

APPLICATION FOR BYPRODUCT MATERIAL LICENSE

INSTRUCTIONS.—Complete Items 1 through 16 if this is an initial application. If application is for renewal of a license, complete only Items 1 through 7 and indicate new information or changes in the program as requested in Items 8 through 15. Use supplemental sheets where necessary. Item 16 must be completed on all applications. Mail three copies to: U. S. Atomic Energy Commission, Washington 25, D. C. Attention: Isotopes Branch, Division of Licensing and Regulation. 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.) Monsanto Company 800 N. Lindbergh Blvd. St. Louis 66, Missouri		(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. (If different from 1 (a).) Same as 1(a)	
2. DEPARTMENT TO USE BYPRODUCT MATERIAL Central Research Department (Analytical Center)		3. PREVIOUS LICENSE NUMBER(S). (If this is an application for new of a license, please indicate and give number.) 24-1113-8 (G 65) (XXXXXXXXXX) Amendment	
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. S. Coakley (See attached sheet for training; experience.)		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.) L. C. Weger (see items 8 and 9)	
6. (a) BYPRODUCT MATERIAL. (Elements and mass number of each.) Strontium-90 Tritium-3 Tin-119m Iodine-125 Tantalum-182 Gold-195 Tellurium-121m Tellurium-123m Tellurium-127m Gallium-67 Arsenic-73 Cobalt-57		(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.) 60 millicuries (3 sources of 20 millicuries each) 200 millicuries 10 millicuries (unsealed) 10 millicuries (unsealed) 10 millicuries (unsealed) 10 millicuries (unsealed) 10 millicuries (unsealed) 10 millicuries (unsealed) 10 millicuries (unsealed) 30 millicuries (unsealed) 10 millicuries (unsealed) 10 millicuries (unsealed)	
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.) Strontium-90 - Each source to be used in a Barber-Colman Company Model A-4145 cell for use in a Barber-Colman Company Model 10 or 20 gas chromatograph. (As covered in previous license number 24-1113-8 (G 65) XXXXXXXXXXXX) Tritium-3 - To be used in F & M Scientific Corporation Model 830K-810 detector for an F & M Model 810A-13N gas chromatograph. All other isotopes listed in 6(a) to be used in Mössbauer experiments.			

TRAINING AND EXPERIENCE OF EACH INDIVIDUAL NAMED IN ITEM 1 Use supplemental sheets if necessary.

B. TYPE OF TRAINING	WHERE TRAINED	DURATION OF TRAINING	ON THE JOB (Circle answer)	FORMAL COURSE (Circle answer)
a. Principles and practices of radiation protection	Oak Ridge		Yes No	Yes No
b. Radioactivity measurement standardization and monitoring techniques and instruments	Oak Ridge		Yes No	Yes No
c. Mathematics and calculations basic to the use and measurement of radioactivity	Oak Ridge		Yes No	Yes No
d. Biological effects of radiation	Oak Ridge		Yes No	Yes No

9. EXPERIENCE WITH RADIATION. (Actual use of radioisotopes or equivalent experience.)

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
many isotopes ?		Oak Ridge National Laboratories	Two years	Production of Isotopes

10. RADIATION DETECTION INSTRUMENTS. (Use supplemental sheets if necessary.)

TYPE OF INSTRUMENTS (Include make and model number of each)	NUMBER AVAILABLE	RADIATION DETECTED	SENSITIVITY RANGE (mr/hr)	WINDOW THICKNESS (mg/cm ²)	USE (Monitoring, surveying, measuring)
Scintillation Counter Precision Radiation Instruments, Inc. Model 111	1	Gamma	.005 to 5.00	1-1/2" x 1" NaI	Surveying

11. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE.

Reference to uranium oxide standard.

12. FILM BADGES, DOSIMETERS, AND BIO-ASSAY PROCEDURES USED. (For film badges, specify method of calibrating and processing, or name of supplier.)

INFORMATION TO BE SUBMITTED ON ADDITIONAL SHEETS

13. FACILITIES AND EQUIPMENT. Describe laboratory facilities and remote handling equipment, storage containers, shielding, fume hoods, etc. Explanatory sketch of facility is attached. (Circle answer) Yes ☒ No
14. RADIATION PROTECTION PROGRAM. Describe the radiation protection program including control measures. If application covers sealed sources, submit leak testing procedures where applicable, name, training, and experience of person to perform leak tests, and arrangements for performing initial radiation survey, servicing, maintenance and repair of the source.
Periodic surveys conducted by Nuclear Consultants Corp., St. Louis, Mo.
15. WASTE DISPOSAL. If a commercial waste disposal service is employed, specify name of company. Otherwise, submit detailed description of methods which will be used for disposing of radioactive wastes and estimates of the type and amount of activity involved.

CERTIFICATE (This item must be completed by applicant)

16. THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE APPLICANT NAMED IN ITEM 1, 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.

Date 6-15-64

JUN 17 1964
U.S. AEC COMMISSION
Division of
Licensing & Regulation

Monsanto Company
Applicant named in item 1
[Signature]
Safety Director
Title of certifying official

WARNING.—18 U. S. C., Section 1001; Act of June 25, 1948, (65 Stat. 749), makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States or to any officer within its jurisdiction.

Training and Experience of Individuals 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. S. Coakley

W. S. Coakley has about four years' on-the-job experience in (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. This experience evolved from his work at Monsanto Chemical Company's Mound Laboratory (AEC) 1948-1952, which included research work involving polonium.