Form AEC-313
8-64
10 CFR 30

UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE

Form approved.
Budget Bureau No. 38-R027

INSTRUCTIONS. – Complete Items 1 through 16 if this is an initial application or an application for renewal of a license. Information contained in previous applications filed with the Commisson with respect to Items 8 through 15 may be incorporated by reference provided references are clear and specific. Use supplemental sheets where necessary. Item 16 must be completed on all applications. Mail two copies to: U.S. Atomic Energy Commission, Washington, D.C., 20545, Attention: Isotopes Branch, Division of Materials Licensing. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. An AEC Byproduct Material License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee is subject to Title 10, Code of Federal Regulations, Part 20.

1. (a) NAME AND STREET ADDRESS OF APPLICANT. (Institution, firm, hospital, person, etc. Include ZIP Code.)

Monsanto Company
Research Center
800 North Lindbergh
St. Louis, Mo. 63166
Attn. Physical Sciences Center

(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. (If different from 1 (a). Include ZIP Code.)

SAME AS 1(a)

2. DEPARTMENT TO USE BYPRODUCT MATERIAL

Corporate Research Department

3. PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.)

24,-1113-8

4. INDIVIDUAL USER(S). (Name and title of individual(s) who will use or directly supervise use of byproduct material. Give training and experience in Items 8 and 9.)

D.R.Beasecker
W.E.Koerner
M.L.Unland
O.P.Tanner
J.L.Ogilvie
M.T.Jackson
D.G.Gillam
D.J.Dahm

5. RADIATION PROTECTION OFFICER. (Name of person designated as radiation protection officer if other than individual user. Attach resume of his training and experience as in Items 8 and 9.)

6. (a) BYPRODUCT MATERIAL. (Elements and mass number of each.)

(b) CHEMICAL AND/OR PHYSICAL FORM AND MAXIMUM NUMBER OF MILLICURIES OF EACH CHEMICAL AND/OR PHYSICAL FORM THAT YOU WILL POSSESS AT ANY ONE TIME. (If sealed source(s), also state name of manufacturer, model number, number of sources and maximum activity per source.)

A. Strontium 90	A. Sealed Sources (U.S.Radium Corp. Model 369) contained in Barber-Coleman Co. Model A-4145 Detector cells	A. 3 sources of 20 millicuries each.
B. Hydrogen 3	B. Tritium Foil (U.S. Radium Corp. Model LAB 508-1) contained in F&M Scientific Corp. Model 2-2837 or 2-2830 detector cells.	B. 2 sources of 200 millicuries each.
C. Tin 119m	C. Any	C. 75 millicuries
D. Iodine 125	D. Any	D. 75 millicuries
E. Tantalum 182	E. Any	E. 75 millicuries
F. Tellurium 121m	F. Any	F. 75 millicuries
G. Tellurium 123m	G. Any	G. 75 millicuries
H. Tellurium 127m	H. Any	H. 75 millicuries
I. (see attached sheet) -		

7. DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. (If byproduct material is for "human use," supplement A (Form AEC-313a) must be completed in lieu of this item. If byproduct material is in the form of a sealed source, include the make and model number of the storage container and/or device in which the source will be stored and/or used.)

A. Strontium 90 - Each source to be used in a Barber-Coleman Co. Model A-4145 cell for use in a Barber-Coleman Co. Model 10 or 20 gas chromatograph

B. Hydrogen 3 - To be used in F&M Scientific Corp. Model 830K-810 detector for an F&M Model 810A - 13N gas chromatograph.

I. Nickel 63 - To be used in Hewlett-Packard Co. Model 2-6195 detector cells in Hewlett-Packard Co. gas chromatography units.

All other isotopes listed in 6(a) to be used in Mossbauer experiments.

A117
28445

(Continued on reverse side)

6. (a) Byproduct Material.

I. Nickel 63	I. Sealed Sources (Foils in Hewlett Packard Co. Model 2-6195 detector cells).	I. Not to exceed 2 millicuries per cell.

TRAINING AND EXPERIENCE OF EACH INDIVIDUAL NAMED IN ITEM 4

1. D. R. Beasecker

D. R. Beasecker has about five years' on-the-job experience in (a) principles and practices of radiation protection; (b) radioactivity measurement standardization and monitoring techniques and instruments, and (c) biological effects of radiation. This experience was gained at Monsanto Chemical Company, Central Research Department, Dayton, Ohio; 1944-1949. Research work was carried out involving the isotope polonium in connection with the Manhattan Project.

2. W. E. Koerner

W. E. Koerner has on-the-job training of (a) four months in principles and practices of radiation protection; (b) two months in radioactivity measurement standardization and monitoring techniques and instruments; (c) two months on-the-job as well as one semester course at the University of Wisconsin in the mathematics and calculations basic to the use and measurement of radioactivity; and (d) one semester of formal training at the University of Wisconsin in the biological effects of radiation. The above on-the-job training was at the Organic Chemicals Division of Monsanto Company where Dr. Koerner also accrued one year's experience in the use of carbon-14 (maximum 50 μc) in analytical method development and purification of tagged compounds by gas chromatography.

3. M. L. Unland

M. L. Unland has had eight years' on-the-job experience in (a) principles and practices of radiation protection; (b) radioactivity measurement standardization and monitoring techniques and instruemnts; and (c) biological effects of radiation. This experience was gained at Monsanto Company, Central Research Department, St. Louis, Missouri, and while a graduate student at the University of Illinois, Urbana, Illinois.

4. O. P. Tanner

O.P. Tanner has had about ten years' on-the-job experience in (a) principles and practices of radiation protection; (b) radioactivity measurement standardization and monitoring techniques and instruments; and (c) biological effects of radiation. This experience was gained at Monsanto Company, Central Research Department, St. Louis, Missouri.

5. J. L. Ogilvie

J. L. Ogilvie received formal training in a one-semester course at the University of Texas and in a two-week course given by the Tracerlab Company, Richmond, California. These courses covered (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 and, (d) biological effects of radiation. In addition he has about 13 years on-the-job experience gained at Shell Oil Co., Houston, Tex. and Monsanto Co., Central Research Dept., St. Louis, Missouri.

6. M. T. Jackson

M. T. Jackson has had about ten years' on-the-job experience in (a) principles and practices of radiation protection; (b) radioactivity measurement standardization and monitoring techniques and instruments; and (c) biological effects of radiation. This experience was gained at Monsanto Company, Central Research Department, St. Louis, Missouri.

7. D. G. Gillam

D. G. Gillam has had about five years' on-the-job experience in (a) principles and practices of radiation protection; (b) radioactivity measurement standardization and monitoring techniques and instruments; and (c) biological effects of radiation. This experience was gained at Monsanto Company, Central Research Department, St. Louis, Missouri.

8. D. J. Dahm

D. J. Dahm has had about five years' on-the-job experience in (a) principles and practices of radiation protection; (b) radioactivity measurement standardization and monitoring techniques and instruemnts; and (c) biological effects of radiation. This experience was gained at Monsanto Company, Central Research Department, St. Louis, Missouri.

AEC FORM 782 (4-72) RZB

MATERIALS DATA INPUT

INDUSTRIAL BYPRODUCT
REFERENCE COPY

DOCKET NUMBER	MAIL CONTROL NO.	DATE REQUEST REC'D	PROGRAM CODE PRIMARY
030-05072	28445	06/05/72	[redacted]

SECONDARY PROGRAM CODES

#1	#2	#3	#4	#5

INDIVIDUAL LICENSEES

NAME	NAME
NAME	NAME
NAME	NAME

ORGANIZATION LICENSEE

ORGANIZATION NAME: Monsanto Company

DEPARTMENT OR BUREAU:

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

ADDRESS

BUILDING, STREET	CITY	STATE	ZIP CODE
800 North Lindbergh	St. Louis	MO	63166

BYPRODUCT	CHEMICAL OR PHYSICAL FORM	POSSESSION LIMIT

Extend to June 30, 1977

Delete

6.I., 7.I., 8.I. & 9.I.

Amend Cond. 12. to ~~add~~ delete R. M. Levy, J. L. Sprung & L. C. Weser and add M. T. Jackson and R. E. Moser, and D. J. Dahm.

A1179

MAIL TO:	DATE MAILED	REVIEWER	DATE COMPLETED
Edward J. Kilper		Layfield	6/14/72

REB

MATERIALS DATA INPUT INDUSTRIAL

1- FILE COPY

A. TYPE OF ACTION -

- [ ] NEW LICENSE
- [X] AMENDMENT TO RENEW LICENSE
- [ ] AMENDMENT TO TERMINATE
- [ ] VOID
- [ ] CHANGE LICENSEE NAME ADDRESS
- [ ] NEW LICENSE AND NEW LICENSEE
- [ ] OTHER AMENDMENT
- [ ] CLERICAL CHANGE NO AMENDMENT

B. INDICATIVE INFORMATION:

DOCKET NUMBER	MAIL CONTROL NO.	DATE REQUEST REC'D	INSTITUTION CODE	PENDING PROG. CODE	ACTUAL PROG. CODE
030-05072	28445	06/05/72	01113		03620

SECONDARY PROGRAM CODES AS REQUIRED:

#1	#2	#3	#4	#5

INDIVIDUAL LICENSEES

NAME (LAST, FIRST, MIDDLE)	NAME (LAST, FIRST, MIDDLE)
NAME (LAST, FIRST, MIDDLE)	NAME (LAST, FIRST, MIDDLE)
NAME (LAST, FIRST, MIDDLE)	NAME (LAST, FIRST, MIDDLE)

ORGANIZATIONAL LICENSEES

ORGANIZATION NAME (ALPHABETIC SEQUENCE)
Monsanto Company

DEPARTMENT OR BUREAU

TYPE OF ORGANIZATION

- [ ] U. S. GOVERNMENT AGENCY
- [ ] EDUCATIONAL INSTITUTION
- [ ] MEDICAL INSTITUTION
- [X] INDUST
- [ ] OTHER

ADDRESS	BUILDING, STREET	CITY	STATE	ZIP CODE
	800 North Lindbergh	St. Louis	MO	63166

C. STATISTICAL INFORMATION:

LICENSE NUMBER	DATE LICENSE ISSUED OR ACTION COMPLETED	EXPIRATION DATE	
24-01113-08	06 19 72	06/30/77	

USAGE OF MEDICAL BYPRODUCT:

- [ ] FOR HUMAN USE ONLY
- [ ] FOR HUMAN AND NONHUMAN USE
- [ ] FOR NONHUMAN USE ONLY

POSSESSION OF THE MATERIAL IS AUTHORIZED IN ONE OF THE FOLLOWING AREAS:

- [ ] SAME AS 'STATE' IN ADDRESS
- [ ] ALL STATES
- [ ] ALL AGREEMENT STATES
- [ ] ALL NON-AGREEMENT STATES

AND/OR IN THE STATE(S), TERRITORY(S), COUNTRY CHECKED BELOW:

[ ] ALABAMA -AL	[ ] GEORGIA -GA	[ ] MARYLAND -MD	[ ] NEW JERSEY -NJ	[ ] SOUTH CAROLINA -SC	[ ] WYOMING -WY		
[ ] ALASKA -AK	[ ] HAWAII -HI	[ ] MASSACHUSETTS -MA	[ ] NEW MEXICO -NM	[ ] SOUTH DAKOTA -SD			
[ ] ARIZONA -AZ	[ ] IDAHO -ID	[ ] MICHIGAN -MI	[ ] NEW YORK -NY	[ ] TENNESSEE -TN	[ ] AMERICAN SAMOA -AS		
[ ] ARKANSAS -AR	[ ] ILLINOIS -IL	[ ] MINNESOTA -MN	[ ] NORTH CAROLINA -NC	[ ] TEXAS -TX	[ ] CANAL ZONE -CZ		
[ ] CALIFORNIA -CA	[ ] INDIANA -IN	[ ] MISSISSIPPI -MS	[ ] NORTH DAKOTA -ND	[ ] UTAH -UT	[ ] GUAM -GU		
[ ] COLORADO -CO	[ ] IOWA -IA	[ ] MISSOURI -MO	[ ] OHIO -OH	[ ] VERMONT -VT	[ ] PUERTO RICO -PR		
[ ] CONNECTICUT -CT	[ ] KANSAS -KS	[ ] MONTANA -MT	[ ] OKLAHOMA -OK	[ ] VIRGINIA -VA	[ ] VIRGIN ISLANDS -VI		
[ ] DELAWARE -DE	[ ] KENTUCKY -KY	[ ] NEBRASKA -NB	[ ] OREGON -OR	[ ] WASHINGTON -WA			
[ ] WASHINGTON DC -DC	[ ] LOUISIANA -LA	[ ] NEVADA -NV	[ ] PENNSYLVANIA -PA	[ ] WEST VIRGINIA -WV	[ ] CANADA -CN		
[ ] FLORIDA -FL	[ ] MAINE -ME	[ ] NEW HAMPSHIRE -NH	[ ] RHODE ISLAND -RI	[ ] WISCONSIN -WI			

D. POSSESSION LIMITS OF SOURCE AND SPECIAL NUCLEAR MATERIALS AND TRITIUM

	TYPE OF MATERIAL	AMOUNT AUTHORIZED	UNIT OF MEASUREMENT	SEALED/UNSEALED CONFIGURATION	MAXIMUM ENRICHMENT
[ ]	U235		[ ] GRAMS [ ] KILOGRAMS	[ ] SEALED [ ] UNSEALED	
[ ]	U233		[ ] GRAMS [ ] KILOGRAMS	[ ] SEALED [ ] UNSEALED	'X' HERE IF FOR POWER REACTOR [ ]
[ ]	PU		[ ] GRAMS [ ] KILOGRAMS	[ ] SEALED [ ] UNSEALED	
[ ]	URANIUM		[ ] GRAMS [ ] KILOGRAMS	[ ] SEALED [ ] UNSEALED	
[ ]	THORIUM		[ ] GRAMS [ ] KILOGRAMS	[ ] SEALED [ ] UNSEALED	RIS CODE
[X]	TRITIUM	00400.000	[ ] MICRO-CURIES [X] MILLI-CURIES [ ] CURIES		

E. FEE CATEGORIES:

EX	1A	1B	1C	2A	2B	3A	3B	3C	3D	3E
4A	[X] 5A									