

APPENDIX D – HAND/ARM PROTECTION

If a workplace hazard assessment reveals that employees face potential injury to hands and arms that cannot be eliminated through engineering and work practice controls, employers must ensure that employees wear appropriate protection. Potential hazards include skin absorption of harmful substances; chemical or thermal burns; work with corrosive or toxic materials; electrical dangers; bruises and abrasions; sharp objects and cuts or punctures; bites; fractures and amputations. Protective equipment includes gloves, finger guards and arm guards or coverings or elbow-length gloves. Manitoba Regulation 217/06, Part 6, Section 6.14

TYPES OF PROTECTIVE GLOVES:

There are many types of gloves available today to protect against a wide variety of hazards. Gloves should be selected on the basis of the material being handled, the particular hazards involved, and their suitability for the operation being conducted. Glove materials are eventually permeated by chemicals. However, they can be used safely for limited time periods if specific use, glove characteristics (i.e., thickness and permeation rate), and time are known. The best location to find the glove type required is on the materials safety data sheets.

The types of equipment that might be used to protect the hands and arms include: gloves, gauntlets, mitts, cuffs, armlets and elbow protectors. Common glove materials include neoprene, polyvinyl chloride, nitrile, butyl, and natural rubbers. These materials differ in their resistance to various substances. The variety of potential occupational hand injuries makes selecting the right pair of gloves challenging. Therefore it is essential that employees use gloves specifically designed for the hazards and tasks found in their workplace because gloves designed for one function may not protect against a different function even though they may appear to be an appropriate protective device.

The following are examples of some factors that may influence the selection of protective gloves for a workplace.

- Type of chemicals handled.
- Nature of contact (total immersion, splash, etc.).
- Duration of contact and vibration resistance.
- Area requiring protection (hand only, forearm, arm).
- Grip requirements (dry, wet, oily) and manual dexterity.
- Thermal protection.
- Size and comfort.
- Abrasion/resistance requirements



Gloves made from a wide variety of materials are designed for many types of workplace hazards. In general, gloves fall into four groups. All gloves must be inspected prior to use.

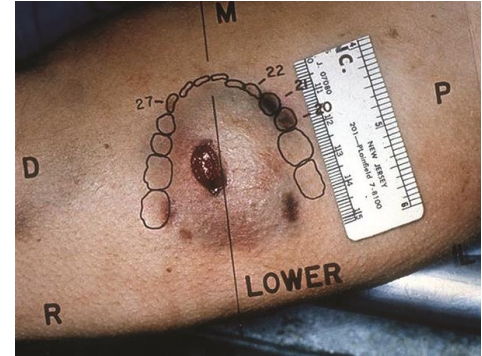
- **Gloves made of leather, canvas or metal mesh** – provide protection against cuts and burns and sustained heat. Typically used for welding, metal work, graphic arts, etc.
- **Fabric and coated fabric gloves** - Fabric gloves protect against dirt, slivers, chafing and abrasions. Coated fabric gloves are used for handling bricks and wire to chemical laboratory containers. Cut resistant gloves are used for handling sharp objects and glass.
- **Chemical- and liquid-resistant gloves** - are made with different kinds of rubber: natural, butyl, neoprene, nitrile and fluorocarbon (viton); or various kinds of plastic: polyvinyl chloride (PVC), polyvinyl alcohol and polyethylene. As a general rule, the thicker the glove material, the greater the chemical resistance but thick gloves may impair grip and dexterity, having a negative impact on safety. For specific information on which glove to use with which chemical you must refer to a [chemical resistance glove guide](#).
- **Insulating rubber gloves** – used for work on electrical equipment to protect against arc flash.

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TYPES OF ARM PROTECTION:

Many workers don't realize that depending on the application, sometimes, your arms will be exposed to the same cut hazards as your hands and therefore, they also require reliable, cut-resistant PPE. In workplaces where your entire arm (from your fingertips all the way up to your shoulders) will be exposed to sharp metals, piece of glass, biting or any other type of material that could cause a cuts or abrasions or punctures to the skin, you should be wearing both arm and hand protection.

Arm guards provide excellent cut and bite resistance and they're available in a range of styles and colours. They can be specially designed for professionals working within mental health care, special education needs and anyone working with people affected by autism. The protective sleeves are designed to be worn around your forearm offering protection to this vital area of the body. They are suitable to be worn overtly or covertly under your long sleeved clothing or jacket, they will protect the major arteries in the arm from bites or cuts.



Human bites can cause both physical injury, risk of infection, soft tissue damage and psychological distress to staff. Whilst our staff teams are usually aware of the potential for bites from records of previous incidents and preventative steps are taken, additional measure such as bite resistant clothing, to protect staff from a bite are required. Please ask your supervisor for arm guard if you are exposed to the potential for biting.

GLOVE USAGE CHART:

HAZARD	DEGREE OF HAZARD	PROTECTIVE MATERIAL
Abrasion	<ul style="list-style-type: none"> • Severe • Less severe 	<ul style="list-style-type: none"> • Reinforced heavy rubber, staple-reinforced heavy leather • Rubber, plastic, leather, polyester, nylon, cotton
Sharp Edges	<ul style="list-style-type: none"> • Severe • Less severe • Mild with delicate work 	<ul style="list-style-type: none"> • Metal mesh, staple-reinforced leather, Kevlar-steel mesh. • Leather, terry cloth (aramid fiber) • Lightweight leather, polyester, nylon, cotton.
Chemicals & Fluids	Risk varies according to the chemical, its concentration, and time of contact among other factors. See glove chart.	Dependent on chemical. Examples include: Natural rubber, neoprene, nitrile rubber, butyl rubber, PTFE (polytetrafluoroethylene), Teflon®, Vitom®, polyvinyl chlor polyvinyl alcohol, Saranex™, 4H®, Chemrel®, Responder®, Trelchem®
Cold	• Mild - severe	Leather insulated plastic or rubber, wool, cotton
Electricity	• Severe	Rubber-insulating gloves tested to appropriate voltage with leather outer glove.
Heat	<ul style="list-style-type: none"> • High temperatures (> 35 °C) • Medium high (up to 350 °C) • Warm (up to 200 °C) • Less warm (up to 100 °C) 	<ul style="list-style-type: none"> • Asbestos, Zetex® • Nomex®, Kevlar®, neoprene-coated asbestos, heat-resistant leather with linings Chrometanned leather, terry cloth • Nomex®, Kevlar®, heat-resistant leather, terry cloth (aramid) • Chrome-tanned leather, terry cloth
General Duty	• Mild - severe	Cotton, barrier creams, terry cloth, leather
Product Contamination	• Mild - severe	Latex, nitrile, nylon, sterile gloves
Radiation	• Mild - severe	Lead-lined rubber, plastic or leather