NRC Form 374
(8-82)

U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 22

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s); and to import such byproduct and source material. This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Mobil Chemical Company Research and Development Department	In accordance with letter dated July 28, 1983 3. License number 29-08354-02 is amended in its entirety to read as follows:
2. P. O. Box 240 Edison, New Jersey 08818	4. Expiration date March 31, 1989
	5. Docket or Reference No. 030-05344

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Hydrogen 3	A. Any	A. Not to exceed 5 curies total
B. Carbon 14	B. Any	B. Not to exceed 500 millicuries total
C. Phosphorus 32	C. Any	C. Not to exceed 5 millicuries total
D. Sulfur 35	D. Any	D. Not to exceed 5 millicuries total
E. Chlorine 36	E. Any	E. Not to exceed 500 microcuries total
F. Calcium 45	F. Any	F. Not to exceed 5 millicuries total
G. Rubidium 86	G. Any	G. Not to exceed 5 millicuries total
H. Nickel 63	H. Foils in detector cells	H. Not to exceed 15 millicuries per foil
I. Americium 241	I. Sealed sources	I. Not to exceed 50 millicuries per source
J. Iron 55	J. Sealed sources	J. Not to exceed 50 millicuries per source
K. Cesium 137	K. Sealed source (Texas Nuclear Model 696894)	K. Not to exceed 50 millicuries per source
L. Cesium 137	L. Sealed source (Texas Nuclear Model 57157C)	L. Not to exceed 200 millicuries per source
M. Cesium 137	M. Sealed sources	M. See Subitem 9.M.

9. Authorized use

A. through J. Research and development as defined in Section 30.4(q) of 10 CFR Part 30.

K. For use in Texas Nuclear Corp. Model 5205 source housings for continuous level measurements.

L. For use in Texas Nuclear Corp. Model 5206 source housings for continuous level measurements.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
29-08354-02

Docket or Reference number
030-05344

Amendment No. 22

(9.continued)

M. For possession and use in Ohmart Corporation devices which have been evaluated and approved for licensing purposes and authorized for distribution under a license issued by the Nuclear Regulatory Commission or an Agreement State.

CONDITIONS

10. a) Licensed material listed under Subitems 6.A. through 6.J. shall be used only at the laboratories of the licensee at Edison, New Jersey, Pennington, New Jersey and Mobil Chemical Company, Packaging Coating Department, 2000 Westhall Street, Pittsburgh, Pennsylvania.

b) Licensed material listed under Subitems 6.K. through 6.M. shall be used only at the licensee's facilities at Route 27 & Vineyard Road, Edison, New Jersey.

11. The licensee shall comply with the provisions of Title 10, Chapter 1, Code of Federal Regulations, Part 19, "Notices, Instructions, and Reports to Workers; Inspections" and Part 20, "Standards for Protection Against Radiation."

12. a) Licensed material shall be used by, or under the supervision of, C. F. Caldwell E. R. Averill, John P. Guarino or Richard P. Gursky.

b) Licensed material listed under Subitem 6.K. through 6.M. shall be used by, or under the supervision of K. B. Silverman, H. W. Frasier, M. Coldenhoff, P. Horochowski, C. C. Hon, Alan W. Chiang, John J. Mehok, Joseph F. Bowditch, Brendan J. Begley, Ken Sun, William J. Patskanick, Roger Napier, Steve Stetzko, M. H. Beyad, Edward C. Ferlauto, or Wei H. Chang.

13. A. (1) Each sealed source containing licensed material, other than Hydrogen 3, with a half-life greater than thirty days and in any form other than gas shall be tested for leakage and/or contamination at intervals not to exceed six months, except those sealed sources as specified by the manufacturer and specifically authorized by the Commission or an Agreement State may be leak tested at intervals not to exceed three years. In the absence of a certificate from a transferor indicating that a test has been made within six months prior to the transfer, a sealed source received from another person shall not be put into use until tested.

(2) Notwithstanding the periodic leak test required by this condition, any licensed sealed source is exempt from such leak tests when the source contains 100 microcuries or less of beta and/or gamma emitting material or 10 microcuries or less of alpha emitting material.

(3) The periodic leak test required by this condition does not apply to sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage prior to any use or transfer to another person unless they have been leak tested within six months prior to the date of use or transfer.

(13.continued) CONDITIONS

B. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample shall be taken from the sealed source or from the surfaces of the device in which the sealed source is permanently mounted or stored on which one might expect contamination to accumulate. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the Commission.

C. If the test reveals the presence of 0.005 microcurie or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with Commission regulations. A report shall be filed within 5 days of the test with the U. S. Nuclear Regulatory Commission, Region I, 631 Park Avenue, King of Prussia, Pennsylvania 19406, describing the equipment involved, the test results, and the corrective action taken.

D. The licensee is authorized to collect leak test samples in accordance with the procedures described in the licensee's application dated July 7, 1978, for analysis by the licensee. Alternatively, leak test samples may be collected and/or analyzed by other persons specifically authorized by the Commission or an Agreement State to perform such services.

14. Sealed sources containing licensed material shall not be opened or removed from their respective source holders by the licensee.

15. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), Title 10, Code of Federal Regulations, Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

16. A. Each chromatograph detector containing Nickel 63 shall be tested for leakage and/or contamination at intervals not to exceed six months. In the absence of a certificate from a transferor indicating that a test has been made within six months prior to the transfer, a detector received from another person shall not be put into use until tested.

B. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample shall be taken from the surfaces of the device in which the foil is mounted or stored on which one might expect contamination to accumulate. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the Commission.

C. If the test reveals the presence of 0.005 microcurie or more of removable contamination, the licensee shall immediately withdraw the foil from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with Commission regulations. A report shall be filed within 5 days of the test with the U.S. Nuclear Regulatory Commission, Region I, 631 Park Avenue, King of Prussia, Pennsylvania 19406, describing the equipment involved, the test results, and the corrective action taken.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
29-08354-02

Docket or Reference number
030-05344

Amendment No. 22

(16.continued) CONDITIONS

D. The licensee is authorized to collect leak test samples in accordance with the procedures described in the licensee's application dated July 7, 1978, for analysis by the licensee. Alternatively, leak test samples may be collected and/or analyzed by other persons specifically authorized by the Commission or an Agreement State to perform such services.

17. Detector cells containing licensed material shall not be opened or the foil sources removed from the detector cell by the licensee.

18. Installation, relocation, removal from service, maintenance, repair, and initial radiation survey of devices containing licensed material and installation, replacement, and disposal of sealed sources containing licensed material used in devices shall be performed only by the device manufacturer or by other persons specifically authorized by the Commission or an Agreement State to perform such services.

19. The licensee shall conduct a physical inventory every six (6) months to account for all sealed sources and detector cells received and possessed under the license. The records of the inventories shall be maintained for two (2) years from the date of the inventory for inspection by the Commission, and shall include the quantities and kinds of licensed material, location of sealed sources and detector cells, and the date of the inventory.

20. The licensee shall not use licensed material in or on human beings or in field applications where activity is released except as provided otherwise by specific condition of this license.

21. A. Individuals involved in operations which utilize, at any one time, more than 100 millicuries of Hydrogen 3 in a non-contained form, other than metallic foil, shall have bioassays performed within one week following a single operation and at weekly intervals for continuing operations.

B. (1) Tritium shall not be used in such a manner as to cause any individual to receive a radiation exposure such that urinary excretion rates exceed 28 microcuries of tritium per liter when averaged over a calendar quarter.

(2) Urinalysis shall be performed at weekly intervals on all individuals who work in the restricted areas of facilities in which tritium is used. If the average concentration of tritium in urine for any single individual during a calendar quarter is less than 10 microcuries per liter, urinalysis may be performed on that individual at monthly intervals for the following calendar quarter and may continue at monthly intervals so long as the average concentration in the calendar quarter remains below 10 microcuries per liter. The urine specimen shall be collected on the same day of the week insofar as possible.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
29-08354-02

Docket or Reference number
030-05344

Amendment No. 22

(21.B.continued) CONDITIONS

(3) A report of an average concentration in excess of the limit specified in B(1) above for any individual shall be filed, in writing, within thirty (30) days of the end of the calendar quarter with the Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the Regional Office of Inspection and Enforcement. The report shall contain the results of all urinalyses for the individual during the calendar quarter, the cause of the excessive concentrations, and the corrective steps taken or planned to assure against a recurrence.

(4) Any single urinalysis which discloses a concentration of greater than 50 microcuries per liter shall be reported, in writing, within seven (7) days of the licensee's receipt of the results, to the Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the U.S. Nuclear Regulatory Commission, Region I, 631 Park Avenue, King of Prussia, Pennsylvania 19406.

22. Except as specifically provided otherwise by this license, the licensee shall possess and use licensed material described in Items 6, 7, and 8 of this license in accordance with statements, representations, and procedures contained in applications dated February 16, 1978, July 7, 1978, October 26, 1978, January 24, 1979, and July 26, 1983, and letters dated May 7, 1980, July 26, 1983, September 1, 1983, July 28, 1983, September 20, 1983, and March 7, 1984. The Nuclear Regulatory Commission's regulations shall govern the licensee's statements in applications or letters, unless the statements are more restrictive than the regulations.

For the U.S. Nuclear Regulatory Commission

Date APR 05 1984

By John E. Glenn
Nuclear Materials and Safeguards Branch
Region I
King of Prussia, Pennsylvania 19406