

ALUMINIUM AND HEALTH

Fact sheet 1

ALUMINIUM IN THE ENVIRONMENT

Aluminium is the world's most common metallic element. It constitutes about 8% of the Earth's crust. It occurs in various chemical forms in most rocks and soils, in vegetation and is found naturally in most water supplies and as part of dust particles in the air. Aluminium is also present in all clays, making it a constituent of cooking vessels since earliest civilisations. Evolution of life and human civilisation has developed in an aluminium rich environment.

Aluminium is never found in the metallic form in nature. It is always combined with other elements in compound form. It was not until 1825 that aluminium was isolated as a metal and a further 60 years before a commercial production method was developed. The first major commercial use of aluminium was in cookware.

Aluminium metal is lightweight and can be easily formed into many shapes and objects. These properties have been responsible for aluminium's present widespread use in the transport, building, consumer goods, packaging, pharmaceutical industries and chemical application such as water treatment.

While aluminium is abundant in the environment, the naturally occurring forms are usually stable and do not interact with the biological processes which go on in living organisms. Under acidic conditions, however, aluminium may be released from rocks and soils in a soluble form which can be absorbed by plants and animals.

The study of aluminium compounds in the human diet goes beyond the making and handling of food. All metallic elements occurring in the Earth's crust find their way from the soil into plant and animal tissues. Researchers therefore look at the combined effect on human health from natural exposure to metals compounds present in food, water and air, as well as from those additions resulting from the use of utensils, food wrappings, food additives and medicine.

Most vegetation contains aluminium compounds. Plants absorb limited quantities from the soil. However, some plants like the tea bush takes up larger quantities and for this reason are called "*accumulator*" plants.