

## **Working with beryllium and its compounds may affect your health.**

This leaflet tells you about the possible health hazards involved in working with beryllium and its compounds, what your employer has to do and the precautions you should take.

### **WHAT IS BERYLLIUM?**

Beryllium is a lightweight strong, steel-grey metal. Its oxide, beryllia, is a hard, white ceramic. Copper-beryllium alloys are 98% copper containing up to 2% 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?**

The most important problem is breathing it in. But it can also get into your body by:

- skin or eye contact with soluble salts of beryllium or as swarf from metal or alloy;
- eating, drinking or smoking in areas where beryllium soluble salts are used.

Large pieces of beryllium or beryllium alloys (for example in electronic components) are unlikely to cause any ill-health effects. However, beryllium can get into your body, as dust, fume or as soluble salts and in such cases could damage your health.

### **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;
- skin disease (dermatitis and sensitisation) from soluble salts;
- corn-like lesions if swarf gets into the skin and is not removed.

Repeated exposure to beryllium and its compounds can cause long-term lung disease. This develops gradually after a period, which 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 beryllium may cause cancer. This has not been proved to occur in humans, but employers are required to handle beryllium and its compounds as if they did cause cancer.

### **WHAT DOES MY 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 can not reasonably be done, adequately control your exposure;
- reduce your exposure to airborne beryllium so far as is reasonably practicable and, in any case, below the maximum exposure limit (MEL) assigned for beryllium and its compounds 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;
- find out how much beryllium you are exposed to, normally by means of a monitoring programme;
- arrange any health checks that are necessary;
- inform, instruct and train all employees who may be exposed to beryllium.

The *COSHH ACOP* (ISBN 0 7176 2534 6) also applies to beryllium and its compounds. It gives more practical guidance about how the COSHH Regulations apply to substances, like beryllium, which may cause cancer.

### **WHAT SHOULD YOU DO?**

- Avoid breathing in dust or fumes.
- Avoid skin contact and splashes in the eyes.
- Use the extraction equipment or other control measures correctly.
- Report any defects in enclosures, extraction equipment or other control measures to your employers.
- Use the protective clothing and equipment provided.
- Use the washing facilities provided.
- If you have to wear a respirator or face-mask, make sure:
  - it fits properly - and tell your employers if it doesn't;
  - it has been cleaned before you start work each day;
  - the filter has been changed when necessary;
  - you have been trained how to use it.
- Do not eat, drink or smoke in beryllium work areas.

### **WHAT ABOUT HEALTH CHECKS?**

- People working in certain beryllium processes where significant exposures could occur (for example, grinding or melting metallic beryllium and its alloys or handling powders and soluble salts), will need initial and regular health checks.
- You should co-operate with your employers or works doctor in these health checks.
- The initial health check aims to pick out people who have a medical condition which will be made worse by exposure to beryllium or its compounds.
- At the regular checks, you should report any breathing difficulties, skin complaints, or other health problems which you think might be related to your work.

## **WHAT INFORMATION CAN I GET?**

Your employer should tell you:

- 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 purpose of any health checks and the arrangements for you to know the results;
- any further requirements of the COSHH Regulations.

If you have any concerns or problems about working with beryllium and its compounds, ask your supervisor, safety representative or union to discuss them with your employer, or discuss them with your own or your work's doctor.

The Health and Safety Executive has published Guidance Note EH13 *Beryllium: Health and safety precautions* ((Second edition) HSE Books 1995 ISBN 0 7176 0824 7). Your employer may already have a copy that you could read.

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This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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**WORKING WITH BERYLLIUM  
ARE YOU AT RISK?**

# **BER YLLIUM and YOU**

