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H.500

Introduced by Representative Sheldon of Middlebury

Referred to Committee on

Date:

Subject: Conservation and development; mercury management; mercury lamps

Statement of purpose of bill as introduced: This bill proposes to prohibit the sale or distribution in the State of compact fluorescent lamps or linear fluorescent lamps beginning on January 1, 2023.

An act relating to prohibiting the sale of mercury lamps in the State

It is hereby enacted by the General Assembly of the State of Vermont:

~~Sec. 1. 10 V.S.A. § 7101 is amended to read:~~

~~§ 7101. LEGISLATIVE FINDINGS~~

~~The General Assembly finds and declares that:~~

~~(1) Mercury is a persistent and toxic pollutant that bioaccumulates in the environment and poses a serious threat to humans, particularly young children and the developing fetus, and wildlife.~~

~~* * *~~

~~(7) Human exposure to mercury can result in nervous system, kidney, and liver damage and impaired childhood development.~~

1 (8) There has been a threefold increase in mercury loading to the
2 environment over the past 150 years. Much of the mercury deposited from the
3 atmosphere is from human and natural sources, but anthropogenic emissions
4 exceed those that occur naturally.

5 * * *

6 (13) Many of the states in the region, including Connecticut, Maine,
7 New York, and Rhode Island, have adopted comprehensive mercury-added
8 product legislation to identify and eliminate unnecessary uses of mercury.

9 (14) Significant use of mercury-added products occurs in health care
10 facilities, schools, and dental practices, in all of which mercury use or release
11 reduction is technically and economically feasible.

12 * * *

13 (17) Vermont's mercury product legislation passed in 1998 does not
14 comprehensively restrict the sale and use of mercury-added products.

15 (18) Studies conducted for the ~~State~~ state of Maine show that mercury-
16 free alternatives exist for a majority of the thousands of products containing
17 mercury components. These products include thermometers, thermostats, flow
18 meters, barometers, manometers, medical devices, and electrical switches and
19 relays.

1 ~~(19) Studies conducted for the State state of Maine show that~~
2 manufacturers are beginning to market mercury-free versions of all types of
3 mercury added button cell and other miniature batteries.

4 ~~(20) Novelty products using mercury have been banned from sale in~~
5 several states.

6 ~~(21) All fluorescent lamps contain mercury and can create an immediate~~
7 ~~public health and environmental hazard when they accidentally break during~~
8 ~~installation, use, transportation, storage, recycling, or disposal. Light-emitting~~
9 ~~diode (LED) replacements for fluorescent lamps do not contain any mercury.~~

10 ~~(22) Fluorescent lamps are no longer the most energy-efficient lighting~~
11 ~~option in the marketplace. Lamps that contain LEDs have advanced~~
12 ~~significantly and today use approximately half the electricity as fluorescent~~
13 ~~lamps to produce the same amount of light. LEDs also last two to three times~~
14 ~~longer than fluorescent lamps.~~

15 ~~(23) Fluorescent lamps are no longer the least life-cycle cost (LLCC)~~
16 ~~option because they cost twice as much to operate compared to an LED. LED~~
17 ~~retrofit tubes are the LLCC, and they pay for the slightly higher first cost in a~~
18 ~~matter of one to eight months, depending on price and application. After~~
19 ~~paying back initial costs, the LED tubes continue to operate for years to come,~~
20 ~~saving consumers and businesses on their lighting bills.~~

1 ~~(24) LED retrofit lamps are widely available in a comprehensive set of~~
2 ~~sizes, shapes, lengths, and light colors. There are nearly 12,000 models of~~
3 ~~compact LED lamps in the U.S. Environmental Protection Agency's ENERGY~~
4 ~~STAR-certified database. There are over 30,000 models of LED retrofit tubes~~
5 ~~that can replace T5, T8, and T12 on the DesignLights Consortium (DLC)~~
6 ~~Qualified Product List (QPL) database.~~

7 (25) Suppliers who sold fluorescent lamps in Vermont after July 1, 2012
8 made a profit from the sales of those lamps in the State, and they should
9 remain responsible for ensuring the safe collection at the end-of-life of those
10 lamps due to the toxic nature of the mercury contained in the products they
11 sold.

12 (26) Citizens of Vermont, the Vermont environment, and the Agency
13 will benefit from comprehensive mercury product legislation that further
14 reduces mercury emissions and is consistent with model mercury product
15 legislation developed jointly by the northeast states.

16 Sec. 2. 10 V.S.A. § 7102 is amended to read:

17 § 7102. DEFINITIONS

18 As used in this chapter:

19 (1) "Agency" means the Vermont Agency of Natural Resources.

20 (2) "Compact fluorescent lamp" means a compact low-pressure,

21 mercury-containing, electric-discharge light source in which a fluorescing

1 ~~coating transforms some of the ultraviolet energy generated by the mercury~~
2 discharge into visible light, and includes all of the following characteristics:

3 (A) one base or endcap of any type, including screw, bayonet, two
4 pins, and four pins;

5 (B) integrally ballasted or nonintegrally ballasted;

6 (C) light emission between a correlated color temperature of 1700K
7 and 24000K and a Duv of +0.024 and -0.024 in the International Commission
8 on Illumination (CIE) Uniform Color Space (CAM02-UCS);

9 (D) all tube diameters and all tube lengths; and

10 (E) all lamp sizes and shapes for directional and nondirectional
11 installations (including PL, spiral, twin tube, triple twin, 2D, U-bend, and
12 circular).

13 (3) “Elemental mercury” means the chemical symbol Hg. Elemental Hg
14 is a silvery-white liquid (at room temperature) with an atomic number of 80
15 and an atomic mass of 200.57.

16 (3)(4) “Fabricated mercury-added product” means a product that
17 consists of a combination of individual components that combine to make a
18 single unit, including mercury-added measuring devices, lamps, and switches.

19 (4)(5) “Formulated mercury-added product” means a product that is
20 sold as a consistent mixture of chemicals to which mercury or a mercury

21 ~~compound has been intentionally added in order to provide a specific~~

1 ~~characteristic, appearance, or quality, or to perform a specific function, or for~~
2 any other reason. This includes laboratory chemicals, cleaning products,
3 cosmetics, pharmaceuticals, and coating materials. For the purposes of this
4 chapter, formulated mercury-added product does not include pharmaceuticals,
5 pharmaceutical products, biological products, or any substance that may be
6 lawfully sold over the counter without a prescription under the federal Food,
7 Drug and Cosmetics Act, 21 U.S.C. §§ 301 et seq. “Biological product”
8 means a virus, therapeutic serum, toxin, antitoxin, vaccine, blood, blood
9 component or derivative, allergenic product or an analogous product, or
10 asphenamine (a derivative of arsphenamine) or any other trivalent organic
11 arsenic compound used for the prevention, treatment, or cure of a disease or
12 condition of human beings.

13 (5)(6) “Large appliance” includes the following items: refrigerators,
14 washing machines, clothes dryers, ranges, water heaters, dishwashers, freezers,
15 microwave ovens, air conditioners, portable heaters, and other similar
16 domestic and commercial appliances as may be identified by the Agency by
17 rule.

18 (7) “Linear fluorescent lamp” means a low-pressure, mercury-
19 containing, electric-discharge light source in which a fluorescing coating
20 transforms some of the ultraviolet energy generated by the mercury discharge
21 into visible light, and includes all of the following characteristics.

1 ~~(A) two bases or endcaps of any type, including single pin, two pin~~
2 ~~or recessed double contact;~~

3 ~~(B) light emission between a correlated color temperature of 1700K~~
4 ~~and 24000K and a Duv of +0.024 and -0.024 in the International Commission~~
5 ~~on Illumination (CIE) Uniform Color Space (CAM02-UCS);~~

6 ~~(C) all tube diameters, including T2, T5, T8, T10, and T12;~~

7 ~~(D) all tube lengths from 0.5 to 8.0 feet inclusive; and~~

8 ~~(E) all lamp shapes, including linear, U-bend, and circular.~~

9 ~~(6)(8)(A) "Manufacturer" means any person, firm, association,~~
10 ~~partnership, corporation, governmental entity, organization, combination, or~~
11 ~~joint venture that:~~

12 ~~(i) produces a mercury-added product; or~~

13 ~~(ii) serves as an importer or domestic distributor of a mercury-~~
14 ~~added product produced outside the United States.~~

15 ~~(B) This definition shall not apply to retailers for whom importing is~~
16 ~~not their primary business.~~

17 ~~(C) In the case of a multi-component mercury-added product, the~~
18 ~~manufacturer is the last manufacturer to produce or assemble the product.~~

19 ~~(D) In the case of mercury-containing thermostats, the manufacturer~~
20 ~~is the original equipment manufacturer.~~

1 ~~(7)(9) “Mercury-added component” means a mercury-added product~~
2 that is incorporated into another product to form a fabricated mercury-added
3 product, including electrical switches, relays, and lamps.

4 ~~(8)(10) “Mercury-added novelty” means a mercury-added product~~
5 intended mainly for personal or household enjoyment or adornment. Mercury-
6 added novelties include items intended for use as practical jokes, figurines,
7 adornments, toys, games, cards, ornaments, yard statues and figures, candles,
8 jewelry, holiday decorations, items of apparel (including footwear), and
9 similar products.

10 ~~(9)(11) “Mercury-added product” means a product, a commodity, a~~
11 chemical, a product with one or more components, or a product that cannot
12 function without the use of that component, that contains mercury or a
13 mercury compound intentionally added to the product, commodity, chemical,
14 or component in order to provide a specific characteristic, appearance, or
15 quality, or to perform a specific function, or for any other reason. These
16 products include formulated mercury-added products and fabricated mercury-
17 added products.

18 ~~(10)(12) “Mercury fever thermometer” means a mercury-added product~~
19 that is used for measuring body temperature. This does not include a fever
20 ~~thermometer with a mercury-added button cell battery.~~

1 ~~(11)(13) “Motor vehicle” means a vehicle propelled by an internal~~
2 combustion engine or an electric motor, such as an automobile, van, truck,
3 motorized construction equipment, motorized recreational vehicle, motorcycle,
4 or forklift.

5 ~~(12)(14) “End-of-life motor vehicle” means a motor vehicle that has not~~
6 been intentionally flattened, crushed, shredded, or baled if sold, given, or
7 otherwise conveyed to a motor vehicle recycler or scrap metal recycling
8 facility for the purpose of recycling.

9 ~~(13)(15) “Mercury-added vehicle switch” means a capsule, commonly~~
10 known as a bullet, containing mercury, that is part of a convenience light
11 switch assembly for motor vehicle trunks and hoods or is part of the anti-lock
12 brake system.

13 ~~(14)(16) “Motor vehicle recycler” means an individual or entity~~
14 engaged in the business of acquiring, dismantling, parts recycling, or
15 destroying six or more end-of-life motor vehicles in a year.

16 ~~(15)(17) “Scrap metal recycling facility” means a facility at a fixed~~
17 location that uses equipment to process and refabricate scrap metal into
18 prepared grades and principally produces scrap iron, steel, or nonferrous
19 metallic scrap for sale.

20 ~~(16)(18) “Mercury-containing thermostat” means a product or device~~
21 that uses a mercury switch to sense and control room temperature through

1 ~~communication with heating, ventilating, or air conditioning equipment.~~

2 “Mercury-containing thermostat” includes thermostats used to sense and
3 control room temperature in residential, commercial, industrial, and other
4 buildings but does not include a thermostat used to sense and control
5 temperature as part of a manufacturing process.

6 ~~(17)(19)~~ “Person” means any individual, corporation, partnership,
7 cooperative, association, firm, sole proprietorship, governmental agency, or
8 other entity.

9 ~~(18)(20)~~ “Thermostat retailer” means a person who sells thermostats of
10 any kind directly to homeowners or other nonprofessionals through any selling
11 or distribution mechanism, including sales using the Internet or catalogues. A
12 retailer may also be a wholesaler if it meets the definition of wholesaler.

13 ~~(19)(21)~~ “Thermostat wholesaler” means a person that is engaged in the
14 distribution and wholesale sale of heating, ventilation, and air-conditioning
15 components to contractors who install heating, ventilation, and air-
16 conditioning components.

17 Sec. 3. 10 V.S.A. § 7105 is amended to read:

18 § 7105. RESTRICTIONS ON THE SALE AND USE OF CERTAIN

19 MERCURY-ADDED PRODUCTS

20

1 ~~(f) Mercury switches and relays. Effective January 1, 2007, no mercury~~
2 ~~switch or mercury relay, individually or as a product component, may be~~
3 ~~offered for final sale, sold at a final sale, or distributed in Vermont as a new~~
4 ~~manufactured product. This subsection does not apply to the sale of a mercury~~
5 ~~switch or mercury relay if the manufacturer provides satisfactory~~
6 ~~documentation that the use of the switch or relay is a federal requirement.~~

7 ~~(g) Fluorescent lamps. Beginning on January 1, 2023, no compact~~
8 ~~fluorescent lamp or linear fluorescent lamp may be offered for final sale, sold~~
9 ~~at final sale, or distributed in Vermont as a new manufactured product.~~

10 ~~(h) Exclusion for existing equipment. The prohibitions in subsections (e)~~
11 ~~and (f) of this section do not apply if the switch, relay, or measuring device is~~
12 ~~used to replace a switch, relay, or measuring device ~~which~~ that is a component~~
13 ~~of a larger product in use prior to January 1, 2007, provided the owner of that~~
14 ~~equipment has made every reasonable effort to determine that no compatible~~
15 ~~nonmercury replacement component exists.~~

16 ~~(h)(i) Exemptions.~~

17 * * *

18 ~~(7) The prohibition in subsection (g) of this section shall not apply to~~
19 ~~the following compact fluorescent lamps and linear fluorescent lamps.~~

1 ~~(A) lamps used for image capture and projection, including~~
2 ~~photocopying, printing directly or in pre-processing, lithography, film and~~
3 ~~video projection, and holography;~~

4 ~~(B) lamps that have high proportions of ultraviolet light emission,~~
5 ~~including only the following:~~

6 ~~(i) lamps with high ultraviolet content that have ultraviolet power~~
7 ~~>2 milliwatts per kilolumen (mW/klm);~~

8 ~~(ii) lamps for germicidal use or destruction of DNA that emit a~~
9 ~~peak radiation of approximately 253.7 nanometers;~~

10 ~~(iii) lamps used for disinfection or fly trapping where the radiation~~
11 ~~power emitted is between 250–315 nanometers represents ≥ 5 % or is between~~
12 ~~315–400 nanometers represents ≥ 20 % of the total radiation power emitted is~~
13 ~~between 250–800 nanometers;~~

14 ~~(iv) lamps used for the generation of ozone where the primary~~
15 ~~purpose is to emit radiation at approximately 185.1 nanometers;~~

16 ~~(v) lamps used for coral zooxanthellae symbioses where the~~
17 ~~radiation power emitted between 400–480 nanometers represents ≥ 40 % of~~
18 ~~total radiation power emitted is between 250–800 nanometers; and~~

19 ~~(vi) lamps used for sun-tanning beds where the radiation power~~
20 ~~emitted is between 250–400 nanometers represents ≥ 80 % of the total radiation~~
21 ~~power emitted is between 250–800 nanometers.~~

1 ~~Sec. 4. TRANSITION; COLLECTION AND DISPOSAL OF MERCURY~~

2 ~~CONTAINING LAMPS~~

3 ~~(a) Notwithstanding the prohibition on the sale of compact fluorescent~~
4 ~~lamps or linear fluorescent lamps under 10 V.S.A. § 7105, a manufacturer of a~~
5 ~~mercury-containing lamp remains required to implement the collection plans~~
6 ~~required under 10 V.S.A. chapter 164a for free collection of mercury-~~
7 ~~containing lamps from covered entities in the State.~~

8 ~~(b) Beginning on January 15, 2023 and annually thereafter, the Secretary of~~
9 ~~Natural Resources shall provide written testimony to the House Committee on~~
10 ~~Natural Resources, Fish, and Wildlife and the Senate Committee on Natural~~
11 ~~Resources and Energy regarding whether the requirements of 10 V.S.A.~~
12 ~~chapter 164a regarding the collection and disposal of mercury-containing~~
13 ~~lamps should be repealed by the General Assembly.~~

14 Sec. 5. EFFECTIVE DATE

15 ~~This act shall take effect on July 1, 2022.~~

Sec. 1. 10 V.S.A. § 7101 is amended to read:

§ 7101. LEGISLATIVE FINDINGS

The General Assembly finds and declares that:

(1) Mercury is a persistent and toxic pollutant that bioaccumulates in the environment and poses a serious threat to humans, particularly young children and the developing fetus, and wildlife.

* * *

(7) Human exposure to mercury can result in nervous system, kidney, and liver damage and impaired childhood development.

(8) There has been a threefold increase in mercury loading to the environment over the past 150 years. Much of the mercury deposited from the atmosphere is from human and natural sources, but anthropogenic emissions exceed those that occur naturally.

* * *

(13) Many of the states in the region, including Connecticut, Maine, New York, and Rhode Island, have adopted comprehensive mercury-added product legislation to identify and eliminate unnecessary uses of mercury.

(14) Significant use of mercury-added products occurs in health care facilities, schools, and dental practices, in all of which mercury use or release reduction is technically and economically feasible.

* * *

(17) Vermont's mercury product legislation passed in 1998 does not comprehensively restrict the sale and use of mercury-added products.

(18) Studies conducted for the State state of Maine show that mercury-free alternatives exist for a majority of the thousands of products containing mercury components. These products include thermometers, thermostats, flow

meters, barometers, manometers, medical devices, and electrical switches and relays.

(19) Studies conducted for the State state of Maine show that manufacturers are beginning to market mercury-free versions of all types of mercury-added button cell and other miniature batteries.

(20) Novelty products using mercury have been banned from sale in several states.

(21) All fluorescent lamps contain mercury and can create an immediate public health and environmental hazard when they accidentally break during installation, use, transportation, storage, recycling, or disposal. Light-emitting diode (LED) replacements for fluorescent lamps do not contain any mercury.

(22) Fluorescent lamps are no longer the most energy-efficient lighting option in the marketplace. Lamps that contain LEDs have advanced significantly and today use approximately half the electricity as fluorescent lamps to produce the same amount of light. LEDs also last two to three times longer than fluorescent lamps.

(23) Fluorescent lamps are no longer the least life-cycle cost (LLCC) option because they cost twice as much to operate compared to an LED. LED retrofit tubes are the LLCC, and they pay for the slightly higher first cost in a matter of one to eight months, depending on price and application. After

paying back initial costs, the LED tubes continue to operate for years to come, saving consumers and businesses on their lighting bills.

(24) LED retrofit lamps are widely available in a comprehensive set of sizes, shapes, lengths, and light colors. There are over 10,000 models of four-foot LED retrofit tubes that can replace fluorescent T5, T8, and T12 in the Design Lights Consortium Qualified Product List database.

(25) Suppliers who sold fluorescent lamps in Vermont after July 1, 2012 made a profit from the sales of those lamps in the State, and they should remain responsible for ensuring the safe collection at the end-of-life of those lamps due to the toxic nature of the mercury contained in the products they sold.

(26) Citizens of Vermont, the Vermont environment, and the Agency will benefit from comprehensive mercury product legislation that further reduces mercury emissions and is consistent with model mercury product legislation developed jointly by the northeast states.

Sec. 2. 10 V.S.A. § 7102 is amended to read:

§ 7102. DEFINITIONS

As used in this chapter:

(1) “Agency” means the Vermont Agency of Natural Resources.

(2) “Elemental mercury” means the chemical symbol Hg. Elemental Hg is a silvery-white liquid (at room temperature) with an atomic number of 80 and an atomic mass of 200.57.

** * **

(9) “Mercury-added product” means a product, a commodity, a chemical, a product with one or more components, or a product that cannot function without the use of that component, that contains mercury or a mercury compound intentionally added to the product, commodity, chemical, or component in order to provide a specific characteristic, appearance, or quality, or to perform a specific function, or for any other reason. These products include formulated mercury-added products and fabricated mercury-added products.

** * **

(20) “Four-foot linear fluorescent lamp” means a general purpose, low-pressure, mercury-containing, electric-discharge light source in which a fluorescing coating transforms some of the ultraviolet energy generated by the mercury discharge into visible light, and includes all of the following characteristics:

(A) two bases or endcaps of any type, including single-pin, two-pin, or recessed double contact;

(B) light emission between a correlated color temperature of 1700K and 24000K and a Duv of +0.024 and -0.024 in the International Commission on Illumination (CIE) Uniform Color Space (CAM02-UCS);

(C) all tube diameters, including T2, T5, T8, T10, and T12; and

(D) four feet in length.

Sec. 3. 10 V.S.A. § 7105 is amended to read:

§ 7105. RESTRICTIONS ON THE SALE AND USE OF CERTAIN
MERCURY-ADDED PRODUCTS

* * *

(g) Fluorescent lamps. Beginning on January 1, 2024, no four-foot linear fluorescent lamp may be offered for final sale, sold at final sale, or distributed in Vermont as a new manufactured product.

(h) Exclusion for existing equipment. The prohibitions in subsections (e) and (f) of this section do not apply if the switch, relay, or measuring device is used to replace a switch, relay, or measuring device ~~which~~ that is a component of a larger product in use prior to January 1, 2007, provided the owner of that equipment has made every reasonable effort to determine that no compatible nonmercury replacement component exists.

~~(h)~~(i) Exemptions.

* * *

(7) The prohibition in subsection (g) of this section shall not apply to the following four-foot linear fluorescent lamps:

(A) lamps used for image capture and projection, including photocopying, printing directly or in pre-processing, lithography, film and video projection, and holography;

(B) lamps that have high proportions of ultraviolet light emission, including only the following:

(i) lamps with high ultraviolet content that have ultraviolet power >2 milliwatts per kilolumen (mW/klm);

(ii) lamps for germicidal use or destruction of DNA that emit a peak radiation of approximately 253.7 nanometers;

(iii) lamps used for disinfection or fly trapping where the radiation power emitted is between 250–315 nanometers represents ≥ 5 % or is between 315–400 nanometers represents ≥ 20 % of the total radiation power emitted is between 250–800 nanometers;

(iv) lamps used for the generation of ozone where the primary purpose is to emit radiation at approximately 185.1 nanometers;

(v) lamps used for coral zooxanthellae symbioses where the radiation power emitted between 400–480 nanometers represents ≥ 40 % of total radiation power emitted is between 250–800 nanometers; and

(vi) Any lamp intended for use in a sunlamp product, as that term is defined in 21 C.F.R. § 1040.20.

Sec. 4. 10 V.S.A. § 7161 is added to read:

§ 7161. CONTINUED IMPLEMENTATION OF APPROVED

COLLECTION PLAN

(a) Notwithstanding application of the requirements of this chapter to manufacturers of mercury containing lamps who sell, offer for sale, or deliver for subsequent sale in the State, a manufacturer that sold, offered for sale, or delivered mercury containing lamps for subsequent sale in the State prior to January 1, 2024 shall be required to continue implementation of an approved collection plan and to continue compliance with the requirements under this chapter.

(b) Beginning on January 15, 2025, and biennially thereafter, the Secretary of Natural Resources shall recommend to the House Committee on Natural Resources, Fish, and Wildlife and the Senate Committee on Natural Resources and Energy whether the General Assembly should continue to require implementation of a collection plan by manufacturers under subsection (a) of this section. The Secretary may include the recommendation required by this subsection in the biennial report on solid waste required under subsection 6004(b) of this title.

Sec. 5. EFFECTIVE DATE

This act shall take effect on July 1, 2022.