

ATOMIC ENERGY COMMISSION  
APPLICATION FOR BYPRODUCT MATERIAL LICENSE

DUPLICATED

INSTRUCTIONS: Complete Items 1 through 19 if this is a new application. If renewal is requested, complete only Items 1 through 11 provided that with respect to the other items there has been no change in the information previously submitted. Mail two copies to: U. S. Atomic Energy Commission, P. O. Box 217, Oak Ridge, Tennessee, Attention: Isotopes Extension, Division of Civilian Application. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. General requirements for issuance of an AEC Byproduct Material License are contained in Title 10, Code of Federal Regulations, Part 30.

<p>1. (a) NAME AND SHIPPING ADDRESS OF APPLICANT <i>(Institution, firm, hospital, person, etc.)</i> <b>Sinclair Research Laboratories, Inc.</b> <b>400 East Sibley Boulevard</b> <b>Harvey, Illinois</b></p>	<p>(b) ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED <i>(If different from shipping address)</i> <b>Same as shipping address</b></p>
<p>2. DEPARTMENT TO USE BYPRODUCT MATERIAL <b>Engine Laboratories</b></p>	
<p>3. INDIVIDUAL USER <i>(Name and title of individual(s) who will use or directly supervise use of byproduct material)</i> <b>R. L. Pontious, Engine Laboratory Section Leader</b></p>	
<p>4. RADIOLOGICAL SAFETY OFFICER <i>(Name of person qualified in radiological safety, if other than individual user)</i> <b>Dr. Adolph I. Snow</b></p>	
<p>5. PREVIOUS LICENSE OR AUTHORIZATION NUMBER <i>(If this is an application for renewal of a license for byproduct material obtained under a prior license or authorization for radioisotope procurement)</i> <b>37467</b></p>	

BYPRODUCT MATERIAL OR IRRADIATION SERVICE DESIRED

<p>6. BYPRODUCT MATERIAL <i>(Element and mass number)</i> <b>Iron - 59</b></p>	<p>7. CHEMICAL AND/OR PHYSICAL FORM <i>(Or catalog number)</i> <b>Major component in automobile piston ring</b></p>	<p>8. MAXIMUM AMOUNT OF RADIOACTIVITY IN MILLICURIES THAT YOU WILL POSSESS AT ANY ONE TIME <b>200</b></p>
<p>9. IF IRRADIATION SERVICE IS DESIRED, STATE PERTINENT DETAILS SUCH AS: CHEMICAL COMPOSITION AND WEIGHT IN GRAMS OF TARGET MATERIAL, RADIOACTIVITY, IRRADIATION TIME IN DAYS, AND NEUTRON FLUX <b>Chemical composition-Total carbon 3.9%, silicon 3.1%, manganese 0.8%, phosphorus 0.8% sulfur 0.12%, chromium 0.2%, molybdenum 0.2%, balance-iron. Weight per ring 10.6 gms activity 5.7 mc per ring. 21 days at <math>3 \times 10^{12}</math> n/cm<sup>2</sup>/sec.</b></p>		

STATEMENT OF USE

10. (a) DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. *(If material is for "human use" complete Supplement A in lieu of this item. If material is to be used in or manufactured as a "sealed source" complete Supplement B in addition to this item.)*

**Wear Studies.**

(b) DESCRIBE PROCEDURES WHICH WILL BE OBSERVED TO MINIMIZE HAZARD FROM HANDLING, STORAGE, AND DISPOSAL OF THE BYPRODUCT MATERIAL  
Rings transported in lead shipping container (U.S. Bureau of Explosives Permit No. 219). Rings stored in concrete box sunk in floor of locked room. Storage holes contain concrete plugs (covers) 16" deep. Used rings disposed at Argonne National Laboratory or other authorized disposal agency. Oil stored until activity level is low enough for safe disposal.

CERTIFICATE

11. 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 do solemnly swear (or affirm) that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

State of Illinois  
County of Cook  
Subscribed and sworn to before me this 13<sup>th</sup>  
day of March, 1957  
*[Signature]*  
Notary Public My Commission Expires June 19, 1959

**Sinclair Research Laboratories, Inc.**  
*(Applicant named in Item 1)*  
By *[Signature]*  
**E. J. Martin, Vice President and General Manager**  
Title of Certifying Official  
Date                     

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.

INSTRUCTIONS: Complete Items 12 through 19 if this is a new application. This information may be omitted from subsequent applications provided there is no change in the information previously submitted, and reference is made in Item 5 to the application on which this information appears.

TRAINING AND EXPERIENCE WITH RADIOACTIVITY OF INDIVIDUAL USER NAMED IN ITEM 3

12. TYPE OF TRAINING	WHERE TRAINED	DURATION OF TRAINING	ON THE JOB (Circle answer)	FORMAL COURSE (Circle answer)
1. Principles and practices of radiological health safety. . . . .	<b>See application for license no. 12-140-3 (Mailed December 17, 1956) for use and radiological safety officer</b>		Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
2. Radioactivity measurement standardization and monitoring techniques and instruments . . . . .			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
3. Mathematics and calculations basic to the use and measurement of radioactivity. . . . .			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
4. Biological effects of radiation. . . . .			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
5. Actual use of radioisotopes in the types and quantities for which application is being made, or equivalent experience . . . . .			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

13. ISOTOPE HANDLING EXPERIENCE

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
<b>See application for license no. 12-140-3</b>				
	CCS			

14. If Radiological Safety Officer named in Item 4 is different from individual user named in Item 3, use supplementary sheet to provide equivalent information on "Training and Experience With Radioactivity of Radiological Safety Officer." Supplementary sheet is attached (Circle answer) Yes  No

PHYSICAL FACILITIES, EQUIPMENT, AND RADIATION INSTRUMENTATION

15. RADIATION DETECTION INSTRUMENTS (Use separate sheet if necessary)

TYPE OF INSTRUMENTS (Include make and model number of each)	NUMBER AVAILABLE	RADIATION DETECTED	SENSITIVITY RANGE (mr/hr)	WINDOW THICKNESS (mg/cm <sup>2</sup> )	USE (Monitoring, surveying, measuring)
<b>See previous application</b>					

16. FILM BADGES, DOSIMETERS, AND OTHER PERSONNEL MONITORING DEVICES INCLUDING BIO-ASSAY PROCEDURES  
**See previous application**

17. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE (For film badges specify method of calibration and processing, or name supplier)  
**See previous application**

18. (a) DESCRIBE BRIEFLY REMOTE HANDLING EQUIPMENT, STORAGE CONTAINERS, SHIELDING, AND LABORATORY FACILITIES (Working areas, fume hoods, etc.)  
**See previous application**

(b) SKETCHES OF SUCH FACILITIES ARE ATTACHED (Circle answer) Yes  No

19. DESCRIBE BRIEFLY RADIATION SURVEYING PROCEDURES AND METHODS OF DISPOSING OF RADIOACTIVE WASTES  
**See previous application for license no. 12-140-3**