

Word Problem from Class:

The fission of uranium in a nuclear reactor produces iodine-129 as a waste product. Iodine-129 has a half-life of 15.7 million years. A new method is being developed, however, that fires a laser at the iodine-129 to produce iodine-128, which has a half-life of only 25.0 minutes.

Say your nuclear power plant has produced 5100 kilograms of iodine-129 waste:

- a) After 105 years, how much waste remains?
- b) How long will it take until only 2550 kg remain?
- c) How long will it take until just 1 kg remains?

Say you fire your “laser” at this waste and are left with 5100 kg of iodine-128:

- d) After 105 years, how much waste remains?
- e) How long will it take until only 2550 kg remain?
- f) How long will it take until just 1 kg remains?