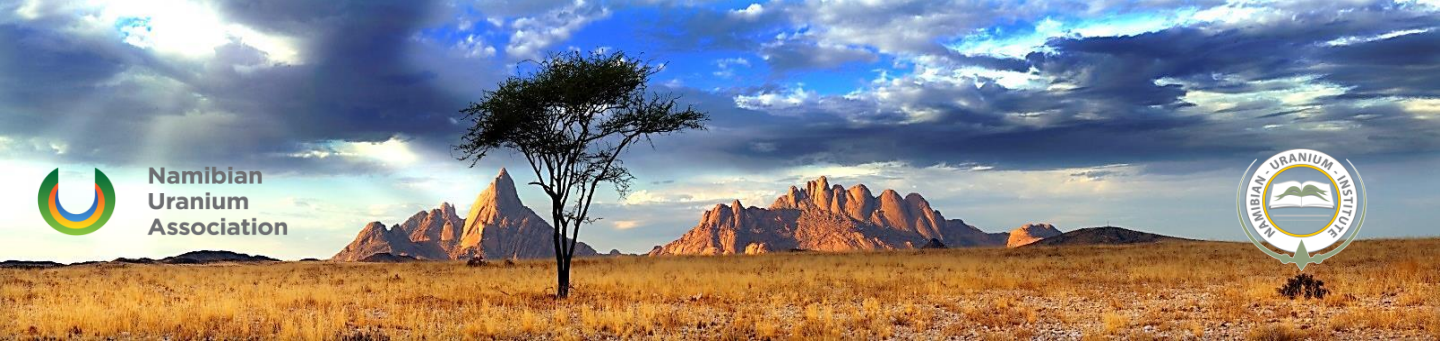
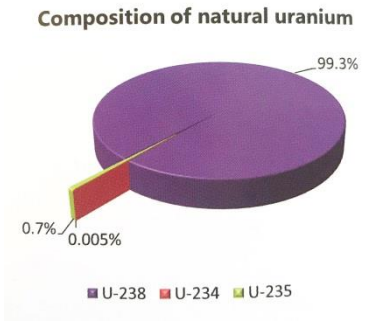


FACTSHEET: Uranium

Uranium is a very dense, silver-grey, radioactive metal. The World around us is made up of atoms of different elements. There are 92 different naturally occurring elements in nature. The simplest atom is hydrogen, with one proton and one electron. The heaviest of the naturally occurring elements is uranium, with 92 protons and 92 electrons. As a consequence, 1 litre of water, consisting of molecules of 2 hydrogen atoms and one oxygen atom, weighs 1 kg, while a litre of uranium weighs 19 kg.

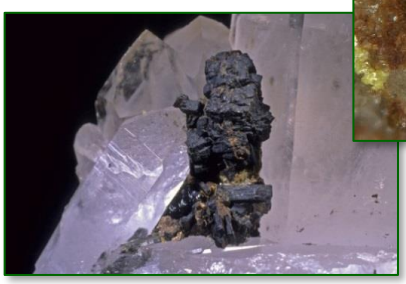
Apart from protons, the atoms of different elements also have neutrons in their nucleus. Atoms with the same number of protons and electrons, but different numbers of neutrons are called isotopes. They occur naturally because a varying number of neutrons can bind a given number of protons in the nucleus. **Uranium** has three natural isotopes, namely U-238 with 146 neutrons, U-235 with 143 neutrons, and U-234 with 142 neutrons. The number is referring to the atomic weight. All of these uranium isotopes are radioactive, and are therefore also called radio-isotopes. 99.3% of naturally occurring uranium is U-238, and only 0.005% is U-234, with the remaining almost 0.7% being U-235.

Uraninite [UO_2] is the most common mineral in primary deposits, so-called because of their formation by crystallisation of magmatic rocks. It is sometimes associated with colourful secondary uranium minerals derived from weathering. Secondary deposits exclusively consist of minerals formed by the weathering of primary deposits, such as carnotite [$K_2(UO_2)_2(VO_4)_2 \times 3H_2O$]. The average abundance of uranium in the Earth's crust is 2.7 parts per million, making it more common than tin.



The concentration of uranium needed to form an economic mineral deposit varies widely depending on its geological setting and physical location. Average ore grades at operating uranium mines range from 0.03% U to as high as 24% U, but are most frequently less than 1% U. Namibia has both, primary (Rössing, Husab) and secondary (Langer Heinrich, Trekkopje) deposits, and the ore grades vary between 0.02 and 0.048% U.

Carnotite



Uraninite

Metallic Uranium

Please refer to the disclaimer on our website

Source: NUA, WNA