

Household smoke detector safety and disposal

June 2019

Household smoke detectors, also referred to as ionization chamber smoke detectors, use radioactive material to sense smoke in the air and warn of fire hazards. The radiation source in these smoke detectors is usually a small amount of americium-241 that does not pose a risk to the user of the smoke detector.

How do ionization chamber smoke detectors work?

The americium-241 in ionization chamber smoke detectors makes the air in the detector's sensing chamber conduct electricity. When smoke enters the sensing chamber, it interrupts the electrical current, triggering the smoke detector's alarm.

Why are ionization chamber smoke detectors used in Canada?

Ionizing smoke detectors are best at detecting quick burning fires, such as many of the fires which occur in North American buildings, which contain significant amounts of wood.

Is the radiation from ionization chamber smoke detectors dangerous?



The radiation source in ionization chamber smoke detectors is located between metal foils, which keep the radioactive material well contained.

Quick facts

- Smoke detectors can be disposed of in household garbage.
- Smoke detectors do not pose any health risk.
- The Canadian Nuclear Safety Commission (CNSC) licenses the manufacturing and initial distribution of smoke detectors in Canada.
- Smoke detectors must comply with standards that involve approximately 100 individual tests.

Household smoke detector safety and disposal

The tiny amount of radiation that can be measured outside the unit does not pose any health risk. In fact, the average annual radiation dose a person receives from a smoke detector is 0.01 percent of the dose they receive from natural background radiation.

How do I dispose of my household smoke detector?

Consumers have three options when their ionizing smoke detector reaches its end of useful life:

1. participating in municipal recycling programs for these devices
2. contacting and returning their smoke detector to its manufacturer for disposal
3. disposing household smoke detectors in regular municipal household garbage but not in recycling or composting waste, after the removal of its internal battery for proper disposal



What if I have multiple detectors to dispose of?

There is no limit on the total number of smoke detectors that can be disposed of at one time.

What is the role of the CNSC?

The CNSC licenses the manufacturing and initial distribution of ionization chamber smoke detectors in Canada. All smoke detectors containing a radioactive source sold within Canada are approved on a model-by-model basis and must meet the radiation safety standards before being distributed.

For more information:

For more information, [contact the CNSC](#).

For more information:

1-800-668-5284 (in Canada)
613-995-5894 (outside Canada)
cpsc.info.ccsn@canada.ca

nuclearsafety.gc.ca

