

# Gloves

## Shield vs Protector?

Gloves are used routinely as a "safety" preventative for numerous occupations. However, not much thought goes into the "whys", the "whens", the "whos" and the "which ones".

Diana Naiberg, editor of the Canadian Occupational Health and Safety News, drew attention to the death of Karen Wetterhahn, 48, in 1997, due to mercury poisoning: "The cancer researcher at Dartmouth College in Hanover, New Jersey, was looking at how human cells repair themselves and how dimethylmercury affects repair mechanisms that sometimes become blocked in cancerous cells. Wetterhahn wore latex gloves. Six months later, she fell into a coma. Wetterhahn died seven months after mercury poisoning symptoms first appeared. An investigation determined that she had spilled a few drops of dimethylmercury on her latex glove. The substance passed through the rubber latex almost immediately, leaving no mark or telltale sign. Skin absorption followed."<sup>1</sup>



**Gloves**  
They are used daily as a "safety" preventative for numerous occupations.

The lesson learned here is - is the glove being used as a shield from non-hazardous material and/or mechanical use, or as a protector from hazardous material and/or mechanical use?

**Why** - wear gloves to protect your hands and/or forearms from simple contamination, biological or chemical hazards, or mechanical injury.

**When** - gloves should be worn in accordance with policies developed by the JHSC and MSDS sheets. Always err on the side of precaution. Remember, they can't protect you if you don't wear them.

**Who** - anyone whose hands and/or forearms may become contaminated or injured should wear gloves. Lab researchers, health care professionals, fine arts staff, staff using certain types of machinery or working with heavy objects, and anyone working with chemical, biological or animal hazards should use gloves appropriate to the work being performed. If in doubt, check with your JHSC or MSDS sheets.

**Which ones** - wear gloves appropriate to the work being performed: mesh gloves should be used when working with machinery with blades, and disposable, latex or alternative gloves should be used when working with biological hazards.

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- ✓ choose the right gloves for the task
  - ✓ match the glove to the hazard
  - ✓ hand injuries are often linked to the physical strain or trauma of using machinery, or to contact with hazardous substances. Workers receive cuts, nicks, scrapes, abrasions, lacerations, blisters, burns, punctures and fractures.
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The **Canadian Standards Association** does not have a standard specifically for protective gloves. Many glove manufacturers and employers provide workers with gloves that are up to the so-called European standard in glove classification. It takes account of risks related to, among other things, welding, firefighting, mechanical work, chemicals, heat, radioactive materials, and punctures.

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## Chemicals

Impervious gloves - made of neoprene, latex, vinyl or polyvinyl chloride - are recommended when handling chemicals and hazardous substances. Check chemical resistant charts for appropriate gloves.

## Cuts, heat and electrical

Metal mesh gloves should be worn when working with tools that have sharp blades, sheet metal or any other surface that can cut. For flames and extremely high temperatures, aluminized gloves may fit the bill.

## Shock absorber

Rubber electrical gloves are typically used to protect employees working around energized systems against shocks. Leather gloves are often used with rubber gloves for added protection.

## Sprains and strains

Repetitive strain injuries (RSIs), cumulative trauma, carpal tunnel syndrome, and Raynaud's syndrome - a condition in which the sensitivity of a worker's finger(s) is lost as a result of too much vibration - are clearly a possibility when performing certain jobs. Gloves that incorporate polymers will help absorb shock or impact. These injuries are common among people using impact-type tools or hand tools, or people who use their hands as a tool. Workers who use "impact-type tools" or hand tools need an anti-vibration glove. There are guards/supports that help prevent over-extension or over-flexion of the wrist while doing repetitive tasks. Made of neoprene, the guards and supports feature a breathable lining that does not restrict motion, but still prevents over-extension and over-flexion, as well as provides compression and warmth to wrists.



**Some** wonder why neoprene, metal mesh or shock absorbent gloves would be a necessity within the walls of academia – and that’s just the point – where exactly are those walls?

Academic staff work in a variety of settings where gloves are essential: in laboratories and fine arts departments, in hospitals, forests and arboretums, archeological and geological digs, veterinary medicine and animal research, oceanic studies, etc. At first glance, the need to wear appropriate PPE is often not apparent, and methods imbedded in past practice has created a false sense of security....until the first crushed finger....the first chemical burn....the first topical drug that gets absorbed with potentially fatal results. It doesn’t need to happen. Gloves are often seen as a nuisance – clumsy, hot – you have to put them on, and take them off, and put them on, and take them off...

### Lost-time claims for hand injuries

Province/Territories	2001	2002	2003
British Columbia	13,619	12,693	12,176
Alberta	3,743	3,514	n/a
Saskatchewan	n/a	n/a	n/a
Manitoba	8,559	8,017	7,810
Ontario	14,367	13,885	n/a
Quebec	23,515	22,912	21,661
Newfoundland	5,267 (claims from 1999 to 2003)		
New Brunswick	n/a	n/a	n/a
Nova Scotia	1,096	1,004	1,032
PEI	184	157	n/a
NWT and Nunavut	n/a	n/a	n/a
Yukon	269	324	290

– Figures provided by provincial labour departments and workers’ compensation boards

### EXAMPLES OF SOME DEPARTMENTS WITH POTENTIAL HAZARDS

Department / Faculty	Hazard
Agriculture/botany	Pesticides, handling
Archeology	Digging, abrasions, handling
Chemistry	Burns, absorption
Fine arts	Cutting (wood, metal, ceramic), abrasive, chemicals (ie dyes, paint, photographic chemicals), handling
Fisheries	Cutting, handling
Forestry	Cutting, handling, pesticides
Geology	Digging, cutting, abrasions, handling
Laboratory, Research	Biological hazards (eg topical drugs, Cytotoxic drugs), physical contamination, burns, absorption, bites, biological, infectious diseases
Biology, Pharmacy	
Medicine/nursing	
Veterinary Medicine	Animals (ie bites, biological, physical contamination)



**Biological Hazards  
Laboratory/research**

Today’s gloves, for whatever the occupational need, are more streamlined, lightweight and breathable. Wearing them should be second nature – in most cases, it’s the law. Provincial and federal Occupational Health and Safety Acts require the employer to provide PPE, and workers to wear them, including gloves, if mandated. When handling hazardous products, WHMIS’s MSDS sheets will indicate if gloves are needed, and what kind. Ministry of Health Guidelines dictate when health care personnel need to wear gloves.

Workplace policies, developed in accordance with the JHSC, should be developed for any activity not already covered under legislative regulations. Identify the hazard, select the correct type of glove to wear and then wear as recommended. Your JHSC should review the hazardous activities in each department, and make recommendations for type of glove usage.

#### References

<sup>1</sup>OHS Canada; [www.ohscanada.ca](http://www.ohscanada.ca)

#### Sources

Canadian Council of Occupational Hygiene; [www.ccohs.ca](http://www.ccohs.ca)  
CCOHS: [www.ccohs.ca](http://www.ccohs.ca)  
ESAO: [www.oshforeveryone.org](http://www.oshforeveryone.org)

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For more information on proper glove selection, please access the CCOHS “Guide to the Selection of Skin Protection”, at the following web address:  
[www.ccohs.ca/oshanswers/prevention/ppe/gloves.html](http://www.ccohs.ca/oshanswers/prevention/ppe/gloves.html).