

BYPRODUCT MATERIAL LICENSE NO. 47-260-6, AMENDMENT  
(C63) NO. 11

Pursuant to the Atomic Energy Act of 1954 and Title 10, Code of Federal Regulations, Chapter 1, Part 30, Licensing of Byproduct Material, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, own, possess, transfer and import byproduct material listed below; and to use such byproduct material for the purpose(s) and at the place(s) designated below. This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, and is subject to all applicable rules, regulations, and orders of the Atomic Energy Commission now or hereafter in effect and to any conditions specified below.

<p style="text-align: center;">Licensee</p> <p>1. Name <b>Union Carbide Corporation Union Carbide Chemicals Company</b></p> <p>2. Address <b>Union Carbide Olefins Company 437 MacGorkle Avenue South Charleston 3, West Virginia</b></p>	<p style="text-align: center;">In accordance with applica- tion dated February 8, 1961, 47-260-6 is amended in its entirety to read as follows:</p> <p>3. License number</p> <p>4. Expiration date <b>March 31, 1963</b></p> <p>5. Reference No.</p>
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<p>6. Byproduct material (element and mass number)</p> <p>A. Hydrogen 3 B. Carbon 14</p> <p style="text-align: center;">(See Page 2)</p>	<p>7. Chemical and/or physical form</p> <p>A. Any B. Any</p> <p style="text-align: center;">(See Page 2)</p>	<p>8. Maximum amount of radioactivity which licensee may possess at any one time</p> <p>A. 25 curies B. 250 millicuries</p> <p style="text-align: center;">(See Page 2)</p>
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9. Authorized use

A. - H. Research and development as defined in Section 30.4(k), Title 10, Code of Federal Regulations, Part 30, "Licensing of Byproduct Material."

(See Page 2)

CONDITIONS

10. Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.
11. Byproduct material may also be used at other laboratories of the Union Carbide Corporation within the state of West Virginia as designated by the Radioactive Materials Committee. Byproduct material may also be used in other states at laboratories of the Union Carbide Corporation designated by the Radioactive Materials Committee, providing the Atomic Energy Commission is notified of the location(s) of such use not later than four (4) days after the first day of such use.
12. The licensee shall comply with the provisions of Title 10, Part 20, Code of Federal Regulations, Chapter 1, "Standards for Protection Against Radiation."
13. Byproduct material shall be used by, or under the direct supervision of, individuals approved by the Radioactive Materials Committee, W. J. Skraba, Chairman.
14. Byproduct material as sealed sources shall not be opened by the licensee.  
(See Page 3)

**DUPLICATED**  
 FOR DIV. OF COMPLIANCE

A-174

Supplementary Sheet

License Number 47-260-6  
(C63)

AMENDMENT NO. 11

CONTINUED:

## CONDITIONS

15. A. Each sealed source acquired from another person and containing byproduct material with a half-life greater than 30 days and in any form other than gas, shall be tested for contamination and/or leakage prior to use. In the absence of a certificate from a transferor indicating that a test has been made within 6 months prior to the transfer, the sealed source shall not be put into use until tested.
- B. Each sealed source fabricated by the licensee shall be tested for contamination and/or leakage immediately after fabrication. If the test reveals the presence of 0.005 microcuries or more of removable contamination, the licensee shall repair and/or decontaminate and retest the source. Sealed sources fabricated for distribution and containing byproduct material (with the exception of solid metallic Iridium 192, byproduct material with a half-life not exceeding thirty days, and byproduct material in the form of gas) shall, in addition to an initial test upon fabrication, be stored for a period of seven days and retested prior to being distributed.
- C. Each sealed source containing byproduct material with a half-life greater than 30 days and in any form other than gas, shall be tested for leakage and/or contamination at intervals not to exceed 6 months.
- D. The test shall be capable of detecting the presence of 0.005 microcuries of removable contamination on the test sample. The test sample shall be taken from the sealed source or from appropriate accessible surfaces of the device in which the sealed source is permanently or semipermanently mounted or stored. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the Commission.
- E. If the test required in A or C above reveals the presence of 0.005 microcuries 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 days of the test with the Director, Division of Licensing and

(See Page 4)

Supplementary Sheet

47-260-6

License Number (C63)

AMENDMENT NO. 11

CONTINUED:

CONDITIONS

15. continued

Regulation, U. S. Atomic Energy Commission, Washington 25, D. C., describing the equipment involved, the test results and the corrective action taken. A copy of such report shall be sent to the manager of the nearest AEC operations office listed in Appendix D of Title 10, Code of Federal Regulations, Part 20.

16. Byproduct material shall not be used in or on human beings, in products distributed to the public nor in field applications where such activity is released.

17. Except as specifically provided otherwise by this license, the licensee shall possess and use byproduct material described in Items 6, 7 and 8 of this license in accordance with statements, representations, and procedures contained in his applications dated January 29, 1959; July 30, 1959; August 3, 1959 and February 8, 1961, and in related documents and amendments as follows:

- A. Administrative instructions entitled "Manual for the Use of Radioactive Materials" dated March 31, 1960, as revised by enclosures to N. H. Ketcham's letter dated August 3, 1960.
- B. Letter dated January 27, 1959 from L. J. Rogers.
- C. Letter dated September 2, 1959 from H. T. Sessions.
- D. Letter dated January 4, 1960 from K. D. Williamson.

18. Written administrative instructions referenced in Condition 17A. shall be followed and a copy of these instructions shall be supplied to each individual using or having responsibility for use of byproduct material. Any changes in these administrative instructions shall have the prior approval of the Isotopes Branch, Division of Licensing and Regulation.

19. Pursuant to Section 20.302 of Title 10, Code of Federal Regulations, Part 20, disposal of waste materials containing Carbon 14 by incineration, as described in letter dated November 10, 1958, from F. G. Young, is hereby authorized.

20. 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 byproduct material and used in gas chromatography devices, with conspicuous etched or stamped radiation caution symbols without a color requirement.

For the U. S. Atomic Energy Commission

Date MAR 6 - 1961

Original Signed By  
James R. Masor  
by Chief, Isotopes Branch  
Division of Licensing and Regulation  
Washington 25, D. C.

1. WSC/Beall

REB 3/6/61