

APPLICATION FOR BYPRODUCT MATERIAL LICENSE  
INDUSTRIAL

See attached instructions for details.

Completed applications are filed in duplicate with the Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety, and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 or applications may be filed in person at the Commission's office at 1717 H Street, NW, Washington, D. C. or 7915 Eastern Avenue, Silver Spring, Maryland.

a. NEW LICENSE

b. AMENDMENT TO:  
LICENSE NUMBER

X 34-16013-01

c. RENEWAL OF:  
LICENSE NUMBER

2. APPLICANT'S NAME (Institution, firm, person, etc.)

Procter & Gamble Mfg. Company  
TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION  
(419) 226-5500

3. NAME AND TITLE OF PERSON TO BE CONTACTED  
REGARDING THIS APPLICATION

Patrick T. Heyneman, R.P.O.  
TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION  
(419) 226-5500

4. APPLICANT'S MAILING ADDRESS (Include Zip Code)  
(Address to which NRC correspondence, notices, bulletins, etc., should be sent.)

P.O. Box 1900  
Lima, Ohio 45802

5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED  
(Include Zip Code)

Reservoir & Mumaugh Roads  
Lima, Ohio 45802

(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)

6. INDIVIDUAL(S) WHO WILL USE OR DIRECTLY SUPERVISE THE USE OF LICENSED MATERIAL

(See Items 16 and 17 for required training and experience of each individual named below)

FULL NAME

TITLE

a. Patrick T. Heyneman

Radiation Protection Officer

b. Ricky G. Smith

Asst. R.P.O.

c.

7. RADIATION PROTECTION OFFICER

Attach a resume of person's training and experience as outlined in Items 16 and 17 and describe his responsibilities under Item 15.

Patrick T. Heyneman

8. LICENSED MATERIAL

L I N E  NO.	ELEMENT AND MASS NUMBER  A	CHEMICAL AND/OR PHYSICAL FORM  B	NAME OF MANUFACTURER AND MODEL NUMBER (If Sealed Source)  C	MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTI- VITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME  D
(1)	Americium 241	Sealed Source	Industrial Dynamics 06110-FT-12	3 sources at 100 milli-curries ea.
(2)	Americium 241	Sealed Source	Peco Controls Corp. Pro-MAX 1000-AMC-36	2 sources at 100 milli-curries ea.
(3)	Americium 241	Sealed Source	Industrial Dynamics 00346-CI-2C	1 source at 100 milli-curries
(4)				

DESCRIBE USE OF LICENSED MATERIAL  
E

- (1) To be used in Industrial Dynamics FT-12 device for level detection
- (2) To be used in PECO-Controls AMC-36 device for level detection
- (3) To be used in Industrial Dynamics CI-2C device for level detection
- (4)

License Fee Information  
on Next Page

8/19/83  
etc.

## 9. STORAGE OF SEALED SOURCES

LINE NO.	CONTAINER AND/OR DEVICE IN WHICH EACH SEALED SOURCE WILL BE STORED OR USED. A.	NAME OF MANUFACTURER B.	MODEL NUMBER C.
(1)	Filtec Model FT-12	Industrial Dynamics	FT-12
(2)	Pro-MAX 1000 AMC-36	Peco Controls	AMC-36
(3)	Filtec Model CI-2C	Industrial Dynamics	CI-2C
(4)			

## 10. RADIATION DETECTION INSTRUMENTS

LINE NO.	TYPE OF INSTRUMENT A.	MANUFACTURER'S NAME B.	MODEL NUMBER C.	NUMBER AVAILABLE D.	RADIATION DETECTED (alpha, beta, gamma, neutron) E.	SENSITIVITY RANGE (milliroentgens/hour or counts/minute) F.
(1)	GM Survey Meter	Eberline	E-120	1	Gamma, Beta, Alpha	.5 to 50 mR/h 600 to 80K CPM
(2)						
(3)						
(4)						

## 11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

☒ a. CALIBRATED BY SERVICE COMPANY

NAME, ADDRESS, AND FREQUENCY

Eberline

semi-annual

P.O. Box 2108

Santa Fe, New Mexico 87501

☐ b. CALIBRATED BY APPLICANT

Attach a separate sheet describing method, frequency and standards used for calibrating instruments.

## 12. PERSONNEL MONITORING DEVICES

TYPE (Check and/or complete as appropriate.) A.	SUPPLIER (Service Company) B.	EXCHANGE FREQUENCY C.
<input checked="" type="checkbox"/> (1) FILM BADGE	Landaver Glenwood Science Park Glenwood, ILL 60425	<input checked="" type="checkbox"/> MONTHLY
<input type="checkbox"/> (2) THERMOLUMINESCENCE DOSIMETER (TLD)		<input type="checkbox"/> QUARTERLY
<input type="checkbox"/> (3) OTHER (Specify): _____ _____ _____		<input type="checkbox"/> OTHER (Specify): _____ _____ _____

## 13. FACILITIES AND EQUIPMENT (Check where appropriate and attach annotated sketch(es) and description(s).)

- ☐ a. LABORATORY FACILITIES, PLANT FACILITIES, FUME HOODS (Include filtration, if any), ETC.
- ☐ b. STORAGE FACILITIES, CONTAINERS, SPECIAL SHIELDING (fixed and/or temporary), ETC.
- ☐ c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC.
- ☐ d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC. N/A

## 14. WASTE DISPOSAL

a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED

N/A

b. IF COMMERCIAL WASTE DISPOSAL SERVICE IS NOT EMPLOYED, SUBMIT A DETAILED DESCRIPTION OF METHODS WHICH WILL BE USED FOR DISPOSING OF RADIOACTIVE WASTES AND ESTIMATES OF THE TYPE AND AMOUNT OF ACTIVITY INVOLVED. IF THE APPLICATION IS FOR SEALED SOURCES AND DEVICES AND THEY WILL BE RETURNED TO THE MANUFACTURER, SO STATE.

N/A

# INFORMATION REQUIRED FOR ITEMS 15, 16 AND 17

Describe in detail the information required for Items 15, 16 and 17. Begin each item on a separate page and key to the application as follows:

15. RADIATION PROTECTION PROGRAM. Describe the radiation protection program as appropriate for the material to be used including the duties and responsibilities of the Radiation Protection Officer, control measures, bioassay procedures (if needed), day-to-day general safety instruction to be followed, etc. If the application is for sealed source's also submit leak testing procedures, or if leak testing will be performed using a leak test kit, specify manufacturer and model number of the leak test kit.
16. FORMAL TRAINING IN RADIATION SAFETY. Attach a resume for each individual named in Items 6 and 7. Describe individual's formal training in the following areas where applicable. Include the name of person or institution providing the training, duration of training, when training was received, etc.
  - a. Principles and practices of radiation protection.
  - b. Radioactivity measurement standardization and monitoring techniques and instruments.
  - c. Mathematics and calculations basic to the use and measurement of radioactivity.
  - d. Biological effects of radiation.
17. EXPERIENCE. Attach a resume for each individual named in Items 6 and 7. Describe individual's work experience with radiation, including where experience was obtained. Work experience or on-the-job training should be commensurate with the proposed use. Include list of radioisotopes and maximum activity of each used.

## 18. CERTIFICATE

(This item must be completed by applicant)

*The applicant and any official executing this certificate on behalf of the applicant named in Item 2, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 30, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.*

**WARNING.**—18 U.S.C., Section 1001; Act of June 25, 1948; 62 Stat. 749; makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

a. LICENSE FEE REQUIRED  
(See Section 170.31, 10 CFR 170)

\$40

b. CERTIFYING OFFICIAL (Signature)

*L. A. Mugler*

c. NAME (Type or print)

L. A. Mugler

(1) LICENSE FEE CATEGORY:

E

d. TITLE

Plant Manager

(2) LICENSE FEE ENCLOSED: \$ 40

e. DATE

August 19, 1983

Prepared by Procter & Gamble  
Lima Plant  
R.P.O. Patrick J. Heyneman  
7/26/83  
PJHRPO:jb

Control No. 75446

## LIMA PLANT RADIATION SAFETY PROGRAM

The Lima Procter & Gamble plant presently has five radioactive level detection gauges. These gauges are used to detect product level in bottles. The radioactive isotope we use is Americium 241, with a very low level of radiation at the shutter, with less than .005 milli-curries present. Although we use such a weak source, the handling, maintenance, and general use of the gauge fall under N.R.C. regulations, and must be handled with extreme care and caution. The following safety program is designed to use all N.R.C. rules and regulations, where applicable, and Procter & Gamble standards, where applicable.

### TERMS USED IN PROGRAM

- I. R.P.O. - Radiation Protection Officer
- II. U.S.N.R.C. - United States Nuclear Regulatory Commission
- III. R.E.M. - Radiation Equivalent Man - Term used in measuring amount of radiation any one person encounters
- IV. Currie - Measurement of radioactivity
- V. Roentgen - Measurement of radioactivity
- VI. Wipe Test - Test used to measure surface radiation on our gauges
- VII. Survey Meter - A meter used to detect measureable amounts of radiation, commonly called a geiger counter
- VIII. Occupational Study - Study done before a gauge can be installed in any location, to determine radioactivity and it's impact on personnel
- IX. Film Badge - A badge that is worn to determine amount of radiation the person wearing it has encountered--must be read at an N.R.C. authorized firm
- X. Dosimeter - A measuring device for radiation that you can obtain an immediate reading from

### RESPONSIBILITIES OF R.P.O.

- A. License applications and renewals
- B. Overall supervision of the plant radiation program
- C. Contact with Procter & Gamble, Hygiene & Safety Division
- D. Contact with U.S.N.R.C.
- E. Conduct all surveys and wipe tests
- F. Maintain all records and files

### SAFETY PROCEDURES

#### Wipe Tests

These tests are done to determine surface radiation at any possible leak source on a semiannual basis (i.e., welds, cracks and gaskets). We purchase wipe test kits from Ohmart Corporation, Cincinnati, Ohio, and they check test results.



#### Procedure

Take wipe test kit, with shutter closed, and wipe all areas where contamination may occur. We use manufacturer guidelines on where to wipe. Radiation may not exceed .005 m/cu. Files must be kept on all wipe tests.

#### SHIPMENT OF RADIOACTIVE MATERIAL

To ship radioactive material you must comply with all U.S.N.R.C. regulations.

#### Procedure

1. Forms and Labels Required:
  - a. Shippers certification for radioactive materials (two copies required)
  - b. "Cargo Aircraft Only" (one label required)
  - c. Radioactive warning label (two labels required)
2. The packaging of all radioactive material shall be done by the Radiation Protection Officer (R.P.O.).
3. The R.P.O. will fill out two radioactive warning labels which are to be securely affixed on opposite sides of shipping container.
4. The one "Cargo Aircraft Only" label will be securely affixed next to one of the radioactive warning labels.
5. The R.P.O. will check with a survey meter to make sure the container does not leak.
6. The R.P.O. will make out the Shippers Certification for Radioactive Materials forms and sign each. He will then supply the carrier with the forms.
7. The R.P.O. must log out the shipped radioactive materials on the Radioactive Materials Log.

#### HANDLING OF THE RADIOISOTOPES

Purpose of this information:

1. To help protect the health and further the safety of Lima's Procter & Gamble employees working with radioactive material.
2. To comply with the requirements of Procter & Gamble's U.S.N.R.C. license.

#### Procedures

1. All work with radioactive material shall be done under the direct supervision of the R.P.O.
2. Only those persons listed on Procter & Gamble's specific license shall be allowed to handle radioactive material.
3. Film badges shall be worn at all times when working directly with a radioactive source (i.e., wipe test, shipment of source, movement of source).
4. Handling of radioactive source holder shall be done with manipulators and never by hand.

5. The window or beam side of source shall never be pointed towards any part of the human body.
6. Special care shall be taken to not look directly at the window or beam side of source.

#### RECEIVING SHIPMENTS OF RADIOACTIVE MATERIAL OR EQUIPMENT

Purpose of this information:

To protect the health and safety of Lima's Procter & Gamble personnel while complying with our specific license.

#### Procedure

Upon the delivery, but before signing for any radioactive shipment, the following must take place:

1. Receiving person notifies R.P.O. of shipment arrival.
2. R.P.O. surveys package with survey meter to assure the radiation level at the surface of the package does not exceed that shown below:

Number I	White	0.5 mr/hr
Number II	Yellow	50 mr/hr
Number III	Yellow	200 mr/hr

3. Inspects package for any visible damage.
4. Should the results of steps two and three be acceptable, the R.P.O. will instruct the receiving person to sign for the shipment. Should steps two and three be unacceptable, the package will be returned to the carrier as unacceptable.
5. The accepted package will be opened by the R.P.O., and its radioactive contents stored in the radiation cabinet.
6. The R.P.O. must enter the received materials in the Radiation Materials Log.
7. The R.P.O. must ascertain whether the received material is due for a wipe test and if so, perform said test.

#### DOSIMETER BADGES

If work is to be performed on any equipment that contains a radioactive source, a film badge must be worn. This is to protect the Lima Procter & Gamble employees and to provide a record of employee level of occupational radiation exposure to comply with U.S.N.R.C. regulations.

After wearing badge, the R.P.O. will send it to Ohmart Corp., Cincinnati, Ohio, for reading.

MOVEMENT, INSTALLATION, OR TAKING GAUGE OUT OF SERVICE

Movement of Gauge

1. With shutter closed, R.P.O. will remove source holder from gauge and place in radiation cabinet.
2. R.P.O. will supervise movement of gauge.
3. If gauge is going out for service, it must be stored in a remote part of plant, covered with plastic, and noted as to location.
4. With installation or re-installation, the R.P.O. will supervise all work.
  - a. After gauge is installed, the R.P.O. will remove source holder from radiation cabinet, install on gauge, and perform the following tests:
    - 1) Radiation Survey - using a survey meter with shutter closed, check for surface radiation
    - 2) Occupational Survey - with shutter open, perform test to determine safety area
    - 3) Wipe Test

EMERGENCY PROCEDURES

A. Fire and Explosion

1. General
  - a. Since the source holder is an integral block of stainless steel, the only conceivable, but unlikely failure, would be a ruptured source holder.
2. Notification
  - a. Notify the U.S.N.R.C. if the source may cause exposures in excess of those mentioned in regulations.
  - b. The R.P.O. will be notified, or in his absence, IH&S technician, when emergency measures are taken near the source holder.
3. Procedure
  - a. The fire department shall determine the location of the source holder and will proceed to handle the emergency, observing the time and distance limits supplied by the R.P.O. Unauthorized personnel are not permitted in the area until the R.P.O. has completed his surveys.
  - b. The R.P.O. will survey the holder as soon as possible to determine that:
    - the source is still in the holder
    - the shielding is intact
    - leakage is not out of limits
  - c. The R.P.O. will advise the emergency personnel concerning the extent of the hazard.
  - d. Any source which may have been damaged by a nearby fire or explosion will be wipe tested as soon as feasible.

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B. Spillage and Suspected Spillage

1. Spillage

If there is any reason to suspect that a disruption of a sealed source has occurred, any or all of the following emergency measures may be appropriate. The appropriate ones shall be taken:

- a. No immediate attempt shall be made to clean up the spill.
- b. All windows shall be closed, fans and air-conditioners shall be shut off, and everyone shall leave the room.
- c. All doors shall be closed and locked.
- d. If powdered or gaseous sources are involved, the door and all other openings leading into the room shall be sealed with wide masking tape or adhesive tape and heavy wrapping paper.
- e. Every person who might have been contaminated shall be tested and immediate steps taken to remove any radioactive contamination.
- f. Entrance to the contaminated area shall be prohibited except to authorized persons requiring access in the performance of their special duties.

2. Emergency Care of Possible Contaminated Persons

- a. All persons suspected of having been contaminated should be surveyed. If this cannot be done immediately, such persons should not be permitted to leave beyond what will be considered a safe distance from the contaminated area.
- b. If no monitoring instrument is available, all possible exposed persons should be regarded as contaminated. Wipes from various parts of the bodies of these persons and their clothing should be made with some type of disposable tissue, filter paper, or blotting paper, and the samples placed in separate labeled envelopes for future study.
- c. Contaminated clothing should be removed carefully and placed in some type of disposable container or bag. If this is not available, clothing should be put on sheets of paper to prevent contamination of floor and furniture. The clothing and paper can be monitored later to determine the presence of contamination and the need for decontamination or disposal.
- d. If necessary, contaminated persons should be taken to a shower area for bathing.
- e. Bathing should be done under showers and commercially available detergents and soaps can be used. Several separate available washings should be performed. Highly alkaline soaps, abrasives, organic solvents, or cleaners that tend to increase permeability of the skin should not be used. Special emphasis should be given to cleaning of fingernails, toenails, nostrils, scalp, ears, and body folds.
- f. Scrub brushes should be used, but care should be taken that the skin surfaces do not become abraded.

- g. After the body is well washed, the person should be surveyed with a suitable monitoring instrument and additional smears taken with disposable tissues, cotton-tipped applicators, or filter paper. The ear canals and nostrils should be swabbed for contamination. Smear tests are especially important if alpha contamination is suspected and appropriate survey instruments are not available. Clothing known not to be contaminated should be put on.
  - h. Small cuts and other breaks in the skin surface should be sought for carefully, since absorption or radionuclides can occur by this route.
  - i. A physician should be called immediately to recommend and take further action. Any or all of the following steps may assist in the formulation of his recommendations:
    - 1) Complete medical history and physical examination, with special emphasis on previous occupational history, possible exposure to radiation, and chest x-rays.
    - 2) Complete blood count, including hematocrit reading and routine urinalysis.
    - 3) Samples of blood within 72 hours for determination of radioactivity.
    - 4) The specimens of urine, feces, and blood should be refrigerated and kept until arrangements can be made for analysis at a qualified laboratory. Proper collection and storage of these samples may be of great value to the contaminated persons and, also, in obtaining further data concerning the metabolism of the radionuclide involved.
3. Area Decontamination
- a. A traffic control program shall be instituted to minimize trackage.
  - b. The recommendations of a consultant regarding decontamination are to be followed in detail.
  - c. P&G personnel will not direct an attempt to clean up a spill.

#### LOSS OF THE SOURCE

##### A. Notification

- 1. Anyone having reason to believe that a source is missing shall notify the R.P.O.
- 2. Upon verification of the loss, the R.P.O. will immediately notify the:
  - a. Licensing Agency
  - b. Plant Safety Engineer
  - c. Plant Physician
  - d. Power Systems and Corporate Electrical Section, Engineering Division
  - e. Industrial Hygiene Section, Industrial Relations Division

3. The following information shall be given to each:
  - a. The size and license number of the source
  - b. Whether it was removed from the holder
  - c. When it was missed
  - d. Action being taken
4. Personnel working in any area where the source might be shall be informed of the:
  - a. Loss
  - b. Possible effect of exposure
  - c. Appearance of the source (See Appendix C)
  - d. Contamination possibility inherent in a ruptured source
  - e. Need for its immediate recovery
  - f. Reasons for requiring that only authorized personnel with instruments be permitted to aid in the search
  - g. Measures being taken to recover the source safely

B. Search

1. An outside consultant should be employed to direct the search
2. Only authorized, properly equipped, P&G personnel may take part in the search

TRAINING AND LIAISON

A. Training

1. The R.P.O. shall insist that:
  - a. Individual users and all others working in the vicinity are familiar with the:
    - 1) Nature of the source
    - 2) Routine protective measures for any potential hazards
    - 3) Emergency procedures to be followed
    - 4) Company's legal requirements as licensee
    - 5) Need for and procedures for liaison with the R.P.O., the Power Systems and Corporate Electrical Section, Engineering Division, and the Industrial Hygiene Section, Industrial Relations Division.
    - 6) Rules governing what can and cannot be done with the source.
    - 7) Training shall occur on an annual basis.
  - b. No transfers of personnel (R.P.O. included) shall result in the loss of adequate training or of safe operation.

Item 16. Formal Training

<u>NAME</u>	<u>TYPE OF TRAINING</u>	<u>WHERE TRAINED</u>	<u>DURATION</u>	<u>WHEN TRAINING REVD.</u>
Patrick T. Heyneman Ricky G. Smith	A. Principle and practices of radiation protection	Ohmart Co. - Radiation Safety, P&G Protection Program	12 hrs.	June, 1983
	B. Radioactivity measurement standardization and monitoring techniques and instruments	Ohmart Co. - Radiation Protection Survey Meters & Wipe Testing	3 hrs.	June, 1983
	C. Mathematics and calculations basic to the use and measurement of radioactivity	Included in above	-	
	D. Biological effects of radiation	Included in above	-	

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Item 17. Experience

<u>NAME</u>	<u>ISOTOPE</u>	<u>MAXIMUM AMOUNT</u>	<u>WHERE EXPERIENCE WAS GAINED</u>	<u>DURATION OF EXPERIENCE</u>	<u>TYPE OF USE</u>
A. Patrick T. Heyneman	Americium 241	100 MC	Assisted Jerry E. Allen former Radiation Protection Officer, in administering Radiation Protection Program and conducting wipe tests of sources. Has more than 10 years experience working with the installed Filtec equipment.	1 Month	Liquid Level Detection
B. Ricky G. Smith	Same as A.	Same as A.	Same as A.	Same as A.	Same as A.

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