



Radiation in Tobacco

Every year 440,000 people die in the US from tobacco use and smoke-related diseases, which is approximately 20% of all deaths in the United States. Cigarettes kill more Americans than alcohol, car accidents, suicide, AIDS, homicide, and illegal drugs combined.

While not an obvious source of radiation exposure, cigarette smokers inhale radioactive material that, over time, contribute large radiation dose to the lungs. Worse, smokers are not the only ones affected by the radiation in cigarettes. Breathing second-hand smoke can be just as harmful to nearby non-smokers.

Naturally occurring radioactive minerals accumulate on the sticky surfaces of tobacco leaves as the plant grows, and these minerals remain on the leaves throughout the manufacturing process. Additionally, the use of the phosphate fertilizer Apatite – which contains radium, lead-210, and polonium-210 – also increases the amount of radiation in tobacco plants.

The radium that accumulates on the tobacco leaves predominantly emits alpha and gamma radiation. The lead-210 and polonium-210 particles lodge in the smoker's lungs, where they accumulate for decades (lead-210 has a half-life of 22.3 years). The tar from tobacco builds up on the bronchioles and traps even more of these particles. Over time, these particles can damage the lungs and lead to lung cancer.

Who is protecting you

U.S. Environmental Protection Agency (EPA)

EPA's Indoor Environments program has a voluntary smoke-free home campaign to increase public awareness about the health risk from secondhand smoke and from smoking indoors.

U.S. Department of Health and Human Services (HHS)

The Office of the Surgeon General is responsible for warning labels on cigarettes and offers programs to help people stop smoking.

The Centers for Disease Control and Prevention (CDC) provides information on tobacco use, promotes disease prevention, and provides educational tools for communities to take action to protect nonsmokers from second-hand tobacco smoke in public places.

What can you do to protect yourself

To reduce the adverse effects of radiation in tobacco products:

- Do not chew tobacco or smoke (especially cigarettes without filters), and
- Minimize exposure to second-hand smoke.

Resources

You can explore this radiation source further through the resources at the following URL:

<http://www.epa.gov/radtown/tobacco.html#resources>

We provide these resources on-line rather than here so we can keep the links up-to-date.