

MATERIALS LICENSE

Amendment No. 24

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.

"OFFICIAL RECORD COPY"

Licensee

1. Hercules Incorporated
2. Research Center
Wilmington, Delaware 19899

In accordance with letter dated
July 27, 1984,
3. License number 07-00222-02 is amended in its
entirety to read as follows:

4. Expiration date May 31, 1990

5. Docket or
Reference No. 030-03851

6. Byproduct, source, and/or
special nuclear material7. Chemical and/or physical
form8. Maximum amount that licensee
may possess at any one time
under this license

- A. Carbon 14
- B. Chlorine 36
- C. Sulfur 35
- D. Hydrogen 3
- E. Phosphorus 32
- F. Chlorine 36

- A. Any
- B. Any
- C. Any
- D. Any
- E. Any
- F. Sealed source (Nuclear
Science & Engineering
Corp. custom source)

- A. 400 millicuries
- B. 10 millicuries
- C. 50 millicuries
- D. 20 curies
- E. 60 millicuries
- F. 30 microcuries

G. Promethium 147

- G. Sealed source (Nuclear
Chicago Corp. Model
RG-31P)

G. 25 millicuries

H. Nickel 63

- H. Plated sources contained
in Hewlett-Packard Model
18713A detector cells

H. Not to exceed
15 millicuries each

I. Nickel 63

- I. Foil sources contained
in Varian Instrument
Division Model
02-001972-00 detector
cells

I. Not to exceed
8 millicuries each

9. Authorized use

- A. through G. To be used for laboratory research studies.
- H. To be used in Hewlett-Packard gas chromatographs for sample analysis.
- I. To be used in Varian Instrument Division gas chromatographs for sample analysis.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities at Research Center, Wilmington, Delaware.
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."

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MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number

07-00222-02

Docket or Reference number

030-03851

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(Continued)

CONDITIONS

12. Licensed material shall be used by, or under the supervision of, individuals designated by the licensee's Radiation Safety Committee, A. Z. Conner, Chairman.
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. 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) 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 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. 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. 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.

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(14. continued)

CONDITIONS

- 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.
- 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.
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. The licensee shall conduct a physical inventory every six (6) months to account for all 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 byproduct material, manufacturer's name and model numbers, location of detector cells and the date of the inventory.
17. 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.
18. 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 February 28, 1979 and letters dated June 13, 1979, July 27, 1984, and April 11, 1985. 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

Original Signed By

Jenny M. Johansen

By

Nuclear Materials Safety and
Safeguards Branch, Region I
King of Prussia, Pennsylvania 19406

Date

MAY 06 1985