supervisor - Glenn Sylvia

*B. J. Park*  
Executive Director  
Dr. B. J. Park

BJP/ds

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12/10/1

FLAMMABLE TY TEST # 46  
CHAR LENGTH DATA

Wash Interval 50

Lo g.p.g

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE FR-P10 FR-P11 FR-P12 FR-P13 FR-P14 FR-CW22

CRITICAL BURN DIRECTION L (C) L (L) L (L) L (L) L (C) L (C) L (C)

PRODUCT A - Zeros detergent-plus-fabric softener (powder)  
Condition 140/105

Specimen #1	3.6	2.7	1.6	2.8	2.6	4.5
Specimen #2	3.4	2.5	1.8	4.2	4.0	1.5
Specimen #3	3.6	2.4	1.4	4.5	3.4	2.3
Specimen #4	3.4	3.1	1.6	3.0	2.8	4.3
Specimen #5	3.5	2.4	5.9	3.9	2.8	5.2
AVERAGE CHAR LENGTH:	3.5	2.6	2.5	3.7	3.1	3.6

PRODUCT B - Zeros P detergent-plus-fabric softener (powder)

Condition 140/105

Specimen #1	3.3	2.8	6.4	2.9	5.3	5.6
Specimen #2	2.9	1.7	4.5	4.8	4.7	5.1
Specimen #3	3.5	3.7	7.3	4.7	1.9	2.1
Specimen #4	2.7	2.8	7.1	2.8	3.5	3.7
Specimen #5	3.0	2.4	1.9	3.9	2.4	3.5
AVERAGE CHAR LENGTH:	3.1	2.7	5.4	3.8	3.6	4.0

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GDW#1

12/10/51

FLAMMABILITY TEST # 419  
CHAR LENGTH DATA

Wash Interval 50

6 SPG

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE \_\_\_\_\_

CRITICAL BURN DIRECTION L (C)

PRODUCT C - zero P detergent - plus - fabric softener (powder) L (C)

Condition 140/105

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
Specimen #1	2.7	3.0	3.3	3.0	2.3	10.0*
Specimen #2	2.1	2.7	2.2	3.4	1.4	2.3
Specimen #3	2.4	3.4	1.3	2.8	3.6	4.8
Specimen #4	2.8	2.6	2.1	4.1	2.7	3.9
Specimen #5	2.5	2.7	1.8	3.7	2.1	2.3
AVERAGE CHAR LENGTH:	2.5	2.9	2.1	3.4	2.4	4.7

PRODUCT D - zero P detergent - plus - fabric softener (powder)

Condition 140/105

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
Specimen #1	2.7	2.8	2.7	2.5	2.8	5.8
Specimen #2	2.7	3.2	1.8	6.8	2.2	4.2
Specimen #3	2.5	2.7	2.1	3.2	4	4.2
Specimen #4	2.2	2.3	1.7	2.6	2.3	6.9
Specimen #5	2.4	2.0	5.6	4.9	2.3	4.9
AVERAGE CHAR LENGTH:	2.5	2.6	2.8	4.0	2.4	5.2

L = Lengthwise or warp direction  
 C = Crosswise or filling direction  
 GDW#1

FLAMMABILITY TEST # 46  
CHAR LENGTH DATA

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

Wash Interval 50

6 gpg

FABRIC CODE

CRITICAL BURN DIRECTION  
PRODUCT E - zero p detergent - plus fabric softener (powder)  
Condition 140/105

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
Specimen #1	2.5	2.8	6.2	6.7	1.8	2.7
Specimen #2	2.2	2.7	5.2	2.0	0.4	3.1
Specimen #3	3.2	2.4	1.7	3.8	2.0	3.6
Specimen #4	4.2	2.7	7.4	2.7	2.0	3.9
Specimen #5	2.9	3.3	0.9	3.0	1.9	3.0
AVERAGE CHAR LENGTH:	3.0	2.8	4.3	3.7	1.6	3.3

PRODUCT F AATCC Std. Detergent  
Condition 140/105

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
Specimen #1	2.3	2.8	1.9	1.9	6	3.2
Specimen #2	2.1	3.0	1.8	5.3	1.2	6.5
Specimen #3	3.3	2.7	1.1	3.1	1.4	4.8
Specimen #4	2.0	2.9	3.7	3.8	0.7	4.4
Specimen #5	2.6	2.3	1.9	2.5	5.3	3.7
AVERAGE CHAR LENGTH:	2.5	2.7	2.1	3.3	1.6	4.5

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GDW#1

2

FLAMMAP TY TEST # 46  
 CHAR LENGTH DATA

Wash Interval 30

DATE \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_  
 TEST ID \_\_\_\_\_

FABRIC CODE	FR-P10		FR-P11		FR-P12		FR-P13		FR-P14		FR-CW22	
	CHAR LENGTH	L C	CHAR LENGTH									
PRODUCT <u>C</u> - Zero D detergent-plus-fabric softeners (powder)												
Condition <u>140/105</u>												
Specimen #1												<u>3.3</u>
Specimen #2												<u>6.8</u>
Specimen #3												<u>4.0</u>
Specimen #4												<u>3.3</u>
Specimen #5												<u>4.3</u>
AVERAGE CHAR LENGTH:												

PRODUCT \_\_\_\_\_

Condition \_\_\_\_\_

Specimen #1												
Specimen #2												
Specimen #3												
Specimen #4												
Specimen #5												
AVERAGE CHAR LENGTH:												

L = Lengthwise or warp direction  
 C = Crosswise or filling direction  
 GDW#1

MERCHANDISE  
TESTING  
LABORATORIES

FILE COPY

# REPORT

MTL LAB NO. MC 42479  
TEST NO. 47  
DATE: FEBRUARY 14, 1992



PROCTER & GAMBLE CO.  
IVORYDALE TECHNICAL CENTER  
5299 SPRING GROVE AVENUE  
CINCINNATI, OH 45217

ATTN: GAIL DeWEESE

Sample Description: Six (6) Fabrics washed in three (3) different detergents at two (2) different wash conditions.

Purpose of Test: Evaluation of the fabrics for sleepwear flammability.

Executive Summary: The following Test Result sheets include all data recorded.

Supervisor - Glenn Sylvia

Executive Director

Dr. B. J. Park

BJP/ds

U.S.A.	:	244 LIBERTY STREET, BROCKTON, MA 02401	TEL: 508 580-8353	FAX: 508 580-2669
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TAIWAN	:	2F, 226 KUANG MING ROAD, PEITOU, TAIPEI, TAIWAN	TEL: 886-02-894-9722	FAX: 886-02-895-9209
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12/14, 11

6 gpg

Wash Interval 50

FLAMMABILITY TEST # 47  
CHAR LENGTH DATA

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
CRITICAL BURN DIRECTION	L (C)	(D) C	(D) C	(L) C	L (C)	L (C)
PRODUCT A	Zero P detergent	with activated bleach	bleach (powder)			
Condition	95/tzq					
Specimen #1	2.5	3.0	1.3	3.4	1.8	4.9
Specimen #2	3.6	2.5	1.9	4.1	1.7	5.7
Specimen #3	2.9	1.5	1.5	6.5	1.6	6.1
Specimen #4	2.7	3.0	2.0	3.0	1.9	5.0
Specimen #5	3.8	2.5	1.3	3.2	3.1	7.0
AVERAGE CHAR LENGTH:	3.1	2.5	1.6	4.0	2.0	5.7

PRODUCT B Zero P detergent with activated bleach (powder)

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
Condition	95/tzq					
Specimen #1	2.6	2.9	1.9	3.6	2.4	7.0
Specimen #2	2.9	3.0	1.5	4.4	1.9	5.6
Specimen #3	3.3	2.4	3.0	4.6	4.7	9.5
Specimen #4	3.5	2.8	1.5	2.4	2.2	4.6
Specimen #5	3.0	2.9	1.4	4.2	4.1	5.1
AVERAGE CHAR LENGTH:	3.1	2.8	1.9	3.8	3.1	6.4

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

12/14, 11

6 8ppg

Wash Interval 50

FLAMMABILITY TEST # 47  
CHAR LENGTH DATA

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CRITICAL BURN DIRECTION

CHAR LENGTH L (C)

CHAR LENGTH (L) C

CHAR LENGTH (L) C

CHAR LENGTH (L) C

CHAR LENGTH L (C)

CHAR LENGTH L (C)

PRODUCT C

AATCC Std Det

Condition 95/120

Specimen #1	2.6	3.1	1.3	2.6	2.7	3.2
Specimen #2	3.3	3.6	1.4	2.6	1.9	2.5
Specimen #3	2.9	2.8	1.6	3.6	2.0	2.3
Specimen #4	3.1	2.5	1.5	2.2	1.0	4.0
Specimen #5	3.6	2.9	1.6	2.1	2.4	4.8
AVERAGE CHAR LENGTH:	3.1	3.0	1.5	2.6	2.0	3.4

PRODUCT

Condition \_\_\_\_\_

Specimen #1						
Specimen #2						
Specimen #3						
Specimen #4						
Specimen #5						
AVERAGE CHAR LENGTH:						

L = Lengthwise or warp direction  
C = Crosswise or filling direction

GD #1

12/16/11

6898

Wash Interval 50

FLAMMABILITY TEST # 47  
CHAR LENGTH DATA

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CRITICAL BURN DIRECTION

PRODUCT D

Condition 140/105

Zero P detergent with activated bleach (powder)

Specimen #	FR-P10 CHAR LENGTH	FR-P11 CHAR LENGTH	FR-P12 CHAR LENGTH	FR-P13 CHAR LENGTH	FR-P14 CHAR LENGTH	FR-CW22 CHAR LENGTH
Specimen #1	3.0	2.5	2.3	7.1	1.3	10.0 *
Specimen #2	1.6	1.7	1.2	5.8	1.7	10.0 *
Specimen #3	2.3	2.7	1.3	8.1	1.1	10.0 *
Specimen #4	2.9	2.9	4.1	3.8	3.2	10.0 *
Specimen #5	1.7	3.2	1.7	3.1	1.6	10.0 *
AVERAGE CHAR LENGTH:	2.3	2.6	2.1	5.6	1.8	10.0 *

PRODUCT E Zero P detergent with activated bleach (powder)

Condition 140/105

Specimen #	FR-P10 CHAR LENGTH	FR-P11 CHAR LENGTH	FR-P12 CHAR LENGTH	FR-P13 CHAR LENGTH	FR-P14 CHAR LENGTH	FR-CW22 CHAR LENGTH
Specimen #1	3.3	3.2	2.1	4.1	2.4	10.0 *
Specimen #2	2.3	3.6	2.7	4.7	6.7	10.0 *
Specimen #3	3.1	2.0	2.4	2.5	2.0	10.0 *
Specimen #4	3.0	3.0	3.8	2.6	3.3	10.0 *
Specimen #5	3.7	2.5	4.1	7.1	1.9	10.0 *
AVERAGE CHAR LENGTH:	3.1	2.9	3.2	4.2	3.3	10.0 *

L = Lengthwise or warp direction

C = Crosswise or filling direction

GD #1

12/11/11

Le 8pg

Wash Interval 50

FLAMMA. TY TEST # 47  
CHAR LENGTH DATA

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CRITICAL BURN DIRECTION

PRODUCT F

Condition 140/105

AATCC Std. Met.

	FR-P10 CHAR LENGTH L (C)	FR-P11 CHAR LENGTH L C	FR-P12 CHAR LENGTH L C	FR-P13 CHAR LENGTH L C	FR-P14 CHAR LENGTH L (C)	FR-CW22 CHAR LENGTH L (C)
Specimen #1	3.5	3.1	2.0	3.0	1.0	6.0
Specimen #2	3.0	1.8	1.3	5.3	2.1	5.2
Specimen #3	2.5	3.5	1.0	3.1	2.0	9.7
Specimen #4	2.4	2.8	1.5	3.2	1.8	6.6
Specimen #5	3.8	2.7	1.9	2.3	2.0	5.7
AVERAGE CHAR LENGTH:	3.0	2.8	1.5	3.4	1.8	6.6

PRODUCT

Condition \_\_\_\_\_

Specimen #1						
Specimen #2						
Specimen #3						
Specimen #4						
Specimen #5						
AVERAGE CHAR LENGTH:						

L = Lengthwise or warp direction

C = Crosswise or filling direction

GD #1

12/16 '11

68998

FLAMMAL FT TEST # 47  
CHAR LENGTH DATA

Wash Interval 30

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CRITICAL BURN DIRECTION

L

(C)

(D)

C

(D)

C

(L)

C

L

(C)

L

(C)

PRODUCT

Condition

D 140/105

zero P detergent with activated bleach (powder)

Specimen #1

8.9
-----

Specimen #2

8.2
-----

Specimen #3

10.0 *
--------

Specimen #4

10.0 *
--------

Specimen #5

10.0 *
--------

AVERAGE CHAR LENGTH:

9.4
-----

PRODUCT

Condition

E 140/105

zero P detergent with activated bleach (powder)

Specimen #1

6.3
-----

Specimen #2

5.6
-----

Specimen #3

6.2
-----

Specimen #4

10.0 *
--------

Specimen #5

9.7
-----

AVERAGE CHAR LENGTH:

7.6
-----

L = Lengthwise or warp direction

C = Crosswise or filling direction

GD #1

12/11/11

le 8pg

FLAMMA, TV TEST # 47  
CHAR LENGTH DATA

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

Wash Interval 10

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

L (C)

(L) C

(L) C

(L) C

L (C)

L (C)

PRODUCT

Condition P 140/105

Zero P detergent with activated bleach (powder)

Specimen #1

5.9

Specimen #2

10.0\*

Specimen #3

6.8

Specimen #4

7.6

AVERAGE CHAR LENGTH:

7.4

PRODUCT

Condition E 140/105

Zero P detergent with activated bleach (powder)

Specimen #1

8.2

Specimen #2

6.2

Specimen #3

6.1

Specimen #4

5.5

Specimen #5

5.2

AVERAGE CHAR LENGTH:

6.2

L = Lengthwise or warp direction

C = Crosswise or filling direction

GD #1

MERCHANDISE  
TESTING  
LABORATORIES

FILE COPY

# REPORT

MTL LAB NO. MC 45370  
DATE: MARCH 12, 1992  
Test No. 48



PROCTER & GAMBLE  
IVORYDALE TECHNICAL CENTER  
5299 SPRING GROVE AVENUE  
CINCINNATI, OH 45217

ATTN: GAIL DeWEESE

Sample Description: Six (6) Fabrics washed in six (6) different detergents at one (1) wash condition.

Purpose of Test: Evaluation of the fabrics for sleepwear flammability.

Executive Summary: The following test results sheets include all data recorded.

*Glenn Sylvia*  
\_\_\_\_\_  
Supervisor - Glenn Sylvia

*B. J. Park*  
\_\_\_\_\_  
Executive Director  
Dr. B. J. Park

BJP/ds

U.S.A. : 244 LIBERTY STREET, BROCKTON, MA 02401 TEL: 508 580-8353 FAX: 508 580-2669  
HONG KONG : UNIT 19, 13/F, VANTA INDUSTRIAL CENTRE, 21-33 TAI LIN PAI ROAD, KWAI CIRUNG, N.T. HONG KONG. TEL: 852-418-1222 FAX: 852-480-6666  
TAIWAN : 2F, 226 KUANG MING ROAD, PEITOU, TAIPEI, TAIWAN TEL: 886-02-894-9722 FAX: 886-02-895-9209  
SINGAPORE : 161 KAMPONG AMPAT, 05-02, GOULDRON BLVD. SINGAPORE, 1336 TEL: 65-283-8366 FAX: 65-283-8966

FLAMMABILITY TEST # 48  
CHAR LENGTH DATA

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

Wash Interval 50

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

L (C)

L (C)

L (C)

L (C)

L (C)

L (C)

PRODUCT

Condition 2 A - zero P detergent - plus fabric softener (powder)

Specimen #1

2.9

2.9

3.0

8.2

1.8

9.5

Specimen #2

1.4

2.8

1.2

7.3

6.0

7.0

Specimen #3

2.6

2.3

0.9

7.7

1.0

10.0\*

Specimen #4

2.7

3.0

0.7

2.9

2.2

5.6

Specimen #5

2.7

2.3

1.5

5.2

3.2

8.2

AVERAGE CHAR LENGTH:

2.5

2.7

1.5

6.3

2.8

8.1

PRODUCT

Condition B<sub>2</sub> - zero P detergent - plus fabric softener (powder)

Specimen #1

3.0

2.7

1.0

2.6

2.1

6.5

Specimen #2

2.5

3.3

1.3

3.7

1.9

8.0

Specimen #3

2.1

3.2

1.3

6.1

2.3

6.2

Specimen #4

2.4

1.8

1.5

4.7

2.0

8.5

Specimen #5

2.5

2.8

1.1

1.1

3.3

9.8

AVERAGE CHAR LENGTH:

2.5

2.8

1.2

3.6

2.3

7.8

L = Lengthwise or warp direction

C = Crosswise or filling direction

GD #1

FLAMMABIL. TEST # 48  
CHAR LENGTH DATA

Wash Interval 50

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH
CRITICAL BURN DIRECTION	L (C)	L (C)	L (C)	L (C)	L (C)	L (C)
PRODUCT	Condition <u>C</u> - zero P detergent - plus-fabric softener (powder)					
Specimen #1	3.5	2.6	2.8	5.8	3.5	10.0 *
Specimen #2	1.7	3.3	1.5	10.0 *	2.5	10.0 *
Specimen #3	3.2	2.3	1.9	10.0 *	2.1	10.0 *
Specimen #4	2.7	2.6	1.3	10.0 *	2.9	10.0 *
Specimen #5	3.0	2.8	1.5	6.7	1.9	10.0 *
AVERAGE CHAR LENGTH:	2.8	2.7	1.8	8.5	2.6	10.0

PRODUCT	Condition	D - zero P detergent - plus-fabric softener (powder)					
		FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
Specimen #1		2.7	2.4	1.3	5.9	3.5	5.5
Specimen #2		3.4	2.0	1.1	3.8	4.1	10.0 *
Specimen #3		3.1	2.0	3.3	10.0 *	3.0	7.3
Specimen #4		3.7	2.6	0.9	8.1	1.3	6.5
Specimen #5		3.8	2.5	1.3	4.6	2.0	6.7
AVERAGE CHAR LENGTH:		3.3	2.3	1.6	6.5	2.8	7.2

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

FLAMMABIL. / TEST # 48  
 CHAR LENGTH DATA

DATE \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_  
 TEST ID \_\_\_\_\_

Wash Interval 50

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

L (C)

L (L) C

L (L) C

L (L) C

L (C)

L (C)

PRODUCT

Condition E - Zero P detergent - plus - Fabric softener (powder)

Specimen #1	3.1	2.3	1.1	8.7	1.5	6.9
Specimen #2	2.7	2.4	1.0	4.2	1.3	10.0*
Specimen #3	2.9	2.4	1.3	3.3	2.8	5.6
Specimen #4	3.4	3.0	1.0	4.1	2.8	6.0
Specimen #5	3.0	2.4	1.2	7.4	4.1	5.7
AVERAGE CHAR LENGTH:	3.0	2.5	1.1	5.5	2.5	6.8

PRODUCT

Condition F - ATCC Std. Det.

Specimen #1	3.1	2.2	2.6	2.2	2.1	5.2
Specimen #2	2.9	2.2	1.7	6.5	1.9	5.0
Specimen #3	2.4	2.8	2.2	3.8	2.0	9.5
Specimen #4	3.2	2.3	1.2	2.5	2.0	4.5
Specimen #5	3.2	2.9	1.4	5.5	1.5	5.2
AVERAGE CHAR LENGTH:	3.0	2.5	1.8	4.1	1.9	5.9

L = Lengthwise or warp direction  
 C = Crosswise or filling direction

GD #1

(4)

FLAMMABILITY TEST # 48  
CHAR LENGTH DATA

Wash Interval  30

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
CHAR LENGTH	L (C)	L C	L C	L C	L (C)	L (C)

PRODUCT **A** - Zero P detergent-plus-Fabric Softener (powder)

Specimen #1	4.0
Specimen #2	5.2
Specimen #3	4.2
Specimen #4	4.9
Specimen #5	6.4
AVERAGE CHAR LENGTH:	4.9

PRODUCT Condition **C** Zero P detergent-plus-fabric softener (powder)

Specimen #1	1.1	7.0
Specimen #2	7.6	5.0
Specimen #3	3.9	6.1
Specimen #4	3.1	4.6
Specimen #5	1.0	6.8
AVERAGE CHAR LENGTH:	3.3	5.9

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

FLAMMABILITY TEST # 48  
CHAR LENGTH DATA

Wash Interval  30

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH
CRITICAL BURN DIRECTION	L <input checked="" type="radio"/>	L <input checked="" type="radio"/> C	L <input checked="" type="radio"/>			
PRODUCT	D - Zero P detergent-plus-Fabric softener (powder)					
Condition	D					
Specimen #1				0.9		7.1
Specimen #2				2.3		7.8
Specimen #3				1.0		4.5
Specimen #4				3.0		4.6
Specimen #5				2.5		5.8
AVERAGE CHAR LENGTH:				1.9		6.0

PRODUCT	Condition	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
	E - Zero P detergent-plus-Fabric softener (powder)						
Specimen #1							4.3
Specimen #2							3.4
Specimen #3							8.9
Specimen #4							5.0
Specimen #5							6.7
AVERAGE CHAR LENGTH:							5.7

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

MERCHANDISE  
TESTING  
LABORATORIES

FILE COPY

# REPORT

MTL LAB NO. MC 44768  
TEST NO. 49  
DATE: MAY 13, 1992



PROCTER & GAMBLE CO.  
IVORYDALE TECHNICAL CENTER  
5299 SPRING GROVE AVENUE  
CINCINNATI, OH 45217

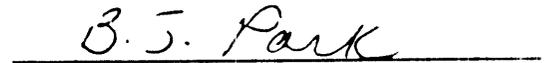
ATTN: GAIL DeWEESE

Sample Description: Six (6) Fabrics washed with six (6) different detergents with two (2) rinse additives.

Purpose of Test: Evaluation of the fabrics for sleepwear flammability.

Executive Summary: The following Test Result sheets include all data recorded.

  
Supervisor - Glenn Sylvia

  
Executive Director  
Dr. B. J. Park

BJP/ds

U.S.A. : 244 LIBERTY STREET, BROCKTON, MA 02401 TEL: 508 580-8353 FAX: 508 580-2669  
HONG KONG : UNIT 19, 13/F, YANTA INDUSTRIAL CENTRE, 21-33 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG. TEL: 852-418-1722 FAX: 852-480-6666  
TAIWAN : 2F, 226 KUANG MING ROAD, PEITOU, TAIPEI, TAIWAN TEL: 886-02-894-9722 FAX: 886-02-895-9209  
SINGAPORE : 161 KAMPONG AMPAT, 05-02, GOLDLION BLDG. SINGAPORE, 1336 TEL: 65-283-8366 FAX: 65-283-8966  
KOREA : CAO KOTTI, 819-5, YPOK SAM DONG, KANG-NAM-KU, SEOUL, KOREA TEL: 822-02-567-7591 FAX: 822-02-557-3739

DATE \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_  
 TEST ID \_\_\_\_\_

Wash Interval 50

FABRIC CODE	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
CHAR LENGTH						
	L (C)	L (L) C	L (L) C	L (L) C	L (C)	L (C)

CRITICAL BURN DIRECTION  
 PRODUCT  
 Condition A - Zero P detergent (Powder)

Specimen #1	3.6	2.6	1.2	2.4	1.5	10.0*
Specimen #2	2.2	3.1	1.4	1.1	2.0	2.5
Specimen #3	2.5	2.4	2.2	4.2	3.5	4.8
Specimen #4	2.1	3.1	1.3	1.1	1.7	4.0
Specimen #5	2.3	2.3	1.4	7.9	2.7	5.0
AVERAGE CHAR LENGTH:	2.54	2.7	1.5	3.34	2.28	5.26

PRODUCT  
 Condition B - Zero P detergent (Powder)

Specimen #1	2.9	1.9	3.7	3.2	1.2	5.8
Specimen #2	3.3	0.7	1.1	1.7	0.5	5.0
Specimen #3	3.2	2.5	1.7	2.3	3.4	4.7
Specimen #4	2.5	2.6	0.8	3.0	1.7	5.2
Specimen #5	1.7	2.0	1.5	2.5	1.2	7.9
AVERAGE CHAR LENGTH:	2.72	1.94	1.76	2.54	1.6	5.72

L = Lengthwise or warp direction  
 C = Crosswise or filling direction  
 GD #1

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

Wash Interval 50

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

L (C)

(L) C

(L) C

(L) C

L (C)

L (C)

PRODUCT

Condition C

AATCC Std. Det.  $\frac{1}{2}$  Performed peroxide bleach additive (liquid)

Specimen #1	2.8	2.5	1.4	3.5	1.9	5.2
Specimen #2	3.0	2.2	1.3	1.4	1.8	4.7
Specimen #3	2.5	2.3	1.5	2.0	1.5	4.2
Specimen #4	1.8	2.1	0.9	2.5	3.4	5.7
Specimen #5	1.8	2.0	1.3	2.8	3.6	7.2
AVERAGE CHAR LENGTH:	2.38	2.22	1.28	2.44	2.44	5.4

PRODUCT Condition D

AATCC Std. Det.  $\frac{1}{2}$  Powder Oxygen bleach additive

Specimen #1	2.5	2.1	0.7	1.1	0.7	6.4
Specimen #2	1.6	2.3	1.3	3.0	2.6	4.2
Specimen #3	2.8	1.8	0.9	3.2	1.4	2.1
Specimen #4	2.0	3.2	1.8	1.5	1.4	6.2
Specimen #5	1.8	1.7	1.3	2.5	3.5	5.5
AVERAGE CHAR LENGTH:	2.14	2.22	1.2	2.26	1.92	4.88

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

Wash Interval 50

DATE \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_  
 TEST ID \_\_\_\_\_

CRITICAL BURN DIRECTION	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
PRODUCT	CHAR LENGTH					
Condition E	L (C)	L (L) C	L (L) C	L (L) C	L (C)	L (C)

Liquid detergent-plus-Fabric softener

Specimen #1	2.7	2.7	1.4	1.9	1.5	10.0 *
Specimen #2	2.2	2.0	0.9	3.0	2.1	10.0 *
Specimen #3	2.4	1.9	1.1	3.1	1.4	10.0 *
Specimen #4	2.4	2.1	1.5	1.4	2.0	10.0 *
Specimen #5	1.2	2.4	1.6	1.5	1.5	10.0 *
AVERAGE CHAR LENGTH:	2.18	2.22	1.3	2.18	1.7	10.0 *

PRODUCT	Condition	AATCC	Std.	Det.					
Specimen #1	F	2.2		2.2	1.3	4.0	1.5	5.5	
Specimen #2		2.8		3.4	1.3	3.0	1.7	7.0	
Specimen #3		2.6		2.6	1.7	2.0	1.7	5.8	
Specimen #4		2.5		2.0	1.4	2.6	2.1	4.8	
Specimen #5		2.0		2.5	1.5	1.7	2.2	4.5	
AVERAGE CHAR LENGTH:		2.42		2.54	1.44	2.66	1.84	5.52	

L = Lengthwise or warp direction  
 C = Crosswise or filling direction  
 GD #1

FLAMMABILITY TEST # 49  
 CHAR LENG, H DATA

DATE \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_  
 TEST ID \_\_\_\_\_

Wash Interval 30

FABRIC CODE

CRITICAL BURN DIRECTION

FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
CHAR LENGTH					
L (C)	L C	L C	L C	L (C)	L (C)

PRODUCT

Condition A zero D detergent (Dousdan)

Specimen #1					5.4
Specimen #2					6.5
Specimen #3					5.7
Specimen #4					5.0
Specimen #5					8.0
AVERAGE CHAR LENGTH:					6.02

Perm

PRODUCT

Condition E

Liquid detergent-plus-fabric softener

Specimen #1					10.0 *
Specimen #2					10.0 *
Specimen #3					10.0 *
Specimen #4					10.0 *
Specimen #5					10.0 *
AVERAGE CHAR LENGTH:					10.0 *

L = Lengthwise or warp direction  
 C = Crosswise or filling direction  
 GD #1

FLAMMABILITY TEST # 49  
CHAR LENGTH DATA

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

Wash Interval 10

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CRITICAL BURN DIRECTION

CHAR LENGTH L (C)

CHAR LENGTH L (L) C

CHAR LENGTH L (L) C

CHAR LENGTH L (L) C

CHAR LENGTH L (C)

CHAR LENGTH L (C)

PRODUCT

*Liquid detergent - plus-fabric softener*

Condition E

- Specimen #1
- Specimen #2
- Specimen #3
- Specimen #4
- Specimen #5

10.0 *
10.0 *
10.0 *
10.0 *
10.0 *
10.0 *

AVERAGE CHAR LENGTH:

PRODUCT

Condition E

- Specimen #1
- Specimen #2
- Specimen #3
- Specimen #4
- Specimen #5


AVERAGE CHAR LENGTH:

L = Lengthwise or warp direction  
 C = Crosswise or filling direction  
 GD #1

MERCHANDISE  
TESTING  
LABORATORIES

# REPORT

MTL LAB NO: MC 49334  
DATE: JUNE 16, 1992

Test 50

FILE COPY



PROCTER & GAMBLE  
IVORYDALE TECHNICAL CENTER  
5299 SPRING GROVE AVENUE  
CINCINNATI, OH 45217

ATTN: GAIL DeWEESE

Sample Description: Six (6) Fabrics washed in six (6) different detergents at two (2) wash conditions.

Purpose of Test: Evaluation of the fabrics for sleepwear flammability.

Executive Summary: The following Test Result sheets include all data recorded.

*Glenn Sylvia*  
\_\_\_\_\_  
Supervisor-Glenn Sylvia

*B. J. Park*  
\_\_\_\_\_  
Executive Director  
Dr. B. J. Park

BJP/1s

FLAMMABIL / TEST # 50  
CHAR LENGTH DATA

Wash Interval 50

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
CRITICAL BURN DIRECTION	L (C)	L (C)	L (C)	L (C)	L (C)	L (C)
PRODUCT	A Zero P detergent (powder)					
Condition	140/105					
Specimen #1	2.5	2.8	1.3	2.6	2.5	10.0
Specimen #2	2.8	2.5	0.8	2.1	3.4	10.0
Specimen #3	3.4	3.1	1.4	2.5	2.1	5.8
Specimen #4	2.5	3.4	0.9	1.9	2.2	2.2
Specimen #5	2.5	2.3	1.4	3.7	3.2	6.0
AVERAGE CHAR LENGTH:	2.74	2.62	1.16	2.56	2.88	7.9

PRODUCT B Zero P detergent (powder)

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
Condition	140/105					
Specimen #1	3.2	2.0	0.9	3.0	4.8	10.0
Specimen #2	2.7	2.6	1.5	1.5	2.0	3.2
Specimen #3	2.6	2.5	1.1	1.3	1.8	5.2
Specimen #4	2.7	2.6	1.0	2.5	2.5	4.6
Specimen #5	3.0	2.1	1.8	1.7	1.5	5.0
AVERAGE CHAR LENGTH:	2.84	2.36	1.26	2.0	1.92	6.6

L = Lengthwise or warp direction  
C = Crosswise or filling direction

GD #1

FLAMMABIL. Y TEST # 50  
 CHAR LENGTH DATA

DATE \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_  
 TEST ID \_\_\_\_\_

Wash Interval 50

FABRIC CODE

CRITICAL BURN DIRECTION

PRODUCT C

Condition AD/105

Specimen #	FR-P10 CHAR LENGTH L (C)	FR-P11 CHAR LENGTH L (C)	FR-P12 CHAR LENGTH L (C)	FR-P13 CHAR LENGTH L (C)	FR-P14 CHAR LENGTH L (C)	FR-CW22 CHAR LENGTH L (C)
Specimen #1	4.3	2.6	1.5	2.9	1.7	4.2
Specimen #2	3.1	3.3	2.0	1.6	2.2	4.2
Specimen #3	3.0	1.9	1.8	2.4	2.4	6.8
Specimen #4	2.2	2.9	1.7	1.5	1.5	3.2
Specimen #5	3.6	2.5	1.4	2.9	3.3	4.5
AVERAGE CHAR LENGTH:	3.34	2.64	1.68	2.26	2.22	4.88

PRODUCT D

Condition 140/105

AATCC Std. Det  $\frac{1}{2}$  Liquid Oxygen bleach additive

Specimen #	FR-P10 CHAR LENGTH L (C)	FR-P11 CHAR LENGTH L (C)	FR-P12 CHAR LENGTH L (C)	FR-P13 CHAR LENGTH L (C)	FR-P14 CHAR LENGTH L (C)	FR-CW22 CHAR LENGTH L (C)
Specimen #1	4.1	2.5	1.4	3.0	1.8	7.8
Specimen #2	2.3	2.7	2.0	2.5	2.5	2.5
Specimen #3	2.6	1.9	1.6	2.6	3.0	5.3
Specimen #4	1.8	2.5	1.2	2.2	2.0	6.1
Specimen #5	1.1	2.1	1.6	4.3	1.5	5.9
AVERAGE CHAR LENGTH:	2.32	2.4	1.56	2.94	2.02	6.3

L = Lengthwise or warp direction  
 C = Crosswise or filling direction  
 SD #1

FLAMMABIL. TEST # 50  
 CHAR LENGTH DATA

Wash Interval 50

DATE \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_  
 TEST ID \_\_\_\_\_

FABRIC CODE	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
CRITICAL BURN DIRECTION	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH
PRODUCT E	L (C)	(L) C	(L) C	(L) C	L (C)	L (C)
Condition Tap	AATCC Std Test 1 Preformed Peroxid bleach additive (liquid)					
Specimen #1	4.0	3.6	1.4	2.8	2.8	3.0
Specimen #2	3.7	3.6	2.2	3.1	1.2	3.3
Specimen #3	3.7	3.5	1.9	3.4	2.6	3.6
Specimen #4	3.7	2.3	1.7	3.6	2.4	3.4
Specimen #5	4.4	3.1	2.3	2.7	2.4	3.3
AVERAGE CHAR LENGTH:	3.9	3.22	1.9	3.12	2.24	3.32

PRODUCT F  
 Condition Tap

AATCC Std. Test.

Specimen #1	2.8	2.5	1.0	3.1	1.8	1.8
Specimen #2	2.5	2.5	1.8	3.2	-	5
Specimen #3	3.9	3.3	1.5	3.5	2.6	3.6
Specimen #4	3.0	2.6	1.4	3.6	1.9	1.8
Specimen #5	1.7	2.2	1.5	1.7	3.7	1.8
AVERAGE CHAR LENGTH:	2.58	2.66	1.6	3.02	2.6	4.36

(8)

L = Lengthwise or warp direction  
 C = Crosswise or filling direction  
 GD #1

FLAMMABILITY TEST # 50  
CHAR LENGTH DATA

Wash Interval sq 30

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH
PRODUCT <u>A</u>	L <input checked="" type="radio"/>	L <input checked="" type="radio"/> C	L <input checked="" type="radio"/> C	L <input checked="" type="radio"/> C	L <input checked="" type="radio"/>	L <input checked="" type="radio"/>
Condition <u>140/105</u>	- Zero P detergent (powder)					
Specimen #1						4.0
Specimen #2						5.5
Specimen #3						6.3
Specimen #4						6.5
Specimen #5						7.5
AVERAGE CHAR LENGTH:						5.96

PRODUCT B

Condition 140/105

Specimen #1

Specimen #2

Specimen #3

Specimen #4

Specimen #5

AVERAGE CHAR LENGTH:

Zero P detergent (powder)

						9.5
						9.0
						6.2
						2.0
						6.14

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

FLAMMABI Y TEST # 50  
CHAR LENGTH DATA

Wash Interval 20 / 10

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH
Specimen #1						
Specimen #2						
Specimen #3						
Specimen #4						
Specimen #5						
AVERAGE CHAR LENGTH:						

CRITICAL BURN DIRECTION L  
PRODUCT A - Zero P detergent (powder)  
Condition 140/105

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH
Specimen #1						3.8
Specimen #2						5.0
Specimen #3						6.3
Specimen #4						5.6
Specimen #5						5.8
AVERAGE CHAR LENGTH:						5.3

PRODUCT B  
Condition 140/105  
Zero P detergent (powder)

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

MERCHANDISE

TESTING

LABORATORIES

FILE COPY

# REPORT

MTL LAB NO.: MC 49874 TEST 51  
DATE: JUNE 29, 1992



PROCTER & GAMBLE  
IVORYDALE TECHNICAL CENTER  
5299 SPRING GROVE AVENUE  
CINCINNATI, OH 45217

ATTN: GAIL DEWEESE

Sample Description: One (1) Fabric Product B from Test No. 49.

Purpose of Test: Evaluation of the sleepwear for flammability.

Executive Summary: The following Test Result Sheets include all data recorded.

Glenn Sylvia  
Supervisor - Glenn Sylvia  
B. J. Park  
Executive Director  
Dr. B. J. Park

BJP/lc

U.S.A. : 244 LIBERTY STREET, BROCKTON, MA 02401 TEL: 508 580-8353 FAX: 508 580-2669  
HONG KONG : UNIT 19, 13/F, VANTA INDUSTRIAL CENTRE, 21-33 TAI LIN PAI ROAD, KWAI CIRUNG, N.T. HONG KONG. TEL: 852-418-1222 FAX: 852-480-6666  
TAIWAN : 2F, 226 KUANG MING ROAD, PEIYOU, TAIPEI, TAIWAN TEL: 886-02-894-9722 FAX: 886-02-895-9209  
SINGAPORE : 161 KAMPONG AMPAT, 05-02, COXDALE INDUSTRIAL ESTATE, SINGAPORE, 1336 TEL: 65-283-8366 FAX: 65-283-8966

FLAMMABIL TEST # 51  
CHAR LENGTH DATA

Wash Interval 30

140°/105° @ 80g

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE	FR-P10		FR-P11		FR-P12		FR-P13		FR-P14		FR-CW22	
	CHAR LENGTH	L										

FR-CW22  
CHAR LENGTH  
L (C)

PRODUCT \_\_\_\_\_  
Condition B From Test No. 49 Zero P detergent (powder)

Specimen #1												6.2
Specimen #2												5.4
Specimen #3												5.0
Specimen #4												4.0
Specimen #5												6.1
AVERAGE CHAR LENGTH:												5.3

PRODUCT \_\_\_\_\_  
Condition \_\_\_\_\_

Specimen #1												
Specimen #2												
Specimen #3												
Specimen #4												
Specimen #5												
AVERAGE CHAR LENGTH:												

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
SD #1

MERCHANDISE  
TESTING  
LABORATORIES

# REPORT

MTL LAB NO.: MC 53252  
TEST NO.: 52  
DATE: SEPTEMBER 21, 1992



PROCTOR & GAMBLE  
IVORYDALE TECHNICAL CENTER  
5299 SPRING GROVE AVENUE  
CINCINNATI, OH 45217

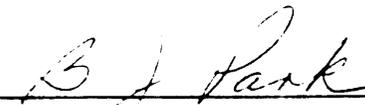
ATTN: GAIL DeWEESE

**Sample Description:** Six (6) Fabrics washed in two (2) different detergents with three (3) different dryer sheets and one rinse additive.

**Purpose of Test:** Evaluation of the fabrics for sleepwear flammability.

**Executive Summary:** The following Test Result sheets include all data recorded.

  
Supervisor - Glenn Sylvia

  
Executive Director  
Dr. B. J. Park

BJP/sh

U.S.A. : 244 LIBERTY STREET, BROCKTON, MA 02401 TEL: 508 580-8353 FAX: 508 580-2669  
HONG KONG : UNIT 19, 13/F, VANTA INDUSTRIAL CENTRE, 21-33 TAILIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG. TEL: 852-418-1222 FAX: 852-480-6600  
TAIWAN : 2F, 226 KUANG MING ROAD, PEITOU, TAIPEI, TAIWAN TEL: 886-02-894-9722 FAX: 886-02-895-9209  
SINGAPORE : 161 KAMPONG AMPAT, 05-02, GOLDLION BLDG SINGAPORE, 1336 TEL: 65-283-8366 FAX: 65-283-8966  
KOREA : C/O KOTITI, 819-5, YEOK SAM DONG, KANG NAM KU, SFOLT, KOREA TEL: 822-02-567-7591 FAX: 822-02-557-3739

MERCHANDISE  
TESTING  
LABORATORIES

# REPORT

MTL LAB NO. MC 53252(ADDENDUM)  
TEST NO. 52  
DATE: OCTOBER 27, 1992



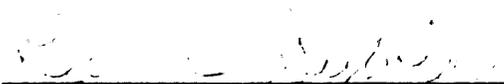
PROCTOR & GAMBLE  
IVORYDALE TECHNICAL CENTER  
5299 SPRING GROVE AVENUE  
CINCINNATI, OH 45217

ATTN: GAIL DEWEESE

**Sample Description:** Four (4) Fabrics, Labelled A-10 Cycles, A-30 Cycles, B-10 Cycles and C-10 Cycles.

**Purpose of Test:** Evaluation of the fabrics for sleepwear flammability.

**Executive Summary:** The following Test Results sheets include all data recorded.

  
Supervisor - Glenn Sylvia

  
Executive Director  
Dr. B. J. Park

BJP/ds

U.S.A. : 244 LIBERTY STREET, BROCKTON, MA 02401 TEL: 508 580-8353 FAX: 508 580-2669  
HONG KONG UNIT 19, 13/F, VANTA INDUSTRIAL CENTRE, 21-33 TAILIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG TEL: 852-418-1222 FAX: 852-480-6666  
TAIWAN 2F, 226 KUANG MING ROAD, PEITOU TAIPEI TAIWAN TEL: 886-02-894-9722 FAX: 886-02-895-9209  
SINGAPORE 161 KAMPONG AMPAT, 05-02, GOLDLION BLDG SINGAPORE, 1336 TEL: 65-283-8366 FAX: 65-283-8966  
KOREA C/O KOTTI, 819-5, YEOK SAM DONG, KANG NAM KU, SEOUL, KOREA TEL: 822-02-567-7591 FAX: 822-02-557-3739

*CSPC*

FLAMMABILITY TEST # No. 52  
CHAR LENGTH DATA

Wash Interval 50

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH
Specimen #1	3.4	3.3	1.4	1.1	1.8	4.3
Specimen #2	2.2	2.6	1.7	1.7	2.0	4.4
Specimen #3	3.9	3.2	1.5	1.2	2.6	6.4
Specimen #4	3.7	3.3	1.9	2.2	1.1	4.8
Specimen #5	4.3	2.6	0.9	2.7	2.6	4.5
AVERAGE CHAR LENGTH:	3.5	3.0	1.5	1.8	2.0	4.9

PRODUCT A 140/105  
Condition 140/105

ARTCC std Det. Fabric Softener Dryer sheet

	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH	CHAR LENGTH
Specimen #1	2.2	2.2	0.6	4.0	2.8	4.7
Specimen #2	2.6	3.8	1.4	1.5	1.0	4.2
Specimen #3	2.9	3.1	2.1	2.3	1.7	4.4
Specimen #4	2.9	2.9	1.2	3.5	1.9	5.2
Specimen #5	2.9	1.8	1.4	2.5	1.6	10.0*
AVERAGE CHAR LENGTH:	2.7	2.6	1.3	2.9	2.0	5.7

PRODUCT B 140/105  
Condition 140/105

ARTCC std. Det. Fabric Softener Dryer sheet

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

68P4

FLAMMABILITY EST # No. 52  
CHAR LENGTH DATA

Wash Interval 50

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CRITICAL BURN DIRECTION

L (C)

L (L) C

L (L) C

L (L) C

L (C)

L (C)

PRODUCT C  
Condition 140/105

ARTec sta Det. Fabric Softener D per sheet

Specimen #1	Specimen #2	Specimen #3	Specimen #4	Specimen #5	AVERAGE CHAR LENGTH:
1.3	2.8	2.7	1.7	1.0	1.9
2.0	1.7	1.7	1.4	2.9	1.9
1.3	1.5	2.3	1.4	1.5	1.5
1.6	1.8	2.2	1.4	1.5	1.9
1.5	2.7	1.5	1.9	3.2	2.0
5.7	4.5	5.2	18.0*	5.9	

PRODUCT D  
Condition 140/105

ARTec sta Det. Fabric Softener Rinse Additive

Specimen #1	Specimen #2	Specimen #3	Specimen #4	Specimen #5	AVERAGE CHAR LENGTH:
2.3	1.9	2.0	2.6	2.2	2.2
2.4	3.0	2.2	2.5	2.7	2.7
1.7	1.3	1.6	6.0	3.6	3.6
2.2	2.8	6.8	6.1	4.1	4.1
2.9	3.0	3.4	1.7	2.7	2.7
7.5	9.0*	9.4	8.9	9.0	

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

6818

FLAMMABILITY EST # No. 52  
CHAR LENGTH DATA

Wash Interval 50

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CRITICAL BURN DIRECTION

CHAR LENGTH L (C)

CHAR LENGTH L (L) C

CHAR LENGTH L (L) C

CHAR LENGTH L (L) C

CHAR LENGTH L (C)

CHAR LENGTH L (C)

PRODUCT E

Condition 140/105

AATCC Std. Det.

Specimen #1	2.8	2.5	1.9	2.8	1.4	3.6	2.2	4.6
Specimen #2	1.9	1.8	1.2	1.5	0.9	6.6		
Specimen #3	1.9	1.4	1.3	1.7	2.0	4.9		
Specimen #4	1.2	1.8	1.0	2.9	1.2	5.9		
Specimen #5	2.1	1.9	1.4	3.3	2.0	6.4		

AVERAGE CHAR LENGTH:

PRODUCT F40 - zero P detergent (powder)

Condition 140/105

Specimen #1	3.2	3.0	1.5	4.1	2.4	7.0		
Specimen #2	2.0	1.7	0.7	2.3	2.5	7.7		
Specimen #3	2.6	2.1	1.2	2.2	1.7	8.4		
Specimen #4	2.3	2.3	1.0	1.9	1.4	3.8		
Specimen #5	1.8	1.9	0.8	5.6	1.9	5.0		
AVERAGE CHAR LENGTH:	2.4	2.3	1.0	3.9	2.0	6.4		

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

6818

FLAMMABILITY TEST # No. 52  
CHAR LENGTH DATA

Wash Interval 30

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE \_\_\_\_\_ FR-P10 FR-P11 FR-P12 FR-P13 FR-P14 FR-CW22

CRITICAL BURN DIRECTION \_\_\_\_\_ CHAR LENGTH CHAR LENGTH CHAR LENGTH CHAR LENGTH CHAR LENGTH CHAR LENGTH

PRODUCT A L C L C L C L C L C  
Condition 140/105 ARTCC STD. Det. † Fabric Softener Dryer Sheet

Specimen #1							
Specimen #2							
Specimen #3							
Specimen #4							
Specimen #5							
AVERAGE CHAR LENGTH:							

PRODUCT B ARTCC STD. Det. † Fabric Softener Dryer Sheet  
Condition 140/105

Specimen #1							5.5
Specimen #2							5.4
Specimen #3							6.2
Specimen #4							7.2
Specimen #5							4.5
AVERAGE CHAR LENGTH:							5.8

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

68 Pgs

FLAMMABILITY TEST # No. 52  
CHAR LENGTH DATA

Wash Interval 30

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CRITICAL BURN DIRECTION

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

PRODUCT C

L (C)

L (L) C

L (L) C

L (L) C

L (C)

L (C)

Condition 140/105

ATCC Std. Test. 1/2 Fabric Softener Dryer Sheet

- Specimen #1
- Specimen #2
- Specimen #3
- Specimen #4
- Specimen #5

5.9						
4.5						
5.2						
4.7						
6.0						
5.3						

AVERAGE CHAR LENGTH:

ATCC Std. Test. 1/2 Fabric Softener Rins. Additive

PRODUCT D 140/105

- Specimen #1
- Specimen #2
- Specimen #3
- Specimen #4
- Specimen #5

10.0*						
10.0*						
9.5						
10.0*						
9.5						
9.8						

AVERAGE CHAR LENGTH:

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

FLAMMAB. Y TEST # 52  
 CHAR LENGTH DATA

DATE \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_  
 TEST ID \_\_\_\_\_

Wash Interval \_\_\_\_\_

FABRIC CODE	FR-P10		FR-P11		FR-P12		FR-P13		FR-P14		FR-CW22	
	CHAR LENGTH	L C	CHAR LENGTH	L C	CHAR LENGTH	L C	CHAR LENGTH	L C	CHAR LENGTH	L C	CHAR LENGTH	L C
PRODUCT A	10 Cycles		A TCC Std. Test.		1/2 Fabric Softener		Dryer Sweat					
Condition	_____											
Specimen #1												5.2
Specimen #2												6.8
Specimen #3												8.0
Specimen #4												5.5
Specimen #5												7.1
AVERAGE CHAR LENGTH:												6.52

PRODUCT	Condition	A TCC	Std. Det.	1/2 Fabric Softener	Dryer Sweat	Specimen #1	Specimen #2	Specimen #3	Specimen #4	Specimen #5	AVERAGE CHAR LENGTH:
A	30 Cycles					5.1	4.0	4.5	9.0	6.9	5.9

L = Lengthwise or warp direction  
 C = Crosswise or filling direction  
 GD #1

FLAMMAB. Y TEST # 53  
 CHAR LENGTH DATA

Wash Interval \_\_\_\_\_  
 DATE \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_  
 TEST ID \_\_\_\_\_

FABRIC CODE	FR-P10		FR-P11		FR-P12		FR-P13		FR-P14		FR-CW22	
	CHAR LENGTH											
CRITICAL BURN DIRECTION	L	C	L	C	L	C	L	C	L	C	L	C
PRODUCT <u>B</u> Condition <u>10 cycles</u> <u>ARTCC</u> <u>Std</u> <u>Def</u> <u>1</u> Fabric Softener Dryer Sheet												
Specimen #1											4.7	10.5.4
Specimen #2											19.0*	6.5
Specimen #3											5.5	
Specimen #4											2.1	
Specimen #5											4.8	
AVERAGE CHAR LENGTH:											6.42	

FABRIC CODE	FR-P10		FR-P11		FR-P12		FR-P13		FR-P14		FR-CW22	
	CHAR LENGTH											
CRITICAL BURN DIRECTION	L	C	L	C	L	C	L	C	L	C	L	C
PRODUCT <u>C</u> Condition <u>10 cycles</u> <u>ARTCC</u> <u>Std</u> <u>Def</u> <u>1</u> Fabric Softener Dryer Sheet												
Specimen #1											4.2	
Specimen #2											5.0	
Specimen #3											4.8	
Specimen #4											5.1	
Specimen #5											4.5	
AVERAGE CHAR LENGTH:											4.72	

L = Lengthwise or warp direction  
 C = Crosswise or filling direction  
 GD #1

6888

FLAMMABILITY - ST # No. 52  
CHAR LENGTH DATA

Wash Interval 10

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE

FR-P10

FR-P11

FR-P12

FR-P13

FR-P14

FR-CW22

CRITICAL BURN DIRECTION

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

CHAR LENGTH

PRODUCT C

Condition 140/105

FR-P10: L (C)  
FR-P11: L (L) C  
FR-P12: L (L) C  
FR-P13: L (L) C  
FR-P14: L (C)  
FR-CW22: L (C)  
AATCC std. Det.  $\frac{1}{2}$  Fabric Softener Dryer Sheet

AVERAGE CHAR LENGTH:

Specimen #1						
Specimen #2						
Specimen #3						
Specimen #4						
Specimen #5						

PRODUCT P  
Condition 140/105

AATCC std. Det.  $\frac{1}{2}$  Fabric Softener Rinse Additive

Specimen #1						1.5
Specimen #2						2.4
Specimen #3						2.0
Specimen #4						4.8
Specimen #5						10.0*
AVERAGE CHAR LENGTH:						2.5

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

MERCHANDISE  
TESTING  
LABORATORIES

# REPORT

MTL LAB NO. MC 54705  
TEST NO. 53 A  
DATE: NOVEMBER 5, 1992



PROCTER & GAMBLE CO.  
IVORYDALE TECHNICAL CENTER  
5299 SPRING GROVE AVENUE  
CINCINNATI, OH 45217

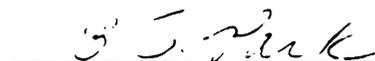
ATTN: GAIL DeWEESE

**Sample Description:** Six (6) Fabrics washed in six (6) different detergents with one rinse additive.

**Purpose of Test:** Evaluation of the fabrics for sleepwear flammability.

**Executive Summary:** The following Test Result sheets include all data recorded

  
Supervisor - Glenn Sylvia

  
Executive Director  
Dr. B. J. Park

BJP/ds

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FLAMMABILITY TEST # 53 A  
CHAR LENGTH DATA

Wash Interval 50

DATE \_\_\_\_\_  
SIGNATURE \_\_\_\_\_  
TEST ID \_\_\_\_\_

FABRIC CODE	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
PRODUCT A	L	(C)	(L)	(L)	(C)	(C)
Condition <u>140/105</u>	Zero D detergent (powder)					
Specimen #1	2.9	2.5	1.2	2.4	1.4	6.3
Specimen #2	3.6	2.6	1.3	1.5	2.0	10.0
Specimen #3	2.6	2.7	1.8	3.0	1.9	6.5
Specimen #4	3.2	1.8	1.6	2.0	1.4	7.8
Specimen #5	2.7	2.0	1.5	1.8	4.6	5.9
AVERAGE CHAR LENGTH:	3.0	2.3	1.5	2.1	2.3	7.5

PRODUCT B	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22
Condition _____	Zero P detergent (powder)					
Specimen #1	2.7	3.2	4.2	2.3	2.3	6.1
Specimen #2	2.6	2.2	1.7	3.3	2.1	8.6
Specimen #3	3.5	2.9	1.3	3.0	1.8	10.0
Specimen #4	3.2	3.0	1.5	2.0	2.4	10.0
Specimen #5	3.2	3.0	1.1	3.0	3.2	10.0
AVERAGE CHAR LENGTH:	3.0	2.9	2.0	2.1	2.4	8.9

L = Lengthwise or warp direction  
C = Crosswise or filling direction  
GD #1

FLAMMAB, Y TEST # 53 A  
 CHAR LENGTH DATA

Wash Interval 50

DATE \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_  
 TEST ID \_\_\_\_\_

FABRIC CODE	FR-P10	FR-P11	FR-P12	FR-P13	FR-P14	FR-CW22		
						CHAR LENGTH	CHAR LENGTH	
CRITICAL BURN DIRECTION	L	C	L	C	L	C	L	C
	PRODUCT C - zero P detergent (powder)							

Condition _____	1.9	2.3	2.8	2.1	5.0	10.0		
Specimen #1	2.9	2.1	2.1	8.8	1.6	10.0		
Specimen #2	3.1	3.5	2.7	6.8	1.3	10.0		
Specimen #3	3.0	4.3	1.8	6.4	3.3	10.0		
Specimen #4	2.9	2.5	2.5	2.9	2.6	10.0		
Specimen #5	2.8	2.9	2.0	6.4	2.8	10.0		
AVERAGE CHAR LENGTH:								

PRODUCT D zero P detergent (powder)

Condition _____	2.9	2.8	2.0	3.2	1.5	8.8		
Specimen #1	2.4	1.1	1.3	1.5	2.8	10.0		
Specimen #2	3.2	2.1	1.6	2.5	2.0	7.0		
Specimen #3	2.5	2.9	1.7	1.6	3.6	6.8		
Specimen #4	4.0	2.6	6.9	3.9	2.1	6.4		
Specimen #5	3.0	2.4	1.5	2.5	2.4	7.8		
AVERAGE CHAR LENGTH:								

L = Lengthwise or warp direction  
 C = Crosswise or filling direction  
 GD #1