

U.S. NUCLEAR REGULATORY COMMISSION

**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, 36, 37, 39, 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.

<p style="text-align: center;">Licensee</p> <p>1. Cayman Chemical Company, Inc.</p> <p>2. 1180 East Ellsworth Road Ann Arbor, MI 48108</p>	<p>In accordance with letter dated <b>June 16, 2016,</b></p> <p>3. License number 21-24683-01 is amended in its entirety to read as follows:</p> <hr/> <p>4. Expiration date December 31, 2021</p> <hr/> <p>5. Docket No. 030-29143 Reference No.</p>
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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
A. Iodine-125	A. Prepackaged units	A. 2.5 millicuries
B. Hydrogen-3	B. Prepackaged units	B. 100 millicuries
C. Carbon-14	C. Prepackaged units	C. 50 millicuries
D. Phosphorus-32	D. Any	D. 10 millicuries
E. Hydrogen-3	E. Any	E. 10 millicuries
F. Carbon-14	F. Any	F. 2 millicuries
G. Sulfur-35	G. Any	G. 20 millicuries

9. Authorized use:
- A. through C. For receipt, storage and redistribution of prepackaged units to persons specifically licensed for the type, form and quantity of byproduct material by the Nuclear Regulatory Commission or an Agreement State.
  - D. through G. For research and development as defined in 10 CFR 30.4.

CONDITIONS

- 10. Licensed material shall be used only at the licensee's facilities located at 5025 Venture Drive, Ann Arbor, Michigan.
- 11. The Radiation Safety Officer for this license is Elizabeth Meade, Ph.D.

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number  
21-24683-01

Docket or Reference Number  
030-29143

Amendment No. 15

12. Licensed material listed in Item 6 above is only authorized for use by, or under the supervision of, the following individuals for the materials and uses indicated:

Authorized Users

Material and Use

Levi Blazer

Hydrogen-3

Daniel Bouchar, Ph.D.

Hydrogen-3, carbon-14, and phosphorus-32

Elizabeth Meade, Ph.D.

Hydrogen-3, carbon-14, phosphorus-32, and sulfur-35

Jim Corrigan

Hydrogen-3

Rana Sidhu, Ph.D.

Hydrogen-3, carbon-14, and phosphorus-32

Daniel Tew

Hydrogen-3

13. Prepackaged units intended for redistribution shall not be opened by the licensee.
14. This license does not authorize commercial distribution of licensed material to persons generally licensed pursuant to 10 CFR Part 31 or to persons exempt from licensing pursuant to 10 CFR 30.18.
15. Licensed material shall not be used in or on humans except as provided otherwise by specific condition of this license.
16. This license does not authorize the manufacture and packaging of radiochemicals for distribution.
17. The licensee is authorized to hold radioactive material with a physical half-life of less than or equal to 120 days for decay-in-storage before disposal in ordinary trash provided:
- A. Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate survey meter set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.
  - B. A record of each disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.
18. The licensee shall not use licensed material in field applications where activity is released except as provided otherwise by specific condition of this license.
19. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

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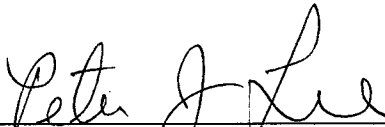
Amendment No. 15

20. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.
- A. Application dated June 27, 2011 (ML111810651)
  - B. Application dated November 18, 2011 (ML113270273)
  - C. Letter dated December 18, 2013 (ML13352A352)
  - D. Letter dated January 8, 2014 (ML14008A388)
  - E. Letter dated September 17, 2015 (ML15266A489)
  - F. Letter dated **June 16, 2016** (ML16174A416)

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date AUG 25 2016

By

  
Peter J. Lee, Ph.D., CHP  
Materials Control, ISFSI, and  
Decommissioning Branch  
Region III