



Ohio Administrative Code

Rule 3701:1-46-33 Luminous safety devices for use in aircraft: requirements for license to manufacture, assemble, repair or initially transfer.

Effective: November 8, 2015

An application for a specific license to manufacture, assemble, repair or initially transfer luminous safety devices containing tritium or promethium-147 for use in aircraft, for distribution to persons generally licensed under rule 3701:1-46-07 of the Administrative Code, will be approved if:

- (A) The applicant satisfies the general requirements specified in rule 3701:1-40-15 of the Administrative Code;
- (B) The applicant submits sufficient information regarding each device pertinent to evaluation of the potential radiation exposure, including:
 - (1) Chemical and physical form and maximum quantity of tritium or promethium-147 in each device;
 - (2) Details of construction and design;
 - (3) Details of the method of binding or containing the tritium or promethium-147;
 - (4) Procedures for and results of prototype testing to demonstrate that the tritium or promethium-147 will not be released to the environment under the most severe conditions likely to be encountered in normal use;
 - (5) Quality assurance procedures to be followed that are sufficient to ensure compliance with rule 3701:1-46-35 of the Administrative Code; and
 - (6) Any additional information, including experimental studies and tests, required by the director to facilitate a determination of the safety of the device.
- (C) Each device will contain no more than three hundred seventy gigabecquerels (ten curies) of



tritium or 11.1 gigabecquerels (three hundred millicuries) of promethium-147. The levels of radiation from each device containing promethium-147 will not exceed five microgray (0.5 millirad) per hour at ten centimeters from any surface when measured through fifty milligrams per square centimeter of absorber.

(D) The director determines that:

(1) The method of incorporation and binding of the tritium or promethium-147 in the device is such that the tritium or promethium-147 will not be released under the most severe conditions which are likely to be encountered in normal use and handling of the device;

(2) The tritium or promethium-147 is incorporated or enclosed so as to preclude direct physical contact by any person with it;

(3) The device is so designed that it cannot easily be disassembled; and

(4) Prototypes of the device have been subjected to and have satisfactorily passed the tests prescribed by rule 3701:1-46-45 of the Administrative Code.

(E) The applicant shall subject at least five prototypes of the device to tests as follows:

(1) The devices are subjected to tests that adequately take into account the individual, aggregate, and cumulative effects of environmental conditions expected in service that could adversely affect the effective containment of tritium or promethium-147, such as temperature, moisture, absolute pressure, water immersion, vibration, shock, and weathering.

(2) The devices are inspected for evidence of physical damage and for loss of tritium or promethium-147, after each stage of testing, using methods of inspection adequate for determining compliance with the criteria in paragraph (E)(3) of this rule.

(3) Device designs are rejected for which the following has been detected for any unit:

(a) A leak resulting in a loss of 0.1 per cent or more of the original amount of tritium or promethium-



147 from the device; or

(b) Surface contamination of tritium or promethium-147 on the device of more than two thousand two hundred disintegrations per minute per one hundred square centimeters of surface area; or

(c) Any other evidence of physical damage.

(F) The device has been registered in the sealed source and device registry.