



24.44 Working With Aluminium

– Key Health Facts

Introduction

For healthy individuals, everyday exposure to aluminium from food, water, and consumer products is considered safe. However, excessive or prolonged exposure—primarily through occupational exposure may pose some health risks.

How can exposure to Aluminium affect my health?

Inhalation

Melting, smelting & welding produce metal fumes which may be inhaled.

Grinding and polishing processes can generate fine metal dusts which can also find their way into your lungs.

Ingestion

Poor workplace hygiene practices may result in ingestion (eating) of metal particles from contaminated food or drink. In large enough quantities, this may result in gastrointestinal (stomach) upsets, nausea or diarrhoea. Larger ingestions of certain aluminium salts may cause ulceration of the lips and mouth.

Occupational exposures may cause:

Respiratory Irritation

Inhaling aluminium dust or fumes can cause immediate but short-lived dryness of the throat, coughing, and chest tightness.

Occupational Lung Diseases

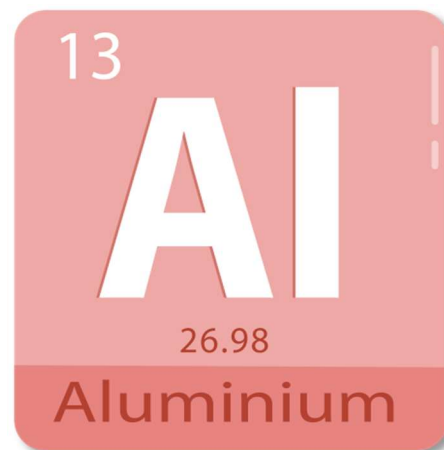
Long-term, heavy inhalation of microscopic aluminium particles can lead to chronic respiratory issues, including **Aluminium Pneumoconiosis** (a build-up of particles in the lung) or asthma-like conditions often referred to as "pot room asthma" in smelter environments.

Metal Fume Fever

A flu-like illness that causes fatigue, fever, chills, and muscle aches. It typically peaks a few hours after exposure to hot fumes and resolves within 24-48 hours without lasting damage. There is some evidence to suggest that repeated or chronic exposure to metal fumes can lead to serious, long-term health problems.

Welding Fume Exposure

All welding fumes are classified as Group 1 carcinogens, meaning that they may cause cancer. In addition to metal fumes, significant levels of ozone may also be produced.





Neurological Concerns

While general daily exposure is safe for healthy individuals, heavy and prolonged occupational over-exposure can lead to an accumulation of aluminium in the body, which poses risks to neurological health and kidney function.

Vulnerable People

Aluminum is mainly removed from the body by the kidneys, therefore individuals with reduced kidney function may be more vulnerable to the effects of exposure to high levels of aluminum, as it could build up in the body.

Pregnancy and the Unborn Child

There is some limited evidence from animal studies that suggests that developing infants may be more susceptible to the nervous system effects of aluminum. Low level exposure to aluminum in the environment and exposure from the correct use of products that contain aluminum would not be expected to cause harm to a pregnancy or the unborn child.

Workplace Exposure Limits for Aluminium

In the UK, the Workplace Exposure Limit (WEL) for Aluminium metal (inhalable dust) is $10 \text{ mg}\cdot\text{m}^{-3}$ as an 8-hour Time Weighted Average (TWA). However, for Aluminium welding fumes, the limit is generally treated as $5 \text{ mg}\cdot\text{m}^{-3}$ (TWA).

Workplace Controls

Your employer should assess the risk to your health from exposure to Aluminium in the workplace and control those risks to prevent ill health. In some cases, engineering controls such as enclosure or extraction may be appropriate. Where there is still residual risk, then appropriate Personal Protective Equipment (PPE) such as gloves, or Respiratory Protective Equipment (RPE) such as masks or respirators may help reduce exposure.

Health Surveillance

Where there is a residual risk of exposure after controls have been implemented, then your employer should consider undertaking Health Surveillance, such as skin and respiratory assessments. These checks are designed to ensure that controls are working and identify health effects at an early stage, so that prompt intervention may take place.

More information may be found at: <https://www.hse.gov.uk/coshh/>

Aluminium Federation Ltd (ALFED): <https://alfed.org.uk/>

A copy of this & other documentation can be found from <https://mohs.co.uk/resources> or using the QR code at the top of this page.