

Beryllium and you

Working with beryllium – are you at risk?

Introduction

Working with beryllium and its compounds may affect your health. This leaflet tells you about the possible health effects, the preventative measures your employer needs to apply, and the precautions you should take.

What is beryllium?

Beryllium is a lightweight, strong, steel-grey metal, and its oxide (beryllia) is a hard, white ceramic. Copper/beryllium alloys are 97% copper, containing up to 3% beryllium.

Where is it found?

Beryllium is used in industry in three main forms – as beryllium metal, as beryllium alloys (often copper/beryllium alloys) and as beryllium oxide (often called 'beryllia').

They are used particularly in:

- the aerospace and nuclear industry;
- X-ray generators and detectors;
- electrical control gear and switchgear;
- injection moulds;
- electronic equipment, including lasers and microwave devices.

How can it get into your body?

Beryllium can get into your body:

- by breathing in dust, fumes or soluble salts containing beryllium;
- from skin or eye contact with soluble salts of beryllium or as swarf (shavings or chippings) from metal or alloy;
- from swallowing it, through eating or drinking in areas where beryllium-soluble salts are used.

What are the health hazards?

Single exposures to beryllium and its compounds can cause:

- inflammation of the lungs, if the exposure is high;
- eye inflammation from splashes;
- corn-like lesions if swarf gets into the skin and is not removed;

- skin irritation from soluble salts.

Repeated exposure to beryllium and its compounds can cause:

- skin disease (sensitisation) from soluble salts;
- long-term lung disease. This develops gradually over a period that can be anything from a few weeks to many years, during which there may be no symptoms of illness. In severe cases, the lungs are so badly damaged that the illness can be fatal.

There is also concern, from studies in animals, that repeated exposure to beryllium and beryllium compounds may cause cancer. This has not been proven to occur in humans, but employers are required to handle beryllium and its compounds as if they can cause cancer.

What does your employer have to do?

The Control of Substances Hazardous to Health (COSHH) Regulations 2002 require your employer to:

- assess the risks to your health and the precautions needed for your protection;
- prevent you being exposed to beryllium and its compounds, or where this cannot reasonably be done, adequately control your exposure;
- reduce your exposure to airborne beryllium and its compounds so far as reasonably practicable, and in any case below the workplace exposure limit (WEL) assigned for beryllium of 0.002 milligrams per cubic metre of air averaged over an 8-hour period;
- maintain all fume and dust controls in efficient working order;
- provide fit testing of any tight-fitting respirators;
- find out how much beryllium you are exposed to, normally through a monitoring programme, and tell you the results;
- arrange any health checks that are necessary;
- inform, instruct and train all employees who may be exposed to beryllium.

An explanation of what 'reasonably practicable' means is provided at www.hse.gov.uk/risk/faqs/htm.

What should you do?

- Use the extraction equipment or other control measures correctly.
- Use the protective clothing and equipment provided.
- Always use the washing facilities provided, which should be adequate and suitable for your needs.
- If you have to wear a respirator make sure:
 - it fits properly;
 - if it is a tight-fitting mask, that you have been fit tested and are clean shaven;
 - it is clean and in good working order;
 - the filter is changed regularly;
 - it is stored in a clean/dry place, preferably a locker.
- Report defects in enclosures, extraction equipment or other control measures to your employers.
- Don't eat or drink in work areas where beryllium may be present.

What about health checks?

The health of people exposed to beryllium and its compounds should be monitored by an occupational health professional:

- They will normally carry out an examination after an offer of employment and will see you at regular intervals during your employment. You will be asked to provide a urine sample so its beryllium content can be measured.
- You should examine your skin regularly, looking for colour changes, rashes and skin damage. The occupational health professional will give you advice.
- If more examination or tests are needed, the occupational health professional will explain.

What information can you get?

Your employer should tell you about:

- the risks to health from the use of beryllium;
- the control measures adopted, the reasons for them, and how to use them properly;
- the reasons for personal protective equipment and clothing, the jobs where they are necessary, and how they should be used, stored and maintained;
- the results of any tests for beryllium levels in the air of your workplace;
- the role of any health surveillance and arrangements for you to know the results;
- any further requirements of the COSHH Regulations.

Poisoning by beryllium is a prescribed disease in the UK and may entitle you to Industrial Injuries Disablement Benefit.

If you have any worries or problems about working with beryllium or its compounds, ask your supervisor or safety representative to discuss them with your employer, or discuss them with the occupational health professional.

Need to know more?

Hazardous substances at work: A brief guide to COSHH Leaflet INDG136(rev5)
HSE Books 2012 www.hse.gov.uk/pubns/indg.136.htm

Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

This leaflet is available at: www.hse.gov.uk/pubns/indg311.htm.

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