
Hazards in the Workplace

Fact Sheet: Hazardous Chemicals

WHAT ARE THEY?

There are currently around 39,000 industrial chemicals and around 5,500 agricultural and veterinary chemicals in use in Australia, many of which are considered hazardous according to the definitions in the [NSW WHS Regulation 2011](#).

IT'S THE LAW!

Under the NSW workplace safety laws employer must obtain and provide information to all their workers on all chemicals used in the work place. This information must include the health effects and what *Personal Protective Equipment (PPE)* must be used. These information sheets are called *Material Safety Data Sheets (MSDS)*. (see sheet 2)

Under the [NSW WHS Regulation 2011 - Clause 49](#) states that the employer must ensure that no person at a place of work is exposed to an airborne concentration of an atmospheric contaminant that exceeds or breaches a standard referred to on page 5 of this fact sheet.

[Clause 341 of the NSW WHS Regulation 2011](#) states that the Person conducting the Business or Undertaking (PCBU) must ensure that labels are provide on every single substance/chemical in the workplace, even if it is decanted.

The [Hazardous Substances Regulation](#) requires PCBUs to control exposure to ensure that the exposure of an worker, or other persons at the workplace to hazardous substances is prevented, or if that is not practicable, minimised.

The [Pesticides Act 1999](#) sets requirements relating to the supply, use and possession of pesticides and fumigants.

EMPLOYERS (PCBUs) OBLIGATIONS

All employers are required to identify all workplace risks and put in place control measures to eliminate or reduce the risks. (See sheet 2)

HEALTH EFFECTS

Exposure to toxic chemicals can cause serious health and safety risks to people at work. Toxic chemicals can cause diseases in humans if they are swallowed or contact the skin or if vapors are inhaled.

CHEMICALS, WHAT ARE THEY?

There are currently around 39, 000 industrial chemicals and around 5,500 agricultural and veterinary chemicals in use in Australia.

WorkCover NSW has produced a Code of practice for dealing with Hazardous Substances. It is called the [Code of Practice for the Managing risks of hazardous chemicals in the workplace](#), and [Code of Practice for the Labelling of workplace hazardous chemicals](#) and [Code of Practice for Preparation of Safety Data Sheets for Hazardous Chemicals](#) and is available from the UnionSafe website at unionsafe.org.au

PCBUs must obtain and provide information to all their workers on all chemicals used in the work place. This information must include the health effects and what **Personal Protective Equipment (PPE)** must be used. These information sheets are called **Safety Data Sheets (SDS)**.

SAFETY DATA SHEETS (SDS)

Safety Data Sheets (SDS) provide information on hazardous substances additional to that on a label. Ways of controlling exposure and exposure standards can also be found in the MSDS. An MSDS for a substance provides information on:

- Identification
- Health hazard information
- Precautions for use at application strength, including the exposure standard
- Safe storage and handling information
- All the hazardous ingredients, not just the "active constituent"
- Where a chemical may release another hazardous substance during normal use such as when reacting with other common materials or when heated
- Emergency procedures

EMPLOYER'S (PCBUs) OBLIGATIONS

All employers (PCBUs) are required to identify all workplace risks and put in place control measures to eliminate or reduce the risks.

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Chemical hazards in the workplace can be identified from the label on containers and the MSDS for the chemicals supplied. Hazards created by work, such as the generation of fumes or dust, may not be covered by an MSDS and so other relevant information should be sought. Examples of where this may be an issue are welding, cutting, or grinding.

Information should be obtained about health effects, precautions for use and safe handling. Seek advice from an expert or authority such as SafeWork NSW. If you undertake work such as essential oil distillation is, then you take on the manufacturer's legal obligations to produce an MSDS.

EMPLOYER (PCBU) DUTIES

MSDS must be made available to workers who may be exposed to the chemical in use. Employers (PCBUs) must ensure that an MSDS is available for each hazardous substance used by each employee. This access may be required:

- During training (including induction)
- During consultation before the introduction of a new substance
- When an employee is working with or near the chemical.

At each work site or designated work area, where hazardous substances are stored or mixed, ensure that:

- Workers have easy access to an MSDS for each substance stored or used
- The most recent edition of the MSDS is available (check every five years)
- Any information retrieval system for MSDS is kept in working order
- Workers are trained on how to access and understand the information.

See Training and Procedures and Industry Risks checklists on sheets 9 and 10 of this fact sheet.

LABELS

Clause 341 of the NSW WHS regulation states that the employer must ensure that labels are provide on all chemicals.

Often chemicals are supplied in large containers, they are too large and awkward to use therefore these are often poured (**decanted**) into a smaller container. The purpose of labeling is

to ensure correct identification, use and disposal of the chemicals in a container. Labels must be kept fixed to the container at all times, including containers in which chemicals are decanted into.

Hazardous substances, dangerous goods and poisons, all have similar labeling provisions. Chemical labels show the active ingredients and indicate other hazardous or dangerous ingredients (e.g. by showing the dangerous goods "diamond" symbol). Some containers of Chemicals have labels that contain extensive information in booklet form that is inserted into an envelope or pocket on the container. These booklets should be returned to the envelope or pocket after use for future reference. Some gas cylinders have tags, which display the relevant information.

DESCRIPTION OF LABEL ITEMS FOR HAZARDOUS SUBSTANCES

Signal words, dangerous goods class and subsidiary risk labels

Signal Words are words prominently displayed on labels to indicate the relative degree of severity of a hazard.

Class labels illustrate the class allocated to **dangerous goods** and indicate the major hazard posed by a substance.

Dangerous goods legislation requires that the **dangerous goods** class and **subsidiary risk** labels always are assigned according to the [Australian Dangerous Goods Code](#).

Similarly, poisons legislation in all States and Territories require that if a substance is scheduled by the SUSDP, then the signal words: '**WARNING**', '**POISON**' and '**DANGEROUS POISON**' should always be assigned.

Where a hazardous substance is not designed as a dangerous good and it is not scheduled by the SUSDP, then the word '**HAZARDOUS**' should be used.

The signal word '**HAZARDOUS**' should be clearly shown on a contrasting background (preferably in red on a white background) and in a prominent position on the label. The height of the signal word should be at least twice the height of the general text and not less than quarter the height of the largest letter.

In 2017 all hazardous chemicals will be moving towards the requirements of the Globally Harmonised System for Labelling Hazardous substances(GHS).

LABELS FOR DECANTED SUBSTANCES

The practice of **decanting** (see above) is widespread in many industries. Minimum requirements for the labeling of decanted hazardous substances are contained in the [Hazardous Chemicals Regulation 342](#). All hazardous chemicals, which are decanted and are not consumed immediately, must be labelled with the product name and the risk and safety phrases.

Where a decanted substance is consumed immediately, no labeling is required. A container must remain correctly labelled until cleaned so that it no longer contains any hazardous substance.

OBLIGATION OF MANUFACTURERS AND SUPPLIERS

A supplier must provide an SDS for each hazardous substance on request and for the first supply as stated by [clause 339 of the NSW WHS Regulation 2011](#).

Manufacturer to Disclose Ingredients to Medical Practitioner

If an SDS or label does not disclose the chemical name of an ingredient of a hazardous substance, the manufacturer of the hazardous substance must disclose the chemical identity of the ingredient to any medical practitioner who applies to the manufacturer for the disclosure of that information for the purpose of emergency medical treatment.

For example, if a worker was to become sick on a work site due to chemical exposure and was taken to hospital, the medical practitioner must be able to ring the manufacturer and find out the exact ingredients in the chemical they were exposed to, to help in treatment.

EXPOSURE STANDARDS AND AIR MONITORING

The [Hazardous Substances Regulation](#) requires employers (and the self-employed) to control exposure to ensure that the exposure of an employee, or other persons at the workplace to hazardous substances is prevented, or if that is not practicable, minimised.

[Clause 49 of the NSW WHS regulation](#) states that the employer must ensure that no person at a place of work is exposed to an airborne concentration of an atmospheric contaminant that exceeds or breaches a standard referred to in the Worksafe Australia publication *Exposure Standards for Atmospheric Contaminants in the Occupational Environment*. This is relevant where inhalation is the main route of entry. The exposure standard is also given in the SDS, if a standard has been allocated.

Not all hazardous substances have an exposure standard. It may relate to an individual component of the spray mixture such as the solvent or surfactant. Exposure standards are of most relevance to those workers who use chemicals regularly and continuously as part of their daily duties (including contractors).

If spraying produces particles in the air, like vapours or aerosols, then when doing a risk assessment it may be appropriate to assume that the airborne exposure standard is likely to be exceeded and that control measures such as respirators or other PPE are necessary. For chemicals used in agriculture, strict compliance with the safety directions on the label and SDS will normally ensure that exposure is sufficiently controlled so that exact volume measurement will not be necessary.

If there is uncertainty about risks, it may be necessary to measure airborne concentrations and compare these with the mandatory exposure standards. This may be useful for fixed locations such as indoors or situations of off-label use. Care must be taken when applying these to outdoor situations where conditions are variable, such as changes in the wind.

Your union will be able to assist you in measuring chemical concentrations.

PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR EXPOSURE TO CHEMICALS

PPE should only be relied upon where it is not possible to control exposure by one or more of the above measures. PPE should be used:

- According to instructions on the label and the MSDS
- In an open field situation where engineering controls are not available;
- When mixing, decanting or spraying;
- In some circumstances as a back up for other control measures.

Selection, Use and Maintenance Of Personal Protective Equipment

Employers should ensure that:

- All PPE is appropriate for the task;
- All PPE is suitable for the wearer;
- PPE is readily available, clean and in fully operational condition;
- Workers are trained in the use of the PPE, including the selection and maintenance (and where appropriate when to discard disposable PPE);
- Workers wear the PPE as intended

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Fill in the Respirator checklist to see if your workplace has adequate Personal Protective Equipment.

RESPIRATOR CHECKLIST

Are approved respirators provided for regular or emergency use where needed?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Where needed for emergency use, are respirators stored in a convenient, clean, and sanitary location?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are respirators intended for emergency use adequate for the various uses for which they may be needed?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are there written standard operating procedures for the selection and use of respirators where needed?
<input type="checkbox"/> Yes <input type="checkbox"/> No
If you have a respirator program, are workers instructed on the correct use and limitations of respirators?
<input type="checkbox"/> Yes <input type="checkbox"/> No

PERSONAL PROTECTIVE EQUIPMENT CHECKLIST

Are hazards that require the use of personal protective equipment (PPE) present or are they likely to be present?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Has appropriate PPE been selected for hazardous tasks?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Have workers been trained in PPE procedures – for example, which PPE is necessary for a job, when to use it and how to properly adjust it?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are protective goggles or face shields provided and worn where there is any danger of flying particles or corrosive materials?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are approved safety glasses required to be worn at all times in areas where there is a risk of eye injuries, such as punctures, abrasions, contusions or burns?
<input type="checkbox"/> Yes <input type="checkbox"/> No

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Are workers who need corrective lenses (glasses or contacts) required to wear only approved safety glasses or protective goggles, or to use other medically approved precautionary procedures?
<input type="checkbox"/> Yes <input type="checkbox"/> No
If there is a danger of cuts or exposure to corrosive liquids, chemicals, blood or other potentially infectious materials, do workers wear protective gloves, aprons, or shields?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Is appropriate foot protection required where there is the risk of foot injuries from hot, corrosive, or poisonous substances: falling objects: or crushing or penetrating actions?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Is all protective equipment maintained in a sanitary condition and ready for use?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are adequate work procedures, protective clothing and equipment provided and used when cleaning up spilled toxic or otherwise hazardous materials or liquids?
<input type="checkbox"/> Yes <input type="checkbox"/> No

CHEMICAL SAFETY FOR FOOD WORKERS

Today many people work in the preparation and service of food in hotels, restaurants and fast food outlets. Others work in catering facilities, commercial kitchens and other food service facilities, such as those in hospitals or schools.

There are a number of chemicals, which these workers may come into contact with, for example, cleaning agents such as oven cleaners and detergents. Contact with some of these chemicals can result in adverse health effects such as burns, irritation to the eyes, nose and throat, skin problems such as dermatitis and respiratory problems such as asthma.

Some of the chemicals that food service workers commonly use are listed below with their possible health effects. (*Read the label in your product to check the chemical ingredients*).

Product	CHEMICAL INGREDIENTS	Potential health effects
Oven cleaners	<i>sodium hydroxide (caustic soda); ethanolamine; diethylene glycol;</i>	Eye, skin and respiratory tract irritation Skin burns from concentrated solution Dermatitis from repeated contact
Floor cleaners Dishwasher soap	<i>quaternary ammoniums alkaline salts</i>	Skin burns Dermatitis Corrosive irritation to eyes, respiratory tract and skin
Degreasers	<i>various organic solvents</i>	Eye, skin and respiratory tract irritation Headaches, nausea and dizziness
Bleach	<i>sodium hypochlorite (can release chlorine gas)</i>	Eye, skin and respiratory tract irritation Burns Skin allergy Gas is severe irritant

CHECKLISTS

Over the page are checklists to assist with a risk assessment on hazardous chemicals in your workplace. They cover training and industry risks.

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TRAINING AND PROCEDURES CHECKLIST

Do you have eyewash facilities and a quick-drench shower within the work area where workers are exposed to corrosive materials?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are food and beverages consumed only in areas where there is no exposure to toxic material, blood or other potentially infectious materials?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are there appropriate procedures in place for disposing of or decontaminating personal protective equipment contaminated with or reasonable anticipated to be contaminated with blood or other potentially infectious materials?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are workers trained in the safe handling practices of hazardous chemicals, such as acids and caustics?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are workers aware of the potential hazards involving various chemicals stored or used in the workplace, including acids, bases, caustics, epoxies, and phenols?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Is employee exposure to chemicals within acceptable levels?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are all containers, such as vats and storage tanks, labeled as to their contents?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are flammable or toxic chemicals kept in closed containers when not in use?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are chemical piping systems clearly marked as to their contents?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Where corrosive liquids are frequently handled in open containers or drawn from storage vessels or pipelines, are adequate means readily available for neutralizing or disposing of spills or overflows?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Have standard operating procedures been established for cleaning up chemical spills?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are you familiar with the threshold limit values or permissible exposure limits of airborne contaminants and physical agents used in your workplace?
<input type="checkbox"/> Yes <input type="checkbox"/> No

TRAINING AND PROCEDURES CHECKLIST (cont)

Have you instituted control procedures for hazardous materials, where appropriate, such as respirators, ventilation systems, and handling practices?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Whenever possible, are hazardous substances handled in properly designed and exhausted booths or similar locations?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Do you use general dilution or local exhaust ventilation systems to control dusts, vapors, gases, fumes, smoke, solvents, or mists that may be generated in your workplace?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Is ventilation equipment provided for removal of contaminants from such operations as production grinding, buffing, spray painting, and vapor degreasing?
<input type="checkbox"/> Yes <input type="checkbox"/> No

INDUSTRY RISKS CHECKLISTS

Do workers complain about dizziness, headaches, nausea, irritation, or other signs of discomfort when they use solvents or other chemicals?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Do workers complain about dryness, irritation, or sensitization of the skin?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Have you considered using an industrial hygienist or environmental health specialist to evaluate your operation?
<input type="checkbox"/> Yes <input type="checkbox"/> No
If internal combustion engines are used, is carbon monoxide kept within acceptable levels?
<input type="checkbox"/> Yes <input type="checkbox"/> No
Are materials that give off toxic asphyxiant, suffocating, or anesthetic fumes stored in remote or isolated locations when not in use?
<input type="checkbox"/> Yes <input type="checkbox"/> No

The advice provided in this checklist is of a general nature and it is recommended to undertake further inquiries to ensure that the work is safe. Airtasker and UnionsNSW take no responsibility for incidents or injuries that arise from the use of this advice. Go to [Unionsafe](#) or [SafeWork](#) for further information about safe work.

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