

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

This leaflet tells you about the possible health problems you could develop if you work with nickel and its compounds, what your employer has to do and the precautions you should take.

### **WHAT IS NICKEL?**

Nickel is a silvery-grey metal. It is used mainly:

- in alloys with other metals; and
- as its compounds, which are often a bright green colour.

One nickel compound, called nickel carbonyl, is a liquid.

### **WHERE IS IT FOUND?**

- In alloys, particularly nickel-copper and nickel-chromium, in the manufacture of stainless steel, coins, magnets, chemical and food process equipment, and in the aerospace industry;
- in polishing or other processes on stainless steel and nickel alloy articles;
- in the welding of nickel and alloys and when using welding rods containing nickel;
- in the electroplating industry;
- in pigments for paint, pottery, glass and plastics;
- in catalysts in the chemical industry;
- nickel carbonyl is only likely to be found at nickel refining operations.

### **HOW CAN IT GET INTO YOUR BODY?**

Nickel can cause problems if you take it in:

- by breathing in dust, fumes or mist containing nickel;
- by skin contact with dust or solutions containing nickel.

### **WHAT ARE THE HEALTH HAZARDS?**

A single, short period of breathing in nickel carbonyl vapour can cause:

- dizziness, nausea, coughing and breathlessness; and, in severe cases
- death from respiratory and heart failure.

Other forms of nickel are not a problem if you are only exposed to them very occasionally. However, in some circumstances repeated exposure to nickel and its compounds can cause:

- cancers of the lung and nose (this has been seen in workers in nickel refineries);
- skin disease (allergic contact dermatitis), caused by allergy to nickel. This occurs with repeated skin contact with various forms of nickel; and
- asthma (this has been seen in some workers who work in atmospheres containing nickel salts).

### **WHAT DOES YOUR EMPLOYER HAVE TO DO?**

The Control of Substances Hazardous to Health Regulations 1994 (COSHH) require your employer to:

- assess the risks to your health;
- prevent your exposure to nickel and its compounds or, where this is not reasonably practicable, adequately control your exposure. As far as controlling exposure by inhalation is concerned, this means:
  - reducing your exposure as far as is reasonably practicable **and at least** below the maximum exposure limits (MELs) for nickel and its inorganic compounds (except nickel carbonyl). The MEL for nickel and its water-insoluble compounds is 0.5 milligrams per cubic metre of air. The MEL for water-soluble nickel compounds is 0.1 milligrams per cubic metre of air. Both these limits are averaged over an eight hour period;
  - ensuring that your exposure to nickel carbonyl does not exceed the occupational exposure standard (OES) of 0.24 milligrams per cubic metre of air (0.1 parts per million). This is a short-term exposure limit averaged over a 15 minute period because of the rapidly-acting health effects of this substance;
- maintain all control measures in efficient working order;

- find out how much nickel you are exposed to, normally by means of a monitoring programme;
- arrange any appropriate health checks; and
- inform, instruct and train all employees who may be exposed to nickel about how to work with it safely.

Some special requirements of COSHH and the COSHH Approved Code of Practice *Control of Carcinogenic Substances* apply to certain nickel refining processes and to all compounds of nickel that have to be labelled with the phrases 'May cause cancer' or 'May cause cancer by inhalation' under the Chemicals (Hazard Information and Packaging for Supply) Regulations 1994 ('CHIP'). These compounds include nickel dioxide, nickel monoxide, nickel subsulphide and nickel sulphide.

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

Do what you can to avoid breathing in dust, fume or mist containing nickel and prevent nickel compounds from getting on your skin. Otherwise, help your employer to control your exposure properly.

- Use the extraction equipment or other control measures correctly.
- Use the protective clothing and equipment provided.
- Don't take dirty protective clothing home.
- Use the washing facilities provided, which should be adequate and suitable for your needs.
- If you have to wear a respirator (face mask) check that:
  - it fits properly;
  - it is clean;
  - the filter is changed regularly.
- And if it doesn't fit, isn't clean or the filter is old - tell your supervisor or employer. It is your employer's responsibility to put these things right.
- Report any defects in enclosures, extraction equipment or other control measures to your employer.
- Don't eat, drink or smoke in nickel work areas.

## WHAT ABOUT HEALTH CHECKS?

- Some people working in certain nickel processes where significant exposures could occur (for example nickel refining, plating, production and blending of nickel chemicals) will need health checks.
- An initial health check will make sure you do not have a medical condition which could be made worse by exposure to nickel compounds.
- You should co-operate with your employer or works doctor in any health checks. Examine your skin regularly and report any skin complaints.
- You should report any breathing difficulties.

## WHAT INFORMATION CAN YOU GET?

Your employer should tell you, or your representatives, about:

- the possible threats to your health from exposure to nickel;
- the control measures in place, the reasons for them, and how to use them properly;
- the reasons for using personal protective equipment and clothing, the jobs where these are necessary and how they should be used, stored and maintained;
- the results of any tests for nickel levels in the air at your workplace;
- the role of 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 nickel or its inorganic compounds, ask your supervisor, safety representative or union to discuss them with your employer, or discuss them with the doctor.

The Health and Safety Executive has published Guidance Note EH 60 (rev) *Nickel and its inorganic compounds*, ISBN 0 7176 1341 0. It is available from HSE Books, PO Box 1999 Sudbury, Suffolk CO10 2WA Tel: 01787 881165 Fax 01787 313995.

It is also available in public libraries; or your employer may have a copy that you could read.

HSE priced and free publications are available by mail order from HSE Books. HSE priced publications are also available from good booksellers.

For information about health and safety ring HSE's InfoLine Tel: 08701 545500 Fax: 02920 859260 e-mail: [hseinformationservices@natbrit.com](mailto:hseinformationservices@natbrit.com) or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG. You can also visit HSE's website: [www.hse.gov.uk](http://www.hse.gov.uk)

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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 NICKEL  
ARE YOU AT RISK?**

# NICKEL and YOU

