

FACTSHEET: Radiation

What is Radiation?

Radiation is travelling energy, which can be in the form of electromagnetic waves or subatomic particles. Radiation is all around us, and we benefit from many forms of radiation in everyday life, including from radio waves, microwaves, visible light and X-rays. Different forms of radiation are defined by their energy, i.e. how low or high the energy is, and whether it is in an electromagnetic wave or subatomic particles. Many forms of radiation are beneficial and essential to our survival. Some types of radiation can be hazardous and therefore pose risks to people. Radiation can be harmful, especially when we are exposed to too high doses and/or for too long. Two examples of high-energy potentially hazardous radiation are X-rays and nuclear radiation emitted by radioactive materials. Radiation exposure is measured in Sievert (Sv), 1Sv is equal to the energy of 1 Joule deposited into 1kg of tissue. 1 Millisievert (mSv) is 0.001 Sv.

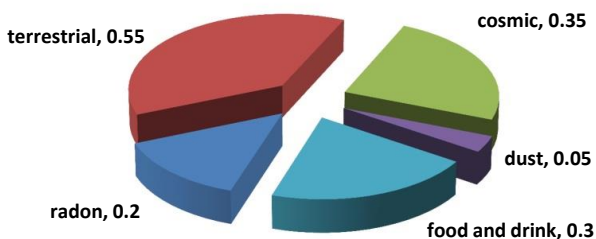
What is Electromagnetic Radiation and what is Ionising Radiation?

Electromagnetic radiation is made up of coupled electric and magnetic waves. The type of electromagnetic radiation depends on its energy and its associated frequency and its length. While low energy electromagnetic radiation is non-ionising, high energy electromagnetic radiation is ionising. Ionising radiation has the ability to strip electrons from atoms, and an atom that has lost one or more electrons is called an ion. High energy ultra-violet radiation (UV), X-rays, gamma rays and nuclear alpha and beta radiation are different forms of ionising radiation. If exposed to large quantities of such radiation, the process of ionisation can damage cells and tissue of the human body. Radiation which does not have sufficient energy to damage atoms is called non-ionising radiation. Examples of non-ionising radiation are radio waves, radar, microwaves, infrared radiation (heat) and visible light.

What is Natural Background Radiation?

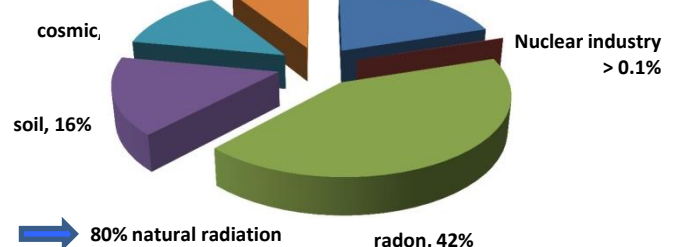
Background radiation is present wherever we are, that is why we call it 'natural background radiation'. Natural background radiation comes from cosmic radiation from the sun and other objects in the universe; terrestrial radiation from the soil, from rocks and ores, and from groundwater; food and water we consume; and dust and radon gas, mixed with the air we breathe. The natural background radiation in the Erongo Region is about 1.8 mSv per year, compared to a World average of 2.7 mSv.

Natural Background Radiation in the Erongo Region in mSv per year



Please refer to the disclaimer on our website

Sources of exposure to radiation



Source: NUA, WNA