

**U. S. NUCLEAR REGULATORY COMMISSION
MATERIALS LICENSE**

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Amendment No. 35

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 1, Parts 30, 31, 32, 33, 34, 35, 36, 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. Aluminum Company of America Alcoa Technical Center 2. P. O. Box 2970 Alcoa Center, Pennsylvania 15069		In accordance with application dated February 24, 1978 3. License number 37-07653-02 is amended in its entirety to read as follows: 4. Expiration date October 31, 1983 5. Docket or Reference No.
6. Byproduct, source, and/or special nuclear material A. Any byproduct material between Atomic Nos. 1 and 83, inclusive B. Hydrogen 3 C. Cesium 137 D. Cesium 137 ✓ E. Cesium 137 ✓ F. Nickel 63 G. Hydrogen 3	7. Chemical and/or physical form A. Any B. Any C. Texas Nuclear Model 570-57157C Sealed Sources D. Texas Nuclear Model 570-57157C Sealed Sources E. New England Nuclear Model NER570 Sealed Sources F. Plated sources in Hewlett-Packard Model 18713-60520 detector cells G. Plated sources in Analog Technology Corp. Model 140 detector cells	8. Maximum amount that licensee may possess at any one time under this license A. Two curies of any isotope not to exceed 5 curies total radio- activity B. 20 curies C. No source to exceed 500 millicuries D. No source to exceed 20 millicuries E. No source to exceed 100 millicuries F. No source to exceed 15 millicuries G. No source to exceed 1 curie

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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
H. Hydrogen 3	H. Plated sources in AID Model 510-600 electron capture detector cells	H. No source to exceed 200 millicuries
I. Krypton 85	I. Tracerlab Model S-76A Sealed Sources	I. No source to exceed 500 millicuries
J. Cobalt 60	J. Instruments, Inc. Model B-20-14 Sealed Sources	J. No source to exceed 100 millicuries
K. Cesium 137/ Americium 241	K. Troxler Model A-100280 Sealed Sources	K. No source to exceed 10 millicuries of Cesium 137 and 50 millicuries of Americium 241
L. Cesium 137	L. Amersham Model 850233, or 3M Types 4P6M or 4P6E Sealed Sources	L. No source to exceed 2 curies
M. Strontium 90	M. U. S. Radium Model IAB 370-1 Sealed Sources	M. No source to exceed 300 millicuries
N. Cesium 137	N. Ohmart Corporation Model A-2102 Sealed Sources	N. No source to exceed 100 millicuries
O. Cesium 137	O. Ohmart Corporation Model A-2102 Sealed Sources	O. No source to exceed 300 millicuries
P. Cesium 137	P. Texas Nuclear Model 570-57157C Sealed Sources	P. No source to exceed 4 curies

9. Authorized use

- A. and B. For storage only.
- C. For use in Texas Nuclear Model 5191 source holders for level measurement.
- D. For use in Texas Nuclear Model 5192 source holders for level measurement.
- ✓ E. For use in Kay-Ray Model 7062P source holders for level measurement.
- ✓ F. For use in Hewlett-Packard Model 5830A gas chromatographs for sample analysis.
- G. For use in Carle Model 111H gas chromatographs for sample analysis.

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9. Authorized use continued

- H. For use in AID Model 511 gas chromatographs for sample analysis.
- I. For use in Tracerlab Model HUB-76A source holders for thickness measurement.
- J. For use in Instrument, Inc. Model B-20-06 source holders for level measurement.
- K. For use in Troxler Model 2401 soil testing gauges.
- L. For use in Nuclear-Chicago Model 5120 source holders for density measurement.
- M. For use in Ohmart Model LEG-2 source holders for thickness measurement.
- N. For use in Ohmart Model ED-6 source holders for density measurement.
- O. For use in Ohmart Model HM-8 source holders for density measurement.
- P. For use in Texas Nuclear Model 5176 source holders for density or level measurements.

CONDITIONS

- 10. Licensed material shall be used and stored only at Alcoa Technical Center, Alcoa Center, Pennsylvania and Alcoa Research Laboratory, New Kensington, Pennsylvania.
- 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 shall be used by, or under the supervision of, individuals designated by the licensee's Radiation Safety Committee, except that material described in Subitems A and F of Items 6., 7., and 8 shall be stored under the supervision of Robert Geiger.
- 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) 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.

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13. continued

- 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, Office of Inspection and Enforcement, 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. Sealed sources containing licensed material shall not be opened or removed from their respective source holders by the licensee.
15. A. Installation, relocation, initial radiation surveys and removal from service of devices containing licensed material shall be performed by R. C. Geiger or by persons specifically authorized by the Commission or an Agreement State to perform these services on devices possessed by the licensee.
- B. Maintenance and repair of devices containing radioactive material and installation, replacement and disposal of sealed sources containing radioactive material shall be performed by the device manufacturer or by persons specifically authorized to perform these operations on devices possessed by the licensee.
16. 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.
17. Detector cells containing nickel 63 shall not be opened nor nickel 63 removed from detector cells.

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18. 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.
19.
 - 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 Region I, Office of Inspection and Enforcement, USNRC, 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.
20. The licensee shall conduct a physical inventory every six (6) months to account for all sealed sources 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, location of sealed sources, and the date of the inventory.
21. The licensee may transport licensed material or deliver licensed material to a carrier for transport in accordance with the provisions of Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Material For Transport."

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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 March 28, 1966, April 28, 1971 and March 13, 1973; letters dated May 8, 1973, September 24, 1976, February 1, 1977, and November 4, 1977; and application dated February 27, 1978 as amended July 21, 1978 and August 31, 1978.

Date OCT 6 1978

FC 10/6/78

For the U. S. Nuclear Regulatory Commission
Original Signed by
FREDRICK C. COMBS
by Radioisotopes Licensing Branch

Division of Fuel Cycle and
Material Safety
Washington, D.C. 20555