AEC FORM 763
(4-71)

MATERIALS DATA INPUT

4 REFERENCE COPY

DOCKET NUMBER	MAIL CONTROL NO.	DATE REQUEST REC'D	PROGRAM CODE (PRIMARY)
[redacted]	03937	09-09-71	11300

SECONDARY PROGRAM CODES:

#1	#2	#3	#4	#5

INDIVIDUAL LICENSEES

NAME	NAME
NAME	NAME
NAME	NAME

ORGANIZATION LICENSEE

ORGANIZATION NAME: S. F. Appliances, Ltd

DEPARTMENT OR BUREAU:

TYPE OF ORGANIZATION: U. S. GOVERNMENT AGENCY | EDUCATIONAL INSTITUTION | MEDICAL INSTITUTION | INDUST X | OTHER

ADDRESS

BUILDING, STREET	CITY	STATE	ZIP CODE
80 Broad Street	New York	NY	10004

APPLICANT'S COMMUNICATION DATED:	CLASSIFICATION	ASSIGNED TO:	RESULTING AMD. NO.
09-01-71	U		

ENCLOSURES:

UNCLASSIFIED DESCRIPTION:

Ltr adv AEC on the change of address to:

S. F. Appliances Limited
80 Broad Street
New York, New York 10004

DO NOT REMOVE

DISTRIBUTION:

1-Compliance(region)

1-PDR cy

ACKNOWLEDGED

OTHER REFERRALS

NAME	DATE	NAME	DATE
Layfield w/1 file cy & folder	09-09-71		
	DJF		

A-35

DOCKET NO. 40-215

S.F. APPLIANCES LIMITED
80 BROAD STREET, NEW YORK, N.Y. 10004, U.S.A.
Telephone: 212 - 344-1963
Cables: PANSTART

Regulatory File Cy.

September 1, 1971

U.S. Atomic Energy Commission
Division Of Materials Licensing
Washington, D. C. 20545

Ref: AEC License
No. STB-258

Att: Mr. Don F. Harmon
Source & Special Nuclear Materials Branch

Dear Sir:

We wish to advise you of the change of address of our Main Office to the following;

S. F. Appliances Limited
80 Broad Street
New York, New York 10004

Yours very truly,

S. F. APPLIANCES LIMITED

K. G. Calaway

K. G. Calaway
Vice President

KGC:sf
cc: Morris Div.

DOCKETED USAEC SEP 9 1971 REGULATORY MAIL SECTION DOCKET CLERK

RECEIVED SEP 7 1971 U.S. ATOMIC ENERGY COMMISSION Regulatory Mail Section

3937

ACKNOWLEDGED

[redacted]

1-30-69 | 2-3-69 | [illegible]

LTR. X | MEMO: | REPORT: | OTHER:

TO: AEC - Harmon

ORIG.: 1 | CC: | OTHER:

ACTION NECESSARY ☐ | NO ACTION NECESSARY ☐ | CONCURRENCE ☐ | COMMENT ☐ | DATE ANSWERED: | BY:

CLASSIF.: U | POST OFFICE | REG. NO:

FILE CODE: 40-215

DESCRIPTION: (Must Be Unclassified)

Ltr. and trans the following:

ENCLOSURES:

Form AEC-2 (1 cy)
Supplements to Items 9 & 12 (1 cy ea)
Exhibits 1,2, & 3 (1 cy)

REMARKS:

DISTRIBUTION: 1-Compliance(Region)
1-PDR Cy

REFERRED TO	DATE	RECEIVED BY	DATE
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w/file Cy & folder			
		DO NOT REMOVE	
		ACKNOWLEDGED	fod

U.S. ATOMIC ENERGY COMMISSION **MAIL CONTROL FORM** FORM AEC-326S (8-60)

☆ U.S. GOVERNMENT PRINTING OFFICE: 1968-296-615

S.F. APPLIANCES LIMITED
150 BROAD STREET, • NEW YORK, N.Y., 10004, U.S.A.
Telephone: 212 — 943-8241
Cables: SUFLACO

DML:DFH
40-215

January 30, 1969

DOCKET NO. 40-215

Regulatory Suppl File Cy.

United States
Atomic Energy Commission
Washington, D. C. 20545

Att: Mr. Don F. Harmon
Source & Special Nuclear Materials Branch
Division Of Materials Licensing

Dear Sir;

Enclosed you will please find our renewal application for our Source Material License No. STB-258 in accordance with your letters of November 7, 1968 and December 9, 1968.

Your usual kind cooperation in processing our application will be appreciated.

Very truly yours,

S. F. APPLIANCES LIMITED

K. G. Calaway

K. G. Calaway
Vice President

KGC:sf

encl: Application
& Supplements

DOCKETED USAEC
FEB 3 1969
REGULATORY MAIL SECTION DOCKET CLERK

ACKNOWLEDGED

FORM AEC-2
(3-64)

FORM APPROVED
BUREAU OF BUDGET NO. 38-R0002.

UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR SOURCE MATERIAL LICENSE

Pursuant to the regulations in Title 10, Code of Federal Regulations, Chapter 1, Part 40, application is hereby made for a license to receive, possess, use, transfer, deliver or import into the United States, source material for the activity or activities described.

1. (*Check one*)
- ☐ (*a*) New license
- ☐ (*b*) Amendment to License No. _____
- ☒ (*c*) Renewal of License No. STB-258
- ☐ (*d*) Previous License No. _____

2. NAME OF APPLICANT
S. F. Appliances Limited

3. PRINCIPAL BUSINESS ADDRESS
50 Broad St. New York, N. Y. 10004

4. STATE THE ADDRESS(ES) AT WHICH SOURCE MATERIAL WILL BE POSSESSED OR USED
613 W. Washington Street Morris, Illinois 60450

5. BUSINESS OR OCCUPATION
Manufacturing

6. (*a*) IF APPLICANT IS AN INDIVIDUAL, STATE CITIZENSHIP

(*b*) AGE

7. DESCRIBE PURPOSE FOR WHICH SOURCE MATERIAL WILL BE USED
Manufacturing Incandescent Mantles

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Received w/Ltr Dated 1-30-69
Regulatory Suppl File Cy.

8. STATE THE TYPE OR TYPES, CHEMICAL FORM OR FORMS, AND QUANTITIES OF SOURCE MATERIAL YOU PROPOSE TO RECEIVE, POSSESS, USE, OR TRANSFER UNDER THE LICENSE

(*a*) TYPE	(*b*) CHEMICAL FORM	(*c*) PHYSICAL FORM (*Including % U or Th.*)	(*d*) MAXIMUM AMOUNT AT ANY ONE TIME (*in pounds*)
NATURAL URANIUM			
URANIUM DEPLETED IN THE U-235 ISOTOPE			
THORIUM (ISOTOPE)	Thorium Nitrate	Granular	360 Pounds

(*e*) MAXIMUM TOTAL QUANTITY OF SOURCE MATERIAL YOU WILL HAVE ON HAND AT ANY TIME (*in pounds*)
360 Pounds

9. DESCRIBE THE CHEMICAL, PHYSICAL, METALLURGICAL, OR NUCLEAR PROCESS OR PROCESSES IN WHICH THE SOURCE MATERIAL WILL BE USED, INDICATING THE MAXIMUM AMOUNT OF SOURCE MATERIAL INVOLVED IN EACH PROCESS AT ANY ONE TIME, AND PROVIDING A THOROUGH EVALUATION OF THE POTENTIAL RADIATION HAZARDS ASSOCIATED WITH EACH STEP OF THOSE PROCESSES.

See supplement to item 9 attached

10. DESCRIBE THE MINIMUM TECHNICAL QUALIFICATIONS INCLUDING TRAINING AND EXPERIENCE THAT WILL BE REQUIRED OF APPLICANT'S SUPERVISORY PERSONNEL INCLUDING PERSON RESPONSIBLE FOR RADIATION SAFETY PROGRAM (OR OF APPLICANT IF APPLICANT IS AN INDIVIDUAL).

Complete on the job training of plant supervisor who is instructed in the use and hazards of radioactive materials, and the results of exposure to such materials, and trained in the precautions to minimize the dangers, and who has been handling such materials for the past 40 years.

11. DESCRIBE THE EQUIPMENT AND FACILITIES WHICH WILL BE USED TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE OR PROPERTY AND RELATE THE USE OF THE EQUIPMENT AND FACILITIES TO THE OPERATIONS LISTED IN ITEM 9; INCLUDE: (*a*) RADIATION DETECTION AND RELATED INSTRUMENTS (including film badges, dosimeters, counters, air sampling, and other survey equipment as appropriate. The description of radiation detection instruments should include the instrument characteristics such as type of radiation detected, window thickness, and the range(s) of each instrument).

Monthly film badge service, and annual air and waste sampling performed by independent contractors, (see item 11b)

(*b*) METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED IN (*a*) ABOVE, INCLUDING AIR SAMPLING EQUIPMENT (for film badges, specify method of calibrating and processing, or name supplier).

Monthly film badge service - by R. S. Landauer Jr. & Co.
Annual air and waste sampling - by Health Physics Associates.

SUPPLEMENT TO ITEM 9 OF SOURCE MATERIAL LICENSE APPLICATION

SOLUTIONING OPERATIONS PERFORMED ON KNITTED RAYON FOR INCANDESCENT MANTLE FABRICATION

1. Rayon thread is knitted into continuous opem mesh seamless hollow webbing by automatic knitting machines.

2. Solution is prepared by dissolving thorium nitrate in water in the ratio 72 pounds thorium nitrate in 9 gallons water. This is done in a 40 gallon stainless steel tub equipped for mechanical agitation with a stainless steel propeller type mixer, the tub is covered during mixing.

3. Two pounds of webbing is placed in nylon open mesh bags and soaked in the solution for three quarters of an hour, then drained on stainless steel racks for 20 minutes where excess solution drains back into solutioning tubs.

4. The solutioned webbing in nylon bags is placed in a centrifugal laundry type drier and spun at a rapid rate of speed for a period of three minutes to remove all remaining excess liquid solution. The centrifuge liquid is returned to the tub for re-use. In handling the wet impregnated webbing, the operator wears rubber gloves and apron.

5. The impregnated webbing is then hung on stainless steel racks and air dried overnight.

6. The dried webbing, still on drying racks, is placed in denitrating cabinet, which is tightly sealed to prevent the escape of the denitrating vapors, which are forced through the cabinet by means of a circulating blower. This process requires approximately one hour.

7. The denitrated webbing is again placed in open mesh nylon bags and soaked in a dilute morpholine-distilled water solution, the excess solution is removed by centrifugation in the laundry centrifuge, then the webbing is washed three times in distilled water, after each wash the webbing is centrifuged. Each drainage from the centrifuge from these washing operations is diluted with plain water, at a ratio of three parts water, to one part drainage solution before emptying into sewer.

8. The solutioned webbing is then dried on portable stainless steel racks at room temperature, after which it is coned into two to three pound rolls, then passed over steam vapors and sized to the proper width and re-coned.

9. Cones of solutioned webbing are then placed on a special rack and passed through a diluted lacquer solution and rubber rollers to remove excess solution.

SUPPLEMENT TO ITEM 9 OF SOURCE MATERIAL LICENSE APPLICATION

10. The lacquered webbing is then hung on portable racks for about one hour to dry, after which it is removed and once again placed on cones by use of a coning machine.

11. Cones of solutioned webbing are now removed from solutioning department to mantle fabricating department and are cut off and sewn to predetermined length for fabrication into mantles.

12. The sewed mantles are then placed on a special machine where they are turned inside out, steamed and pressed to proper size and shape. This machine is completely automated.

13. "Head Hardening" solution (a mixture of alkaline salts and colored dye in water) is applied to the open end, or top of the mantle.

14. The open or top end of the mantle is folded inside and an asbestos thread sewn into the hem.

15. The finished mantle is stamped with a trademark or a number as required, inspected and packed in polyethylene bags to be packed for shipment.

16. Mantles are packed for shipment in cell type cartons containing 3,000 mantles each.

Note: All personnel performing the solutioning operations listed are provided with rubber gloves and aprons, to be used when handling solutioned webbing.

SUPPLEMENT TO ITEM 12 OF SOURCE MATERIAL LICENSE APPLICATION

All personnel working with, and in the area containing radioactive materials are informed and instructed in the hazards of exposure to such radioactivity and the necessary precautions to minimize exposure, and are advised as follows.

1. That they are working with radioactive materials.

2. That under normal conditions of operation and on the basis of currently accepted permissable doses of radiation, there is no occupational hazard.

3. That radioactive materials should not be ingested, and they should refrain from or avoid putting in their mouth any cigarettes, impregnated thread or other materials containing thorium, and to wash their hands carefully before eating.

4. That they are required to change shoes and outer garments when entering and leaving plant.

Good housekeeping is maintained at all times by thorough detergent scrubbing and cleaning of all floors, walls and equipment weekly.

Normal fire and safety protection is provided throughout the plant, including automatic sprinklers in drying cabinets.

Radioactive material signs are posted in the rooms where these materials are used and stored.

All tubs and containers containing thorium and thorium solution are kept and stored in their proper location and labeled with radioactive caution labels and signs.

Permanent records, as per attached, are studied and kept of all radiation surveys, and of personnel monitoring data obtained by monthly film badge reports of each employee.

DOCKET NO. 40-215

Received w/ltr dated 1-30-69

Regulatory Suppl File Cy.

EXHIBIT 1

HEALTH PHYSICS ASSOCIATES LTD. CONSULTANTS IN RADIATION SAFETY

2356 SKOKIE VALLEY ROAD / HIGHLAND PARK, ILL. / PHONE: AREA (312) 433-3330

REPORT OF GROSS ALPHA CONCENTRATIONS IN AIR SAMPLES

Date Samples Collected 11-10-67

Location of Sample Collections S & F Appliance
613 W. Washington Street
Morris, Illinois

Sample #	Volume of air sampled	Area sampled
1	7,079 liters	Center of basement knitting room
2	7,079 liters	First floor solution room
		Second floor fabricating room
3	7,079 liters	East area
4	3,540 liters	West area
5	3,540 liters	At sewing table during machine operation

All samples collected 48" above floor (breathing zone of sitting personnel) at points of maximum occupancy.

Authorization for Sample Collections

Letter dated 9-19-67 signed by K. G. Calaway for S. F. Appliances, Ltd.

Results of Sample Analysis

Alpha Concentrations in Air Samples Collected

Sample #	$\mu Ci \times 10^{-14}/ml$
1	5.09
2	19.06
3	4.70
4	2.34
5	8.34

Samples were counted 12/6/67 to permit short lived daughters to decay.

HEALTH PHYSICS ASSOCIATES LTD. CONSULTANTS IN RADIATION SAFETY

2356 SKOKIE VALLEY ROAD / HIGHLAND PARK, ILL. / PHONE: AREA (312) 433-3330

Legislative Standards

Atomic Energy Commission imposes following limitations for Alpha concentrations in air for 40 hour/week occupancy. (10CFR20 Appendix B) (enclosed)

Thorium-232	3×10^{-11} uCi/ml
Unidentified alpha emitters	6×10^{-13} uCi/ml

State of Illinois "Rules and Regulations for Protection Against Radiation Hazards" amended 5/15/67, Article 19 (enclosed) imposes identical limits.

Conclusion

Concentrations of alpha emitters in air samples collected do not exceed presently accepted standards for either thorium or unidentified alpha emitters in work areas occupied for 40 hours/week by controlled personnel.

Respectfully submitted,

HEALTH PHYSICS ASSOCIATES

W. B. Rivkin, Vice-President

EXHIBIT 2

DOCKET NO. 40-215

Received w/Ltr Dated 1-30-69

HEALTH PHYSICS ASSOCIATES LTD. CONSULTANTS IN RADIATION SAFETY

Regulatary Suppl File Cy.

2356 SKOKIE VALLEY ROAD / HIGHLAND PARK, ILL. / PHONE: AREA (312) 433-3330

REPORT OF
GROSS ALPHA & BETA-GAMMA
IN WATER

Date: 2-21-68

Location of Sample Collections: S & F Appliance
613 W. Washington Street
Morris, Illinois

Sample #	Identification	Vol(ml)	pCi/ml Alpha Emitters		pCi/ml Beta Emitters	
1	1st wash from morpholine and distilled water	400	141	± 1	382	± 1
2	2nd wash from distilled water	410	84.4	± 0.5	127	± 1
3	3rd wash from distilled water	415	12.2	± 0.3	22.1	± 0.3
4	4th wash from distilled water	440	6.48	± 0.19	8.14	± 0.17

Respectfully submitted,

HEALTH PHYSICS ASSOCIATES

W. B. Rivkin, Vice-President

EXHIBIT 3

LAYOUT OF MANTLE SOLUTIONING AND DRYING ROOM - MORRIS DIV.
S. F. APPLIANCES LTD.