

FOREWORD

The Workers' Safety and Compensation Commission (WSCC) produced this industry Code of Practice in accordance with subsections 18(3) and 18(4) of the Northwest Territories and Nunavut *Safety Acts*.

The WSCC gratefully acknowledges the Canadian Centre for Occupational Health and Safety (CCOHS) for information used in the Personal Protective Equipment Hand and Arm Protection Code of Practice.

The Code of Practice applies to all workplaces covered by the Northwest Territories and Nunavut *Safety Acts* and *Occupational Health and Safety Regulations*.

The *Personal Protective Equipment – Hand and Arm Protection Code* relates to section 4 and 5 of the *Safety Act* and sections 13, 16, 23, 26, 74, 88, 89, 90, 101, 102, 153 and 277 of the *Occupational Health and Safety Regulations*.

This code is in effect as published in the in the Northwest Territories *Gazette* and Nunavut *Gazette*, in accordance with the *Safety Acts* and *Occupational Health and Safety (OHS) Regulations*.

IN EFFECT DATES:

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Nunavut: May 31, 2016

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Chief Safety Officer, WSCC

Disclaimer

This publication refers to obligations under the workers' compensation and occupational health and safety legislation as administered by the Workers' Safety and Compensation Commission.

To ensure compliance with legal obligations always refer to the most recent legislation. This publication may refer to legislation that has been amended or repealed.

Check for information on the latest legislation at wsc.nt.ca or wsc.nu.ca, or contact WSCC at 1-800-661-0792.

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1 INTRODUCTION

This code of practice provides basic guidelines to ensure worker safety in the workplace through the use of personal protective equipment (PPE) that provides hand and arm protection. An estimated twenty percent of disabling accidents in the workplace involve hands. Hands are a worker's greatest assets and require protection.

The hand is the part of the body most often injured. Workers use hand protection to minimize exposure to specific occupational hazards such as those from skin absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns, and harmful temperature extremes.

Hands are especially vulnerable to cold injury. The Northwest Territories and Nunavut are two of the coldest locations in Canada. When doing any work at extreme temperatures, whether emergency or other work, assess the cold hazards and take reasonable precautions to ensure the health and safety of workers.

PPE cannot eliminate a hazard, but can reduce the risk of injury. Employers need to select and require employees to use hand protection when at risk for injury.

Definition

Personal Protective Equipment (PPE) – any clothing, device, or other article for workers to use to prevent injury or to facilitate rescue.



Hearing Protection



Protective Footwear



Hand Protection



High-Visibility Clothing



Safety Helmet & Eye Wear



Safety Harness

PPE USAGE IS SPECIFIC TO EVERY WORK SITE AND JOB HAZARD ASSESSMENT

For more information see the PPE Codes of Practice and the [Hazard Assessment Code of Practice](https://www.wsc.ca/hazard-assessment-code-of-practice) at [wsc.ca](https://www.wsc.ca)

2 REGULATORY REQUIREMENTS

By law, workers must use personal protective equipment in the workplace when it is required. Employer responsibilities include providing instruction on what PPE is needed, maintenance and cleaning of the equipment, and educating and training workers on proper use of PPE.

Occupational Health and Safety Regulations **Northwest Territories and Nunavut**

Thermal Conditions

74. (4) If a worker is required or permitted to work in thermal conditions that are different from those associated with the worker's normal duties, an employer shall provide and require the worker to use suitable clothing or other personal protective equipment necessary to protect the health and safety of the worker.

Part 7 Personal Protective Equipment

Hand and Arm Protection

- 101.(1) An employer shall provide, and require a worker to use, suitable and properly fitted hand or arm protection to protect the worker from injury to the hand or arm, including
- (a) injury arising from exposure to chemical or biological substances;
 - (b) injury arising from exposure to work processes that result in extreme temperatures;
 - (c) injury arising from prolonged exposure to water; and
 - (d) puncture, abrasion or irritation of the skin.
- (2) If a worker could contact an exposed energized high voltage conductor, an employer shall provide, and require the worker to use, approved rubber insulating gloves and mitts and approved rubber insulating sleeves.

Exposure to Hazardous Substances

102. If a worker is routinely exposed to a hazardous substance, an employer shall provide, and require the worker to use, protective clothing, gloves and eye wear or face shields that are adequate to prevent exposure of the worker's skin and mucous membranes to the hazardous substance.

Part 10 Machine Safety - Grinding Machines

- 153.(4) An employer shall ensure that a worker who operates a grinder
- (a) is provided with and uses the following personal protective equipment that meets the requirements of Part 7:
 - (i) an industrial eye or face protector,
 - (ii) hand or arm protection; and
 - (b) is instructed in the potential hazards and safe use of the grinder.

3 PPE AND HAZARD CONTROL

Decisions about PPE form part of the hazard assessment process, the standard work site approach to dealing with potential hazards. There are five basic ways to control hazards. These controls form a hierarchy. Elimination is always the first control to consider. After that, proceed down the hierarchy until the control of last resort, PPE.

THE FIVE BASIC WAYS TO CONTROL HAZARDS AND EXAMPLES:

1. **Elimination** (remove the hazard from the work site)
2. **Substitution** (use a less harmful chemical)
3. **Engineering** (isolate equipment/set guards)
4. **Administration** (provide training/maintenance)
5. **Personal Protective Equipment** (provide gloves/ arm protection sleeves)



COMMON HAND AND ARM HAZARDS AT WORK

IMPACT	ARC FLASH	PUNCTURE	VIBRATION	CRUSH
CUT	FLAME	HEAT	ABRASION	COLD

The use of PPE does not prevent accidents or eliminate hazards. Make every effort to control all hazards at the source. Training is also important. PPE cannot achieve its full-protection potential without worker knowledge and cooperation.

Certain hazards may require multiple PPE solutions. PPE design criteria cannot cover all eventualities. Take uncertainties into account when evaluating potential hazards.

[For more information see the WSCC *Hazard Assessment Code of Practice*](#)

4 COLD EXPOSURE HAZARDS

Cold is a physical hazard in many work sites in the Northwest Territories and Nunavut. Select hand protection based on the job and task at hand, and weather and wind chill.

- See the [WSCC Thermal Conditions Code of Practice](#)

Fingers are the most commonly affected body parts affected by frostbite, exposure to severe cold and contact with extremely cold objects. Manual dexterity is also crucial for safe work practices and safe operation of machinery.

To select the best hand protection for cold work, several factors should be considered:

- weather
- thermal profile of the gloves
- type of work or task
- level of dexterity required

	<p>“Mild cold impairs nerve function and lessens sensation and manual dexterity. The critical air temperature for manual dexterity is 12°C and for touch sensitivity 8°C.”</p> <p>- <i>Best Practice - Working Safely in Heat and Cold</i> Work Safe Alberta, pg 52, 2014.</p>
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“Hands and fingers turn numb at minus 15 °C, which can increase the risk of accidents.”
– [Our Hands at Work!](#) Human Resources and Skills Development Canada, 2005.

- Cold affects dexterity, affecting skill and ease of using the hands.
- In the cold the mobility of fingers slows down, which affects task performance.
- Cold affects grip force and the skin's ability to sense temperature and pain.
- Cold exposure aggravates vibration, inducing white finger disease, which makes manual work painful.

4.1 Cold Work Hand Protection

Wear mittens instead of gloves when fine manual work is not required, or gloves with nylon over-mitts that can be taken off. Arctic gauntlet mitts are advisable. Cold protection requires a water resistant membrane with insulated lining.

A wide range of gloves are available offering cut resistance and resistance to oil, moisture, sharp surfaces, welding arc flash, vibration absorption, improved grip along differing levels of performance associated with cost, comfort, dexterity, durability and warmth. Additional features are extended sleeves for additional protection or to seal heat leaks where the sleeve meets the glove or mitt.

For example: Gloves have been designed for using with circular saws in the cold, made of tough, synthetic warp-knitted material of such high tensile strength that on contact with a spinning chain it immediately snags the winding action, bringing the chain to a stop and mitigating potential injury.

THERMAL INFORMATION FOR HAND PROTECTION
Fine work performed with bare hands for more than 10-20 minutes in an environment below 16°C requires special measures to keep workers' hands warm. These measures may include warm air jets, radiant heaters (fuel burning or electric), or contact warm plates.
Metal handles of tools and control bars should be covered by thermal insulating material for temperatures below -1°C.
Tools and machine controls to be used in cold conditions should be designed for operation by gloved hands.
To prevent contact frostbite, workers should wear insulated gloves when surfaces within reach (especially metallic surfaces) are colder than -7°C. Warn workers to avoid skin contact with these surfaces.
Workers should wear gloves where fine manual dexterity is not required and the air temperature falls below 16°C for sedentary, 4°C for light, and -7°C for moderate work.

Source: Infrastructure Health and Safety Association (IHSA), *Construction Health and Safety Manual 7-4*

For more information **Working in Cold Conditions and Occupational Exposure Guidelines** see the [WSCC Thermal Conditions Code of Practice](#)

5 GUIDE TO SELECTION

Hand protection can be provided in a number of ways: finger guards, cots and thimbles, hand pads, mitts, and gloves.

Choose hand protection that adequately protects from the hazards of a specific job and adequately meets the specific tasks involved in the job such as flexibility or dexterity.

Selected gloves should be carefully tested in the actual job conditions. If chemical protective gloves and clothing are required, there should be a complete PPE program that includes:

- The training of workers in the proper use and care of protective gear.
- The selection, fitting, maintenance and inspection of protective clothing and gloves.

PERSONAL PROTECTIVE EQUIPMENT SUCH AS GLOVES ARE THE LAST LINE OF DEFENSE!

5.1 General Information

- Make sure the gloves fit properly.
- Make sure all exposed skin is covered by gloves. Gloves should be long enough so that there is no gap between the glove and sleeve.
- Do not wear gloves with metal parts near electrical equipment.
- Do not use worn or torn gloves.
- Clean gloves as instructed by the supplier.
- Inspect and test gloves for defects before using.
- Test all rubber or synthetic gloves for leaks by inflating them.
- Follow the manufacturer's instructions for care, decontamination, and maintenance of gloves.
- Be aware that some materials may cause reactions in some workers such as allergies to latex. Offer alternatives where possible.
- Know how to remove, and either clean or dispose of used gloves, as appropriate.

Source: *Chemical Protective Clothing – Glove Selection*, <http://www.ccohs.ca/oshanswers/prevention/ppe/gloves.html>, *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), October 29, 2020. Reproduced with the permission of CCOHS, 2021.

5.2 How to Choose the Right Material for the Job

Before deciding about which kind of glove or other chemical protective clothing to use, you should gather and analyze information on a number of factors.

1. **Complete an accurate description of the task.**
2. **Identify all hazards that may require hand protection.** This should include a list of the chemicals involved as well as physical hazards such as abrasion, tearing, puncture and temperature. The kind of hazards will also affect the decision to use other chemical protective clothing in addition to gloves. Check the Safety Data Sheet and other sources for information.
3. **Determine the flexibility and touch sensitivity needed for the task.** This may significantly limit the thickness of glove material that can be used. The requirement for textured or non-slip surfaces to improve grip must also be considered.
4. **Know the type of potential contact** (e.g., occasional contact or splash protection or continuous immersion of hands). This will also help in choosing the appropriate length of the glove.
5. **Determine the contact period.** How long the worker could be in contact with the chemical (and which chemicals) may also influence the selection of type and thickness of the glove material and the choice of lined or unlined gloves.
6. **Determine the potential effects of skin exposure.** The immediate irritation or corrosion of the skin must be considered in addition to the potential health effects to the entire body from absorbing the chemical through the skin.
7. **Consider what hazards may be presented** by the use of the protective clothing itself. For example, protective clothing can contribute to heat stress; reduced dexterity; rip or tactile functions; poor comfort; or may contribute to skin conditions.
8. **Consider the decontamination procedures.** Consider whether the gloves should be disposed of or cleaned after use. If they are cleaned, consider the cleaning method, how often they can be cleaned, and any special procedures required for disposing of 'the decontamination wash waste'?
9. **Provide the necessary education and training** required, which includes:
 - what are the hazards of skin contact with the chemical
 - what are limitations of the gloves
 - what could happen and what to do if the gloves fail
 - when to dispose of or to decontaminate gloves

Source: *Chemical Protective Clothing – Glove Selection*, <http://www.ccohs.ca/oshanswers/prevention/ppe/gloves.html>, *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), October 29, 2020. Reproduced with the permission of CCOHS, 2021.

5.3 Selection of Skin Protection

Hazard	Degree of Hazard	Protective Material
Abrasion	Severe	Reinforced heavy rubber, staple-reinforced heavy leather
	Less Severe	Rubber, plastic, leather, polyester, nylon, cotton
Sharp Edges	Severe	Metal mesh, staple-reinforced heavy leather, Kevlar®
	Less Severe	Leather, terry cloth (aramid fiber)
	Mild with delicate work	Lightweight leather, polyester, nylon, cotton
Chemicals and fluids	Risk varies according to the chemical, its concentration, and time of contact among other factors. Refer to the manufacturer, or product SDS.	Dependant on chemical. Examples include: Natural rubber, neoprene, nitrile rubber, butyl rubber, polyvinyl chloride, poliviny alcohol, <u>Saranex™</u> , <u>Tychem®</u> , <u>Trellchem®</u>
Cold		Leather, insulated plastic or rubber, wool, cotton
Heat	High temperatures (over 350 °C)	Asbestos
	Medium high (up to 350 °C)	<u>Nomex®</u> , <u>Kevlar®</u> , neoprene-coated asbestos, heat-resistant leather with linings
	Warm (up to 200 °C)	<u>Nomex®</u> , <u>Kevlar®</u> , heat-resistant leather, terry cloth (aramid fiber)
	Less warm (up to 100 °C)	Chrome-tanned leather, terry cloth
General Duty		Cotton, terry cloth, leather
Product Contamination		Thin-film plastic, lightweight leather, cotton, polyester, nylon
Radiation		Lead-lined rubber, plastic or leather

Note: The mention of trade name products in the above table is not intended as a recommendation or endorsement of any product. Check with your supplier or the manufacturer to find out if a particular glove meets your requirements.

Source: *Chemical Protective Clothing – Glove Selection*, <http://www.ccohs.ca/oshanswers/prevention/ppe/gloves.html>, *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), October 29, 2020. Reproduced with the permission of CCOHS, 2021.

Code of Practice

**PERSONAL PROTECTIVE EQUIPMENT
HAND AND ARM PROTECTION**

Workers' Safety & Compensation Commission
Northwest Territories and Nunavut

WSCC Emergency Reporting
24-hour Incident Reporting Line

1 800 661-0792

WSCC



If you would like this Code of Practice in another language, please contact us.