

Radioactive Pollution

Definition of Radioactive Pollution

The term 'radiation' can refer to a wide variety of forms of energy moving around as waves or particles. It can mean x-rays, or it can mean microwaves. It can also refer to infrared light and even visible light. But when we say 'radioactive pollution,' we're being more specific.

Radioactive pollution refers to the release of ionizing radiation into the environment as a result of human activity.

Ionizing radiation is the form of radiation that has a short wavelength and a high frequency. In short, it's the form of radiation that's commonly thought of as being high energy and thus harmful to living things. Ionizing radiation includes x-rays and gamma rays.

In this lesson, you'll learn about the sources of radioactive pollution, its consequences, as well as some prevention strategies.

Types of Radioactive Pollution

Radiations are classified into two types, they are:

- Non-ionizing radiations
 - Ionizing radiations
1. **Non-ionizing radiations:** Electromagnetic waves of a longer wavelength which are near ultraviolet rays to radio waves are known as non-ionizing radiations. These radiations have enough amount of energy to excite molecules and atoms of the medium via which they travel. They make atoms to vibrate faster and but does not have enough amount of energy to ionize them.
 2. **Ionizing radiations:** These radiations are electromagnetic radiations that have high energy like gamma rays, x-rays, and short wavelength ultraviolet radiations. These rays of energy like alpha, beta, and gamma are generated in radioactive decay have the ability to ionize molecules and atoms via which they travel. They also have ability to change molecules and atoms into charged ions. Radioactive decay is a process from which alpha, beta, and gamma radiations are generated.

Causes of Radioactive Pollution

Radioactive pollution is caused when radioactive matter is allowed to contaminate the environment. There are several main ways in which this can happen.

A key cause of radioactive pollution is breaches at nuclear power plants, which can result in leakages of radioactive matter into the environment. As nuclear energy becomes a big alternative to fossil fuels, this risk increases.

Another cause is chemical spills. Radioactive chemicals can, whether due to improper transport or to containers breaking, spill out into the atmosphere and onto the ground.

Another cause of radioactive pollution is when scientific experiments involving radiation are not conducted with the proper care. A famous case is the scientist Marie Curie, whose studies into the curative effects of radiation actually caused her to fall ill from radiation poisoning. Nevertheless, her discoveries helped us to make great strides towards treating and curing cancer.

In sum, wherever there is radioactive material, there is the danger of radioactive pollution. Radioactive material must be handled with great care. Below, the effects of radioactive pollution are explained. These effects are what will occur if radioactive material is not handled properly. After that, you will find a list of preventative measures that can be taken to keep living beings safe from radioactive pollution.

Effects of Radioactive Pollution

Radiation alters and destroys cells in living organisms. Whether an organism is a plant or an animal (including a human), radiation can result in illness or death.

Radioactive pollution can cause genetic mutations in living organisms, and in their descendants. If an animal is exposed to radioactive pollution, for example, it may give birth to babies that have severe congenital defects. These mutations can also cause cancer, sometimes several years in the future, as well as conditions such as infertility and

Radiation can also have a burning effect: chemical burns are slightly different from the burns that come from excessive heat as chemicals need not be at a high temperature for an organism to feel a burning sensation when they come into contact with them. However, radioactive burns can cause blistering, reddening, pain and damage to skin tissue.

Damage to the soil and plants is another key effect of radioactive pollution. Radioactive pollution can leave soil infertile and unfit for crops for several decades. It can leave the air unsafe to breathe, too.

Preventative and Control Measures to take for Radioactive Pollution

1. Safe storage: radioactive pollution needs to be stored in specialized containers, which do not break easily and which do not allow radiation to seep out.
2. Clear warnings: radioactive material can contaminate a person's clothing or their skin. Then, as that person moves through the environment, they can contaminate other living organisms in their turn. Clear warnings about the presence of radioactive material will prevent this from happening. Of course, animals are not able to read these warnings, and this is why adequate containers are also needed.
3. Alternative sources of energy: seeking alternatives to nuclear energy will reduce the number of nuclear power plants in the world and thus reduce the risks that are associated with radioactive material. Radioactive material is present in various places in a nuclear power plant. Radioactive materials are used to produce nuclear power. Moreover, the waste that is produced by nuclear power plants is also radioactive.
4. Nuclear disarmament: disarming and getting rid of nuclear weapons is a very significant way of eliminating the hazards associated with radioactive material.

Reference

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