Reg. III
DCS 05/01/80

FORM NRC-313 I (1-79)
10 CFR 30

U.S. NUCLEAR REGULATORY COMMISSION

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.

1. APPLICATION FOR: *(Check and/or complete as appropriate)*

- [X] a. NEW LICENSE
- [ ] b. AMENDMENT TO: LICENSE NUMBER
- [ ] c. RENEWAL OF: LICENSE NUMBER

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

TEEPAK, INC.

TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION
217/446-6460

3. NAME OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION

Dr. Merrill N. O'Brien

TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION
217/446-6460 - Ext. 279

4. APPLICANT'S MAILING ADDRESS *(Include Zip Code)*

Teepak, Inc.
915 N. Michigan Ave.
Danville, IL 61832
Attn: Dr. M. N. O'Brien

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

Teepak, Inc.
915 N. Michigan Ave.
Danville, IL 61832

(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.	Dr. Matiur Rahman	Supervisor Special Problems Group
b.	Mr. Douglas E. Appleby	Senior Chemist I
c.	Dr. Harsh Gopal	Senior Chemist I

7. RADIATION PROTECTION OFFICER

Mr. Edward A. McClure

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

8. LICENSED MATERIAL

LINE NO.	A ELEMENT AND MASS NUMBER	B CHEMICAL AND/OR PHYSICAL FORM	C NAME OF MANUFACTURER AND MODEL NUMBER *(If Sealed Source)*	D MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTIVITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME
(1)	Ni63	Plated Part	Hewlett-Packard	Two detectors, 15m
(2)			Electron Capture	Ci per detector.
(3)			Detector, #19303	
(4)				

	E DESCRIBE USE OF LICENSED MATERIAL
(1)	Detector on Hewlett-Packard Model 5880 Gas Chromatograph.
(2)	
(3)	
(4)	

License Fee Information
next page
on Reverse Side

FORM NRC-313 I (1-79)

8006170115 8pp.

2

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)	Gas Chromatograph	Hewlett-Packard	5880
(2)			
(3)			
(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)	n/a	n/a	n/a	n/a	n/a	n/a
(2)						
(3)						
(4)						

11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

☒ a. CALIBRATED BY SERVICE COMPANY

NAME, ADDRESS, AND FREQUENCY

Hewlett-Packard, Avondale Div.
Route 41
Avondale, Pennsylvania 19311

☐ 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
n/a ☐ (1) FILM BADGE ☐ (2) THERMOLUMINESCENCE DOSIMETER (TLD) ☐ (3) OTHER (Specify): _____	n/a	n/a ☐ MONTHLY ☐ QUARTERLY ☐ OTHER (Specify):

13. FACILITIES AND EQUIPMENT (Check were 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.

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.

Return detectors to supplier, Hewlett-Packard Co., Route 41, Avondale, Pennsylvania.

FORM NRC-313 I
(1-79)
10 CFR 30

U.S. NUCLEAR REGULATORY COMMISSION

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.

1. APPLICATION FOR: *(Check and/or complete as appropriate)*
   - a. NEW LICENSE
   - b. AMENDMENT TO: LICENSE NUMBER
   - c. RENEWAL OF: LICENSE NUMBER

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

TEEPAK, INC.

TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION
217/446-6460

3. NAME OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION

TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION

4. APPLICANT'S MAILING ADDRESS *(Include Zip Code)*

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

(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
xd.Mr. Robert Franklin Stalcup	Chemist II
b.	
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.

8. LICENSED MATERIAL

LINE 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 ACTIVITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME D
(1)				
(2)				
(3)				
(4)				

LINE NO.	DESCRIBE USE OF LICENSED MATERIAL E
(1)	
(2)	
(3)	
(4)	3

RECEIVED BY LFMB
Date MAY 5 1980
Log May Pg1 III
By Brown N.L.
Orig. To
Action Compl. 5/7/80

Applicant 14819
Check No. 14819
Amount/Fee Category $110 (3L)
Type of Fee Application
Date Check Rec'd MAY 5 1980
Received By Brown

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)* $110	b. CERTIFYING OFFICIAL *(Signature)* John A Miceli
	c. NAME *(Type or print)* John A. Miceli
(1) LICENSE FEE CATEGORY: 170.31-3L	d. TITLE Manager, Laboratory Services
(2) LICENSE FEE ENCLOSED: $110	e. DATE April 16, 1980

FORM NRC-313 I (1-79)

4

13. Facilities and Equipment

In compliance with 10CFR20 the detector effluent gas will be properly vented by piping into a fume hood.

15. Radiation Protection Program

The radiation protection program will be appropriate for a Nickel 63 gas chromatograph detector and in compliance with 10 CFR Part 20. The day to day safety precaution will be consistent with those demanded for a typical gas chromatograph operation.

The detector effluent gas is to be piped into a fume hood. A leak test is to be performed with Hewlett-Packard No. 18713-60050 leak test kit at six month intervals by the Safety Officer.

16. Formal Training in Radiation Safety

Persons named in Item 6.

a. Dr. Matiur Rahman

Graduate level courses at Catholic University, 1962-65;
1. Nuclear Physics by Talbott.
2. Atomic Physics by Fano.
3. Modern Physics by Talbott.
4. Applied mathematics with engineering applications.
5. Quantum chemistry by Father Dooling.

b. Mr. Douglas E. Appleby

Integrated courses:
1. University of Florida, 1970, 25 hours.
2. American Society of Clinical Pathologists, 1972, 24 hours.

c. Dr. Harsh Gopal

Graduate level courses at Catholic University, 1964-69;
1. Nuclear Radiation Detection, Nuclear Engineering Dept.
2. Modern Physics, Physics Dept.

d. Mr. Robert F. Stalcup

Courses at Indiana University
1. Instrumental Methods of Analysis, 1967, 4 semester hrs., including x-ray diffraction equipment, use of radioisotopes.
2. Research Techniques in Biochemistry, 4 semester hrs., 1969. Part of course spent in use of radioisotopes to study chemistry of microbial genetics using bacteriophages.

Taught courses at Vincennes University, 1967-1970 including section on radiation with lab involving use of radiation measuring equipment and radioisotopes.

Person named in Item 7.

Edward A. McClure

B.S. in Chemistry, Eastern Illinois University, 1969.

17. Experience

Persons Named in Item 6.

Dr. Matiur Rahman

1. Experience start up of Research Model Reactor in the Nuclear Engineering Department of Catholic University whereby the neutron flux was very slowly increased to bring to a sustenance level, 1964.

2. Limited experience in setting up liquid scintillation counting of β- radiation from carbon -14 labelled compounds at Catholic University.

Douglas E. Appleby

1. University of Florida, 1969-1971. Neutron activated serum specimens less than 5 Ci per sample.

2. Columbia Hospital, Milwaukee, Wisconsin, 1971-1979. RIA and scanning isotopes: C14, H3, Co57, Co60, I125, I131, Fe53, Cr51, P32. NRC approved director of in-vitro studies. Levels usually less than 100 m Ci.

Dr. Harsh Gopal

Coursework utilizing C14 labelled organic compounds at Catholic University, 1964-1969.

Person Named in Item 7.

Edward A. McClure

Seven years as production supervisor. Two years of on-job training as company Safety Officer.

8