



safe work australia

Health monitoring when you work with hazardous chemicals

Guide for workers

Health monitoring when you work with hazardous chemicals	1
Introduction.....	3
How to use this guide	3
What the WHS Regulations say about health monitoring.....	3
What is health monitoring?	4
Before you start working with hazardous chemicals	4
While you are working with hazardous chemicals.....	4
After you finish working with hazardous chemicals.....	5
How will I know if I need health monitoring for my job?	5
Asbestos	5
Lead risk work	6
When do I need health monitoring?	6
What does ‘significant risk to my health’ mean?.....	6
Who monitors my health?	7
Who pays for health monitoring?	7
Will I be asked about my health monitoring?.....	7
What is a health monitoring report and what is in it?	8
What if my results show I have been exposed to hazardous chemicals or have an injury, illness or disease?	9
Who can see my health monitoring records?	10
How long are my records kept for?	10
Do I have to do health monitoring?	10
More information.....	11
Hazardous chemicals that need health monitoring	11
Examples of chemicals that may need health monitoring	14

Introduction

If you are a worker who works with hazardous chemicals, this guide is for you. It explains what you and your PCBU must do to monitor your health and keep you as safe as possible. Everything in this guide is covered by the model Work Health and Safety (WHS) laws.

How to use this guide

This guide will help you to understand and make decisions about the health monitoring your PCBU is legally required to give you.

As a worker, you don't have health monitoring duties under the WHS laws. In this guide we describe what duty holders, like PCBUs, must do to provide health monitoring under the WHS laws.

We use 'must', 'requires' or 'mandatory' where duty holders are legally required to comply with a requirement. We use 'should' to recommend an action and 'may' where they can choose to do as we recommend.

There are other guides for PCBUs and doctors that you can read if you wish:

- *Health monitoring guide for persons conducting a business or undertaking*
- *Health monitoring guide for registered medical practitioners, and*
- *Health monitoring guides for hazardous chemicals.*

What the WHS Regulations say about health monitoring

At times, a person conducting a business or undertaking (PCBU), is required to monitor the health of their workers.

For example, PCBUs must monitor your health if you are working with certain hazardous chemicals including lead and asbestos.

The PCBU must decide if you need health monitoring. They will make a decision to monitor your health if there is a risk you will be exposed to a hazardous chemical. If you work with lead or asbestos, then there is no choice and they must monitor your health.

How your health is monitored will depend on the hazardous chemicals you work with. A registered medical practitioner (doctor) with experience in health monitoring will carry out or supervise your health monitoring program.

What is health monitoring?

Health monitoring is designed to help protect your health. It is aimed at detecting changes in your health because of the hazardous chemicals you work with.

Health monitoring will measure the level of these chemicals in your body or how your body responds to exposure to these chemicals and can measure changes in your health.

Your health monitoring may include:

- talking with a doctor with experience in health monitoring, about the type of health tests and how often you will need to have them
- questions and counselling about your work history, medical history or lifestyle, for example diet, smoking and drinking habits
 - some of these things may change how your body responds to a hazardous chemical
 - if this matters in your job, the doctor may ask you questions and talk with you about how your work and what you eat, drink and smoke could affect your health
- a physical check including looking at your skin, and
- tests of your urine, blood or lungs or X-rays.

All these things may make up your health monitoring program. Your program will depend on which hazardous chemicals you have been, or will be working with. Sometimes you will have a one-off health monitoring check if you are around a spill or leak of a hazardous chemical.

Before you start working with hazardous chemicals

As a worker, you may start health monitoring before you start working. This is known as baseline monitoring.

This helps your PCBU and doctor to see if your health changes over the time you are working with hazardous chemicals. It may be a physical check and sometimes urine, blood or lung tests, and will depend on the hazardous chemical you will work with.

While you are working with hazardous chemicals

While you are working with hazardous chemicals, your health monitoring will include regular checks and tests by the doctor. It may need you to check your own skin (which the doctor will show you how to do) or answer questions about your breathing.

How often your health is monitored will depend on the hazardous chemical you work with, how much you are in contact with it and how you work. How often your health is monitored may also change because of:

- how often you use certain chemicals, for example daily, weekly or seasonally
- what earlier health monitoring, air monitoring or surface wipe testing showed, and
- you reporting signs of exposure or injury, illness or disease that might be because of your work with hazardous chemicals.

Sometimes you will have a one-off health monitoring check if you are around a spill or leak or at work.

After you finish working with hazardous chemicals

You should have a final health check when you stop working with a hazardous chemical. Your PCBU will arrange this check in consultation with you.

How will I know if I need health monitoring for my job?

You will know if you need health monitoring for your job because your PCBU will tell you. Your PCBU must tell you if and how they will monitor your health.

Before you start work with a hazardous chemical, your PCBU must tell you how to use, handle, generate or store the chemical. They must tell you:

- what your health monitoring is
 - for example visiting the doctor, the tests they may do and how often they will do them
- who your doctor is for your health monitoring
- what your health monitoring aims to do and its benefits
- how you should report symptoms of exposure
- how they will keep records of your health monitoring, and
- when you should see your health monitoring report and who will give it to you.

At your first appointment, the doctor who will look after your health monitoring should tell you:

- what might happen if you are exposed to a hazardous chemical
- what your health monitoring program is
 - for example how often you will be tested and what the tests will be
- if and when you could be sent to another doctor or specialist
- how you can spot and report signs of injury, illness or disease, and
- how your health monitoring results may change your work tasks
 - for example if your health has changed and is either better or worse, your doctor may tell your PCBU that you should stop working with, or can return to working with, a hazardous chemical.

Asbestos

If you will be working with asbestos, you will definitely need health monitoring. Your PCBU must give you information about your health monitoring program **before** you start work with asbestos.

Lead risk work

If you will be working in a lead risk job, your PCBU must monitor your blood lead levels. You can read more about how this will happen in the *Guide for PCBUs*. Your doctor will also collect information from you about your demographic, medical and occupational history and may do a physical examination.

When do I need health monitoring?

Under the model WHS laws, your PCBU must monitor your health at certain times. This includes if you:

- use, handle, generate or store hazardous chemicals that could be a risk to your health and there are:
 - ways to see if the chemicals have affected your health, or
 - ways to see if you have been exposed to the chemicals, but it's not clear how much you have been exposed to.
- are doing lead risk work, or
- are working with asbestos.

There are specific hazardous chemicals that if you are working with them, may trigger health monitoring. These are provided for you at the end of this Guide.

What does 'significant risk to my health' mean?

A significant risk to your health is where you may be harmed by a hazardous chemical. This could be:

- an illness such as a cough or rash
- a disease such as cancer or dermatitis, or
- an injury such as a burn.

Your PCBU may assess this risk to decide if you will need health monitoring. They will look at:

- how poisonous the chemical is
- how you use handle, generate or store the chemicals at work
- what is in place to stop or limit exposure to the chemical
 - for example if you aren't in contact with the chemical because you work separately from it, your workplace is ventilated or you wear personal protective equipment (PPE), and
- how much of the hazardous chemical you might be exposed to.

The risk to your health may be significant if:

- it's easy for you to be exposed to the chemical because of the way you work
- the chemical is highly toxic or has severe health effects, or
- you are only protected from exposure by the way you work and what you wear, for example PPE.

You can read more about how your PCBU decides on health monitoring in the *Health monitoring guide for PCBUs*. Your HSR, if your workplace has one, can also give you information about health monitoring.

Who monitors my health?

Your health monitoring must be carried out or supervised by a registered medical practitioner (doctor) with experience in health monitoring.

The doctor may supervise other suitably qualified people to do some of your health monitoring tests and procedures. For example, an occupational nurse may ask you general questions about your medical history, check your skin and collect samples of your urine or blood. In some instances, you may be trained to be able to do and report some of your own self-checks.

Your PCBU will consult with you about which doctor will do your health monitoring. This probably won't be your personal GP unless they are experienced in health monitoring and work with your PCBU on your health monitoring program.

Who pays for health monitoring?

Your PCBU must pay for all of your health monitoring including:

- appointment fees
- testing and analysis costs, and
- your time and travel costs.

Your PCBU must give you paid time to go to medical appointments and tests.

If you work for more than one PCBU who monitors your health, together they will work out how they pay for your health monitoring.

Will I be asked about my health monitoring?

Yes, your PCBU must check with you about all of your health monitoring including:

- the choice of registered medical practitioner who will carry out or supervise your health monitoring, and
- the results of your health monitoring, for example what the doctor recommends about your work with the hazardous chemicals.

Your PCBU must ask you about changes they want to make to your health monitoring. If you have a HSR, your PCBU must include the HSR in the conversation.

You will find more information about consultation see the Code of Practice: *WHS consultation, cooperation and coordination*.

What is a health monitoring report and what is in it?

The doctor writes your health monitoring report in two parts. They give section one to your PCBU and it contains:

- information about your test results
- recommendations about your work
- what your PCBU should do in the workplace because of your results, and

The doctor will keep section two because it may contain confidential information about you, your health and the outcomes of your health monitoring tests.

The doctor must include in section one of your report:

- your name and date of birth
- the name and address of the business or undertaking you are working for
- their name and their registration number
- the date of the health monitoring
- test results that show if you were or weren't exposed to a hazardous chemical
 - for lead – results that show you reached or went over the blood lead level
- if test results show your work with a hazardous chemical has given you an injury, illness or disease
- how they recommend your PCBU address a risk to your health, for example deciding if you continue the work that triggered the health monitoring, and
- if you need medical counselling.

The doctor should also include in your report:

- the dates of blood, urine or other sampling, and
- biological monitoring and other test results.

If the report relates to lead risk work, the doctor must include:

- the date of blood sampling
- the monitoring results of your blood lead levels, particularly where they are higher than allowed, and
- the name of the pathology service that looked at your blood.

The registered medical practitioner will use your health monitoring results to recommend to your PCBU if:

- you are fit for work with the hazardous chemical
- you are fit to start work again with the hazardous chemical
- your exposure levels to the hazardous chemical are too high
- how you work should be reviewed, and
- if you should stop working with the hazardous chemical.

The doctor will keep section two of your health monitoring report confidential and won't show it to your PCBU, unless they must be told something under law, or if you give your written permission. If you already have a medical condition that could make the health effects of chemicals you are working with worse, you or the doctor, with your permission, should tell your PCBU so they can minimise your risk.

The registered medical practitioner should give you the results of health monitoring tests and will send a copy of section one to your PCBU. Your PCBU must give a copy of section one to you as soon as possible after they receive it from the doctor.

What if my results show I have been exposed to hazardous chemicals or have an injury, illness or disease?

The doctor will tell your PCBU if your health monitoring shows you have been exposed to a hazardous chemical at work and this has given you an injury, illness or disease. They may recommend to the PCBU:

- the PCBU should look at how you work to make it safer
- you are fit to start work again, or
- you should not work near the source of your exposure.

The PCBU must talk with you about what will happen next. If you have a HSR, your PCBU must include the HSR in this conversation. Your PCBU may talk about how your work might change including if you can keep working with a particular chemical or if you must go to a different work area where you won't be exposed to the chemical.

Your health monitoring results may show you have been exposed to the hazardous chemical you work with (e.g. blood-lead levels) or you have an injury, illness or disease. This may mean your health has been harmed.

If this happens, the doctor must recommend to your PCBU they take action to eliminate or minimise your exposure. Your PCBU must follow the doctor's recommendations to look at how you work and how you are kept safe at work. Your PCBU must also give a copy of this report to the regulator.

The doctor should talk to you about ongoing health concerns you have, how your health could be improved and whether or not you will need ongoing monitoring or treatment.

If you feel your health is at risk or if you do not feel well and think it may be because of exposure to workplace chemicals, you should always report this to your HSR or PCBU and the doctor.

Who can see my health monitoring records?

No one can see your health monitoring records and reports without your written permission, except when:

- your PCBU gives section one to the regulator
- your PCBU gives section one to another PCBU who also monitors your health, and
- the doctor gives section two to another person who must keep the record confidential, for example another doctor or a specialist physician who is monitoring your health.

Your PCBU must give you a copy of section one of your health monitoring report for you to keep. This is very important if you move to another job where you need health monitoring. If you would like a copy of section two, you should ask the doctor doing your health monitoring.

No one must use the health monitoring report, blood or tissue samples, X-rays, questionnaires or other tests for anything else, only health monitoring.

How long are my records kept for?

Your PCBU will keep your health monitoring records for at least 30 years after the record is made, even if you move to another workplace.

If you work with asbestos, your PCBU must keep your health monitoring records for at least 40 years, because it can take a long time to develop asbestos-related diseases.

You should keep copies of your reports for as long as possible and tell any new doctor carrying out or supervising health monitoring that your health has been monitored in the past.

Do I have to do health monitoring?

Health monitoring will show if a workplace hazardous chemical has harmed or may harm you. It is there to help keep you safe.

You must:

- follow, as far as you can, any work health and safety instructions from your PCBU, and
- follow any policy or procedure including health monitoring, if you have been told about it beforehand.

Some hazardous chemicals can cause serious illness and disease. You must participate in health monitoring and wear personal protective equipment (PPE) as instructed by a PCBU.

Your PCBU must check with you about health monitoring procedures and you can talk about what the type of tests you would prefer in your health monitoring program. Your PCBU must listen and think about what you say.

However, your PCBU must decide if you need health monitoring for your job. They must do this under the WHS laws.

If you are still worried about your health monitoring you can talk to your HSR, your personal GP or find more information in the *Guide for PCBUs*, *Guide for registered medical practitioners* and in the *individual hazardous chemical information*.

As a worker you have the right to privacy. If you decide not to participate in health monitoring or not to use PPE as you have been trained and instructed, your PCBU may take action to meet their duties under the WHS laws. This could mean your PCBU may remove you from the source of exposure to make sure your health is not at risk.

More information

You will find further information on health monitoring requirements including information on individual scheduled chemicals, on the Safe Work Australia website:

- *Health monitoring guide for persons conducting a business or undertaking*
- *Health monitoring guide for registered medical practitioners, and*
- *Health monitoring guides for hazardous chemicals.*

There are special considerations and health monitoring requirements for lead and asbestos.

You may also find further information from your [WHS authority](#), your HSR or your personal GP.

Hazardous chemicals that need health monitoring

The information in this appendix is taken from regulation 436 (asbestos) and Schedule 14 to the model WHS Regulations.

Table 1 Hazardous chemicals requiring health monitoring under the model WHS Regulations

Hazardous chemical	Type of health monitoring
Acrylonitrile	Demographic, medical and occupational history Records of personal exposure Physical examination
Arsenic (inorganic)	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the peripheral nervous system and skin Urinary inorganic arsenic



Hazardous chemical	Type of health monitoring
Asbestos	Demographic, medical and occupational history Records of personal exposure Physical examination
Benzene	Demographic, medical and occupational history Records of personal exposure Physical examination Baseline blood sample for haematological profile
Cadmium	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the respiratory system Standard respiratory questionnaire to be completed Standard respiratory function tests including, for example, FEV1, FVC and FEV1/FVC Urinary cadmium and β 2-microglobulin Health advice including counselling on the effect of smoking on cadmium exposure
Chromium (inorganic)	Demographic, medical and occupational history Physical examination with emphasis on the respiratory system and skin Weekly skin inspection of hands and forearms by a competent person
Creosote	Demographic, medical and occupational history Health advice including recognising photosensitivity and skin changes Physical examination with emphasis on the neurological system and skin, noting abnormal lesions and evidence of skin sensitisation Records of personal exposure including photosensitivity
Isocyanates	Demographic, medical and occupational history Completing a standardised respiratory questionnaire Physical examination of the respiratory system and skin Standardised respiratory function tests, FEV1, FVC and FEV1/FVC



Hazardous chemical	Type of health monitoring
Lead (inorganic)	Demographic, medical and occupational history Physical examination Biological monitoring (blood lead level)
Mercury (inorganic)	Demographic, medical and occupational history Physical examination with emphasis on dermatological, gastrointestinal, neurological and renal systems Urinary inorganic mercury
4,4'-Methylene bis(2-chloroaniline) (MOCA)	Demographic, medical and occupational history Physical examination Urinary total MOCA Dipstick analysis of urine for haematuria Urine cytology
Organophosphate pesticides	Demographic, medical and occupational history including pattern of use Physical examination Baseline estimation of red cell and plasma cholinesterase activity levels by the Ellman or equivalent method Estimating red cell and plasma cholinesterase activity towards the end of the working day on which organophosphate pesticides have been used
Pentachlorophenol (PCP)	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the skin, noting abnormal lesions or effects of irritancy Urinary total pentachlorophenol Dipstick urinalysis for haematuria and proteinuria
Polycyclic aromatic hydrocarbons (PAH)	Demographic, medical and occupational history Physical examination Records of personal exposure including photosensitivity Health advice including recognising photosensitivity and skin changes

Hazardous chemical	Type of health monitoring
Silica, crystalline	Demographic, medical and occupational history Records of personal exposure Standardised respiratory questionnaire to be completed Standardised respiratory function test, for example, FEV1, FVC and FEV1/FVC Chest X-Ray full PA view
Thallium	Demographic, medical and occupational history Physical examination Urinary thallium
Vinyl chloride	Demographic, medical and occupational history Physical examination Records of personal exposure

Examples of other hazardous chemicals that may need health monitoring

You may wish to consider the following examples of hazardous chemicals and their testing methods, which are not listed in Schedule 14 to the model WHS Regulations, when implementing a health monitoring program for your workers.

Table 2 Some hazardous chemicals to consider for health monitoring

Hazardous chemical	Type of health monitoring
1. Antimony	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on the respiratory system and skin Urinary antimony level
Arsenic (inorganic)	Extra: Urinary inorganic arsenic by speciation (inorganic arsenic plus methylated metabolites)
Benzene	Extra: Urinary S-phenylmercapturic acid (s-PMA)

Hazardous chemical	Type of health monitoring
Beryllium	Demographic, medical and occupational history Records of personal exposure Physical examination with emphasis on respiratory and dermatological systems Urinary beryllium level
Butanone (methyl ethyl ketone, MEK)	Demographic, medical and occupational history Physical examination with emphasis on the central nervous system and skin Urinary MEK (2-butanone) level
Carbon disulfide	Demographic, medical and occupational history Physical examination with emphasis on the respiratory system and skin Urinary 2-thiothiazolidine-4-carboxylic acid level
Chromium (inorganic)	Extra: Urinary chromium
Cobalt	Demographic, medical and occupational history Physical examination with emphasis on respiratory systems and skin Urinary cobalt level
Creosote	Extra: Urinary 1-hydroxypyrene
Cyclophosphamide	Demographic, medical and occupational history Urinary cyclophosphamide level
Dichloromethane	Collecting demographic, medical and occupational history Physical examination with emphasis on the central nervous system Urinary dichloromethane
Ethyl benzene	Demographic, medical and occupational history Records of personal exposure Physical examination Baseline blood sample for haematological profile Urinary mandelic acid level



Hazardous chemical	Type of health monitoring
Fluorides (including soluble fluorides and aluminium fluoride)	Demographic, medical and occupational history Physical examination with emphasis on the respiratory system Pre and post shift urinary fluoride level
Isocyanates	Extra: Urinary isocyanate metabolites
4-methylpentan-2-one (methyl isobutyl ketone) MIBK	Demographic, medical and occupational history Physical examination with emphasis on the respiratory system and skin Urinary MIBK level
Nickel	Demographic, medical and occupational history Physical examination with emphasis on dermatological and respiratory systems Urinary nickel level
Organophosphate pesticides	Extra: Urinary organophosphate metabolites
Polycyclic aromatic hydrocarbons (PAH)	Extra: Urinary 1-hydroxypyrene
Styrene	Demographic, medical and occupational history Records of personal exposure Physical examination Baseline blood sample for haematological profile Urinary mandelic acid
Tetrachloroethylene (perchloroethylene)	Demographic, medical and occupational history Physical examination with emphasis on the central nervous, respiratory and reproductive systems and skin Tetrachloroethylene blood level before shift
Toluene	Demographic, medical and occupational history Records of personal exposure Physical examination Baseline blood sample for haematological profile Urinary o-cresol



Hazardous chemical	Type of health monitoring
Trichloroethylene	Demographic, medical and occupational history Physical examination with emphasis on the central nervous system Urinary trichloroacetic acid or trichloroethane level
Vinyl chloride	Extra: Annual liver function tests (AST, ALT, GGT, ALP, and bilirubin)
Uranium	Demographic, medical and occupational history Physical examination Post shift urinary uranium level Urinary dipstick analysis for proteinuria Urinary cytology
Xylene	Demographic, medical and occupational history Records of personal exposure Physical examination Baseline blood sample for haematological profile Urinary toluric acid