

Personal Protective Equipment (PPE)

Hand and arm protection Information Sheet

Purpose

The purpose of this information sheet is to assist supervisors in the:

- selection of occupational gloves; and
- management of hazards which could cause a hand/arm injury at work.

Specific requirements may be outlined in the [Work Health and Safety \(WHS\) Regulations 2012 \(SA\)](#) and [Approved Codes of Practice](#). The references to the standards and resources have been included in this information sheet.

This Information Sheet should be read in conjunction with the [HSW Handbook Chapter Hazard Management](#).

PPE is the **least effective** control measure and must not be relied on to satisfy hazard control requirements. This is because users have to remember to wear it, and it does nothing to minimise the underlying hazard. For these reasons, higher level controls must first be considered.

Q1 When should hand/arm protection be considered as a control measure?

Where a risk of injury or illness still remains after all other control measures have been applied, the Supervisor/Person in control of the area/activity may be able to further minimise the remaining risk, by the provision and use of suitable PPE to prevent damage to the hands/arms. Refer [WHS Regulations 2012 \(SA\) \[36\]](#). The glove forms a barrier between the hazard and the wearer.

Generally this would be applied as a result of:

- the Supervisor/Person in control of the area/activity mandating the use of hand/arm protection upon entry to the area as a general precaution such as in a workshop or laboratory, based on a reasonable assessment of the hazards in the area; and/or
- a risk assessment for a task or process requiring specific occupational gloves to be worn (e.g. during the use of hazardous chemicals).

The PPE must be:

- selected to minimise risk to work health and safety;
- suitable for the nature of the work and any hazard associated with the work;
- a suitable size and fit;
- maintained in good working order;
- clean and hygienic;
- used or worn by the worker as intended;
- stored appropriately.
- compatible with other PPE items where more than one type is required;
- compliant with the relevant Australian Standard or equivalent standard; and
- periodically assessed to ensure it is and continues to be effective.

Where hand protection is mandatory in an area, appropriate signage complying with [AS 1319 \(1994\) "Safety signs for the occupational environment"](#) must be displayed. An example of approved signage is provided in [Appendix A](#).

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Q2 What are the limitations of gloves?

Users of gloves must be aware of their limitations.

- Like all types of PPE, they are only effective if the user remembers to wear them.
- Gloves that are designed to protect against initial splashes may not be suitable for immersion in a substance, or contact with it for long periods of time.
- Gloves may interfere with the wearer's dexterity and tactile sensation.
- Gloves can become contaminated and if not removed prior to contact may cause contamination of other objects.
- Some gloves will degrade over time. Please be aware of this and change gloves at suitable intervals when necessary.
- Some gloves should only be re-used with caution, and only where it is within the manufacturer's guidelines to safety do so.
- Domestic 'washing up' gloves including gloves complying with [AS/NZS 2161.2 \(2005\) "Occupational protective gloves – general requirements"](#), but marked 'for minimal risks only' have limited application beyond simple dishwashing situations. They may, in fact, increase the health hazard as some solvents will quickly permeate the glove material and expose the skin to a high vapour concentration.
- Not all gloves are compatible with all chemicals. See question 4 for more information.

Q3 Can gloves cause an allergic reaction?

Glove material may cause an allergic reaction in the case of some wearers, for example, the proteins in natural rubber latex. If you experience a reaction to gloves, please report this to your supervisor as an incident in the [on-line incident reporting system](#). Alternative glove materials can be arranged.

Q4 What types of gloves are available and how do I know which type of glove to select?

The choice of glove will depend on several factors, including the substances being worked with and the task performed. Typically gloves can be categorised as providing protection in three ways:

- Protection from hazardous substances;
- Protection from mechanical hazards (e.g. cuts); and
- Protection from biological hazards.

Note that one type of glove may not be suitable for all types of anticipated hazard that may occur together and so multi-gloving may be necessary for protection against different mechanical hazards (e.g. an absorbent liner for perspiration or a cut-proof liner in surgical gloves).

To ensure the most appropriate glove is provided for the tasks and the environmental conditions, it is important to consider:

- the hazard(s) and the need for protection;
- the level of manual dexterity required;
- material suitability to give the protection required;
- style and a good fit;
- potential for adverse ramifications from the selection (e.g. a result of style, fit or material);
- whether re-useable or disposable gloves are appropriate;
- acceptance by wearers (e.g. cultural differences may rule out the use of materials such as pigskin); and
- maintenance requirements.

The Ansell Chemical Resistance Guide for gloves (SpecWare) provides information on glove selection for using many substances. It can be accessed via the [Ansell website](#). Chemical specific glove selection is also found in the Safety Data Sheet (SDS) for the chemical.

It is important that you consider the critical aspects of use and the type of glove likely to suit the work and environmental conditions.

In [AS/NZS 2161.1 \(2016\) "Occupational protective gloves – selection, use and maintenance"](#):

(Please note that due to the size of the tables within the stated appendixes they have not been included in this document.)

- Appendix A gives specific advice on choosing gloves where protection against chemicals is required;
- Appendix B gives advice on the correct fitting of gloves; and

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Q4 What types of gloves are available and how do I know which type of glove to select? Continued

In accordance with AS/NZS 2161.1 (2016) the following examples provide some guidance on glove selection for some of the more common occupational hazards. Information should also be sought from the manufacturer/supplier/SDS where applicable.

Hazard	Typical work	Relevant Standard and some examples of suitable glove materials
Flame	Furnace work, handling hot objects	AS/NZS 2161.4 Leather/pigskin, aramid blends
Radiant heat	Welding, galvanizing, casting, timber and wood processing	AS/NZS 2161.4 Leather/pigskin, aramid blends, terrycord, cotton blends
Cut/slice	Guillotining metal, sheet metal, food processing	AS/NZS 2161.3 Aramid blends, neoprene, loopile cotton blends, leather AS/NZS 2161.7.1 Metal mesh AS/NZS 2161.7.2
Puncture	Swarf, reinforced steel mesh handling, sire handling	AS/NZS 2161.3 Leather/pigskin, neoprene, nitrile, PVC
Biological e.g. microbiological, enzymes	Hospital waste disposal, laboratory work	Refer to specialist advice Nitrile neoprene, rubber, vinyl, PVC AS/NZS 2161.10.1 AS/NZS 2161.10.2 and AS/NZS 2161.10.3
Needle penetration	Hospital, dentistry	AS/NZS 2161.3 No glove is needle proof. Heavy duty neoprene can be needle resistant
Chemical	Lab work, chemical mixing, orchard spraying, acid/solvent handling, pharmaceutical	Refer to specialist advice, PVC PVA, nitrile, neoprene, rubber, vinyl
Electrical shock	Electrical work	Use gloves AS 2225
Medical applications	Hospitals	AS/NZS 4011.1, AS/NSZS 4011.2 or AS/NZS 4179 as applicable
Radiation (ionizing)	Laboratories	AS/NZS 2161.8 Refer to specialist advice
Cold	Cryogenic work; outdoor winter, cold rooms	AS/NS 2161.5 Leather, wool, aramid blends
Vibration	Limited use with some machinery	Refer to specialist ergonomist advice

Q5 What information/instruction may be needed for hand/arm protection?

Where a risk assessment control measure includes the requirement to wear or use hand/arm protection, it is important that workers are instructed by their Manager/Supervisor or the person who is directing the work, on the nature of the work and how to implement the control measures. This will also include the selection of a suitable size, fit and comfort for the individual, prior to commencing the activity. This instruction could be provided during the local induction if the task/activity is conducted on a regular basis or prior to conducting the activity if it is a new task/activity. The supervisor or person in control of the activity is responsible for checking that the workers wear the hand/arm protection in accordance with the information/instruction provided.

Q6 What are the maintenance requirements for hand/arm protection?

Where workers are required to wear hand/arm protection, the Supervisor/Person in control of the area/activity is required under [WHS Regulation 44](#) to ensure that the equipment is maintained, repaired and/or replaced so that it continues to minimise the risk to the worker who uses it. This includes ensuring that the PPE is clean and hygienic.

Where a maintenance regime for any PPE exists, refer to [HSW Chapter Schedule of Programmable Events](#). A pre-use inspection should always be conducted to ensure that the PPE is in good working order.

(Common signs of failure include wear between fingers, seam failure, cracking or bubbling of obvious “pinholes” (e.g. dipped gloves), swelling or shrinking after use.)

Where there is a defect or damage to the hand/arm protection, the worker is to report the damage to their Supervisor/Person in control of the activity/area as soon as possible and replace the item(s).

Q7 Who is responsible for providing PPE personal protective equipment?

In accordance with [WHS Regulation 44](#) “Provision to workers and use of Personal Protective Equipment” the person who directs the carrying out of the work activity or is responsible for the workspace must provide the PPE (e.g. Supervisor/Person in control of the area/activity) i.e. not the worker, with the exception of contractors, who are responsible for their own PPE where it relates to the contracted work activity.

Q8 Where can I obtain further information about hand/arm protection?

- The University’s [HSW Handbook Chapter Hazard Management](#) which outlines the application of the hierarchy of control measures (i.e. Elimination, Substitution, Engineering/Isolation, Administration and PPE);
- [WHS Regulations 2012 \(SA\)](#)
- [AS/NZS 2161.1 \(2016\) “Occupational protective gloves -Selection, use and maintenance”](#).
- [AS/NZS 2161.2 \(2005\) “Occupational protective gloves – General requirements”](#)
- [AS/NZS 2161.3 \(2005\) “Occupational protective gloves – Protection against mechanical risks”](#)
- [AS/NZS 2161.4 \(1999\) “Occupational protective gloves - Protection against thermal risks \(heat and fire\)”](#)
- [AS/NZS 2161.5 \(1998\) “Occupational protective gloves – Protection against cold”](#)
- [AS/NZS 2161.7.1 \(1998\) “Occupational protective gloves – Protection against cuts and stabs by hand knives – chainmail gloves and arm guards”](#)
- [AS/NZS 2161.7.2 \(2005\) “Occupational protective gloves – Protection against cuts and stabs by hand knives – Gloves and arm guards made of material other than chainmail”](#)
- [AS/NZS 2161.7.3 \(2005\) “Occupational protective gloves – Protection against cuts and stabs by hand knives – Impact cut test for fabric, leather and other materials”](#)
- [AS/NZS 2161.8 \(2002\) “Occupational protective gloves – Protection against ionizing radiation and radioactive contamination”](#)
- [AS/NZS 2161.9 \(2002\) “Occupational protective gloves – Method of measurement and evaluation of the vibration transmissibility of gloves at the palm of the hand”](#)
- [AS/NZS 2161.10.1 \(2005\) “Occupational protective gloves – Protective gloves against chemicals and micro-organisms – terminology and performance requirements”](#)
- [AS2225 “Insulating gloves for electrical purposes”](#)

If further assistance is required, please contact your local [HSW contact](#).

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Appendix A – Examples of approved safety signs

This is a sample of some approved safety signs under [AS 1319 \(1994\) "Safety signs for the occupational environment"](#).

You must ensure any signage you purchase or install meet this standard.

Please consult AS1319 or your [local HSW Team](#) if you require any advice on selecting approved signage.



Hand protection must be worn

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