

MATERIALS LICENSE

Amendment No. 22

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). 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. Illinois State Psychiatric Institute
Research Department
2. 1601 West Taylor Street
Chicago, IL 60612

In accordance with application dated
September 29, 1984

3. License number 12-06491-02 is amended in
its entirety to read as follows:

4. Expiration date May 31, 1990

5. Docket or
Reference No. 030-01471

6. Byproduct, source, and/or
special nuclear material

A. Hydrogen-3

B. Nickel-63

C. Carbon-14

D. Hydrogen-3

E. Iodine-125

F. Phosphorus-32

G. Rubidium-86

H. Calcium-45

I. Sulfur-35

7. Chemical and/or physical
form

A. Foils contained in
electron capture
detectors

B. Foils contained in
electron capture
detectors

C. Any

D. Any

E. Any

F. Any

G. Any

H. Any

I. Any

8. Maximum amount that licensee
may possess at any one time
under this license

A. 2,200 millicuries

B. 32 millicuries

C. 20 millicuries

D. 1 curie

E. 10 millicuries

F. 50 millicuries

G. 5 millicuries

H. 5 millicuries

I. 20 millicuries

9. Authorized Use

A. and B. For use in gas chromatographs for sample analysis.

C. through I. In vitro laboratory research and animal studies.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at
1601 West Taylor Street, Chicago, Illinois.

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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. Licensed material listed in Item 6 above is authorized for use by, or under the supervision of, the following individual(s) for the materials and uses indicated:

G. N. Pandey, Ph.D.

All

J. M. Davis, M.D.

Carbon-14
Hydrogen-3
Calcium-45
Sulfur-35
Nickel-63

J. I. Javaid, Ph.D

Carbon-14
Hydrogen-3
Calcium-45
Sulfur-35
Nickel-63

B. D. Brown, B.S.

Carbon-14
Hydrogen-3
Calcium-45
Sulfur-35
Iodine-125
Nickel-63

R. Arora, Ph.D.

Carbon-14
Hydrogen-3
Calcium-45
Sulfur-35
Nickel-63

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 that each source designed for the purpose of emitting alpha particles shall be tested at intervals not to exceed three 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 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.

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- (3) Except for alpha sources, 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.
- 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 five (5) days of the test with the U. S. Nuclear Regulatory Commission, Region III, 799 Roosevelt Road, Glen Ellyn, Illinois 60137, describing the equipment involved, the test results, and the corrective action taken.
- D. Tests for leakage and/or contamination shall be performed by the licensee or 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.
15. A. Detector cells containing titanium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.
- B. Detector cells containing scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 325 degrees Centigrade.
16. 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.
17. 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.

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18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days for decay-in-storage before disposal in ordinary trash provided:
- A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of ten (10) half-lives.
 - B. Prior to disposal as normal waste, radioactive waste shall be monitored to determine that its radioactivity cannot be distinguished from background with typical low-level laboratory survey instruments. All radiation labels will be removed or obliterated.
19. The licensee shall train laboratory, housekeeping, security and other personnel who may frequent areas where radioactive materials are used or stored in the topics listed in 10 CFR Part 19.12 before assuming their duties and annually thereafter.
20. The licensee shall conduct removable surface contamination and direct exposure level surveys in all areas where radioactive materials are used or stored in accordance with the frequencies and action levels stated in Regulatory Guide 8.23.
21. The licensee shall establish procedures for handling millicurie quantities of high energy beta emitters to include the use of low atomic number shielding material, a radiation survey and wipe test after each use, and the use of finger type extremity dose monitors.
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 application dated September 29, 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 May 10, 1985

Original Signed
By Evelyn R. Matson
Materials Licensing Section, Region III
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