

**1.0 Policy**

Canadian Plains Energy Services (CPES) recognizes the need for a systematic process to identify, assess and control hazard sources (HIAC) and ultimately individual hazards. CPES also recognizes the need for employees to control hazards by effectively employing the hierarchy of controls; the elimination or substitution, engineering, and/or administrative controls should all be explored first. Personal protective equipment (PPE) is intended to act as the last line of defense and to be used as a compliment to other hazard control strategies. All PPE must be maintained according to the manufacturer's specifications and visually inspected prior to use. All PPE must be approved by CPES and in the proper condition to fulfill its intended purpose. CPES will ensure that all users are properly trained in proper selection, use, care and assigned maintenance of PPE.

**2.0 Scope**

Personal Protective Equipment (PPE) section is an important element of our Health, Safety and Environment Management System (HSEMS), as such, all persons working at or visiting CPES locations must use the appropriate PPE when and where required.

**3.0 Objective**

The purpose of this standard is to provide guidance on the selection, use, and care of PPE to effectively reduce the exposure to hazards in the workplace. PPE is not intended to replace other higher order hazard control strategies.

**4.0 Key Policy Statements**

CPES considers the following PPE to be the minimum required for all workers and visitors on active worksites:

- Head Protection
- Foot Protection
- Eye Protection
- Hand Protection
- Arm and Leg Protection in the form of long sleeves, pants or coveralls

Any additional required PPE will be identified during the Hazard Identification and Assessment Control (HIAC) process and must be communicated to all persons before they enter the worksite. All workers and visitors share the responsibility to ensure that they are aware of the PPE requirements, trained in its use and comply with this section. The requirements for PPE may change during the course of a day, based on the requirements of a task or a change in the environment, as such continual reassessment under the HIAC process is critical.

All PPE shall be selected, used, and cared for in accordance with the relevant CSA, OHS (Act, Regulations and Code), manufacturer's specifications and/or specific CPES/client regulations.

In the event of a discrepancy between this section and the requirements of the owner or prime contractor of a work site, the standard which offers the higher level of protection shall be adhered to.

APPROVED:   
Aaron Karpan, President

**1.0 Definitions****APR - Air Purifying Respirator**

An air-purifying respirator (APR) is a respirator designed with an air-purifying filter, cartridge or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

**ANSI - American National Standards Institute**

American National Standards Institute (ANSI) is a US non-government organization which develops and publishes standards for the US industry. Its standards setting procedure provides a forum for discussion among academics, special interest groups, users, and vendors. The ANSI standard is referred in both the OHS Regulations and Code and may be referred to by manufacturer (depending on material, product or equipment).

**Arc Flash**

An arc flash is an electrical discharge that uses the air as a conductor, exploding from a high voltage source to another conductor or ground nearby. The release can be 5,000 degrees or hotter, melting nearby metals and damaging the electric circuits involved. The brightness, heat and force of the arc flash can cause substantial damage, fire or injury to the human body.

**CSA - Canadian Standards Association**

Canadian Standards Association (CSA) a not-for-profit membership-based association working to develop standards for products and equipment. The CSA standard is referred in both the OHS Regulations and Code and may be referred to by manufacturer (depending on material, product or equipment).

**dBA - Decibels**

Decibels (dBA) are a measurement of noise (unwanted sounds) to determine the intensity (loudness) and acceptable exposure time for workers. Decibels are a relative measurement in that an increase of 3 dBA is a doubling in sound level.

**FRC - Flame Resistant Clothing**

Flame-resistant clothing is clothing designed with specific material that has the ability to self-extinguish (upon the removal of an ignition source) or does not ignite, limits burn injury and reduces recovery time from a burn injury. Flame-resistant clothing protects the wearer from burn injuries caused by fire and/or extreme heat.

**HVC - Hi Visibility Clothing**

Clothing designed with highly reflective properties or a colour that is easily discernible from any background which helps to distinguish between objects and people and allows the human brain to more easily identify the wearer.

**IDLH - Immediately Dangerous to Life or Health**

Immediately Dangerous to Life or Health (IDLH) is a circumstance in which the atmosphere is deficient in oxygen or the concentration of a harmful substances and poses an immediate threat to life, could cause irreversible adverse health effects, or could impair an individual's ability to escape from a dangerous atmosphere.

**Industrial Hygiene**

Industrial Hygiene is generally defined as the art and science dedicated to the anticipation, recognition, evaluation, communication, and control of environmental stressors in, or arising from, the workplace that may result in injury, illness, impairment, or affect the well-being of workers and members of the community. These are divided into categories of biological, chemical, physical, ergonomic and psychosocial and are about the prevention of ill-health from work, through recognizing, evaluating and controlling the risks. The objective is to protect worker health and well-being and safeguarding the community at large.

**Manufacturer's Specifications**

The written instructions for product/equipment use and maintenance which are developed by the manufacturer.

**NIOSH - National Institute for Occupational Health and Safety**

National Institute for Occupational Health and Safety (NIOSH) is a public health service organization established under the US Department of Health and Human Services (DHHS). Its activities include testing and certification of respiratory protective devices and air-sampling detector tubes, and recommendation for occupational exposure limits for various substances. NIOSH is the primary federal agency conducting research on the safety and health of the workplace. NIOSH develops and promotes the use of national and state-based surveillance systems to identify, quantify, and track injuries and illnesses.

**PPE – Personal Protective Equipment**

Personal Protective Equipment (PPE) is specialized clothing or equipment worn by employees for protection against health and safety hazards and is a defense mechanism against the negative impact of an incident. PPE is designed to protect many parts of the body not limited to; eyes, head, face, hands, feet, ears.

**SCBA - Self-Contained Breathing Apparatus**

An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

**SAR - Supplied-Air Respirator**

An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

**1.0 Roles and Responsibilities****1.1 Employee/Worker**

It is the responsibility of each employee/worker to:

- Use PPE approved by Strike
- Assist with identifying the appropriate PPE based on the hazard sources and specific hazards of the worksite or task
- Review and comply to this section and as directed by manufacturer
- Cooperate with the implementation of specific standards and guidelines in this section
- Use PPE in accordance with this section and as directed by the manufacturer
- Inspect all PPE prior to use
- Only use PPE which is in a condition to perform the function for which it was designed
- Ask for assistance or more information where unsure or unfamiliar with the selection, use, care and/or limitations of the PPE

**1.2 Supervisor's Responsibilities**

It is the responsibility of the Supervisor (superintendent, foreman, lead designate) to:

- Assist and support workers with identifying the appropriate PPE based on the hazard sources and specific hazards of the task or worksite
- Ensure all workers adhere to specific standards and guidelines in this section
- Communicate the required PPE to workers, subcontractors and visitors to Strike work sites
- Train workers on the selection, use, care and/or selection and limitations of specific PPE

**1.3 Line Management**

It is the responsibility of the Managers, Project Manager or other designated Managers to:

- Support and educate employees on the required selection, use, care and/or limitations of PPE
- Oversee the implementation of specific standards and guidelines in this section and ensure its effectiveness
- Ensure and reinforce the proper use of PPE as outlined in this section
- Ensure the existence of a process for employees to attain the required PPE

**1.4 Senior Management**

It is the responsibility of Senior Management (Executives and Regional/General Managers) to:

- Set and review the policy for PPE within Strike
- Assess the effectiveness of the PPE section
- Provide guidance on the implementation of the specific standards and guidelines in this section

**1.5 Health, Safety and Environment (HSE)**

It is the responsibility of the HSE Group to:

- Measure the effectiveness of this section
- Assist in the training of all workers, visitors and contractors in the selection, use, care and/or limitations of PPE
- Provide advice and guidance of the selection, use and care of PPE
- Be familiar with this policy and provide clarification where required
- Assist with identifying the appropriate PPE based on the hazard sources and specific hazards of

the task or worksite

- Work in conjunction with Managers and Supervisors to promote and implement of specific standards and guidelines in this section
- Review and update the HSEMS documentation to ensure relevance and continued legislative and regulatory compliance.

### **1.6 Contractors, Sub-Contractors and Independent Service Providers (ISP)**

It is the responsibility of all Contractors, Sub-contractors and Independent Service Providers to:

- Arrive on site with PPE which is consistent with that approved by Strike
- Assist with identifying the appropriate PPE based on the hazard sources and specific hazards of the worksite or task
- Cooperate with Strike in the implementation of specific standards and guidelines in this section
- Use PPE in accordance with this section and as directed by the manufacturer
- Inspect all PPE prior to use
- Only use PPE which is in a condition to perform the function for which it was designed
- Ask for assistance or more information where unsure or unfamiliar with the selection, use, care and/or limitations of the PPE

### **1.6 Visitors**

It is the responsibility of all Visitors to:

- Comply with specific standards and guidelines in this section
- Assist with identifying the appropriate PPE based on the hazard sources and specific hazards of the worksite or task
- Inspect all PPE prior to use
- Use PPE in accordance with this section and as directed by the manufacturer

**1.0 Head Protection**

All personnel on any active CPES worksite are required to wear head protection at all times.

**1.1 Hard Hats**

Industrial head protection (Hard Hats) shall meet CSA standard Z94.1-05 Type 1 Head Protection. Type 2 Lateral Impact Protection is required in situations where it has been deemed necessary through the HIAC process or by the Prime Contractor for the site/project.

Classes of CSA headwear include:

- Type 1 - protection from impact and penetration at the crown (top) and
- Type 2 - protection from impact, penetration at the crown (top) and laterally (sides)

Each type is also available in the following classes:

- Class C (no electrical rating)
- Class E (20 000 V electrical rating) - non-conducting material (electrical trades)
- Class G (2200 V electrical rating) - non-conducting material (general trades)

**1.2 Bump Hat/Cap**

Unlike industrial protective headwear, bump hats are not equipped with a shock-absorbing liner and suspension system that can absorb the energy of an object striking the headwear. Bump hats are permitted on CPES worksites where the hazards have been classified as low risk based on the HIAC process. Bump hats are intended for use in situations where the danger of injury is limited to striking the head against stationary objects. Examples of these situations include automotive repair operations, servicing hard-to-reach equipment in a complex mechanical room, etc.

**1.3 Helmets**

All operators of off-road or open cab vehicles such as ATVs and sleds must wear a CSA approved helmet designed specifically for that purpose:

- FMVSS 218, *Motorcycle Helmets* 1993 OCT or
- BSI standard BS 6658: 05 Specification for Protective Helmets for Vehicle Users.

## **2.0 Selection, Use and Care**

### **2.1 Selection**

Head protection (hard hats) is mandatory on all Canadian Plains Energy Services (CPES) worksites. The selection of an appropriate hard hat must be determined using the HIAC process and before entering a worksite.

- The hard hat must be adjusted to fit snug and worn following all manufacturers' specifications.
- Refer to CPES Procedure Manual 5-20 for additional information regarding CPES requirements for hard hat procurement and selection.
- In accordance with HSEMS Manual section 8.1 New Worker Policy; all workers that are new to the industry are required to wear a green hard hat or wear a green hand sticker on their hard hats (see figure 1) for the first 6 months they are employed at CPES, or until they have had their HSE competency verified and documented.
- All supervisors, including those in a supervisory role and ISPs are to wear white CPES issued and logoed hard hats while representing CPES.
- Hazard sources that need to be consider when selecting the appropriate protective equipment are;
  - Flammable/Explosive
  - Gravity
  - Mechanical
  - Motion
  - Temperature

### **2.2 Use**

The use of head protection is based on manufacturer's specifications and the HIAC process.

- Equipment and vehicle operators are not required to wear head protection when riding in an enclosed cab or vehicles equipped with rollover protective structures and seat belts or restraining devices, however they must be worn prior to exiting the cab on all CPES worksites or those worksites which deem necessary.
- Hard Hats may not be worn backwards unless they are CSA approved and are;
  - designed to be worn in the reverse position and
  - must have the reverse orientation symbol displayed on, or affixed to, the hard hat to indicate that it meets the required CSA Standard - see Figure 2.

### **2.3 Care**

- Hard hat shells and liners must be replaced as per manufacturer's recommendations and should be inspected daily prior to use - see Figure 3 Components of a Hard Hat.
- Hard hat liners must:
  - rest directly on the head
  - be installed according to the manufacturer's specifications and
  - be rated Fire Resistant where deemed necessary by HIAC.
- Head protection must be replaced at the first sign of cracking, sun damage or following a blow or a drop which may have had the potential to compromise the integrity of the equipment.
- Head protection should never be exposed to harsh chemicals when cleaning and cleaned based on manufacturer's recommendations.
- Hard Hats must not be stored in direct sunlight, i.e.: near the window of a vehicle.

- Hard hats must not be painted or modified in anyway which has not been approved by the manufacturer.

Figure 1 - Green Hand Sticker (examples)



Figure 2 - Reverse Orientation Symbol = CSA Symbol indicating a hard hat has been approved to be worn backwards

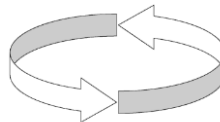
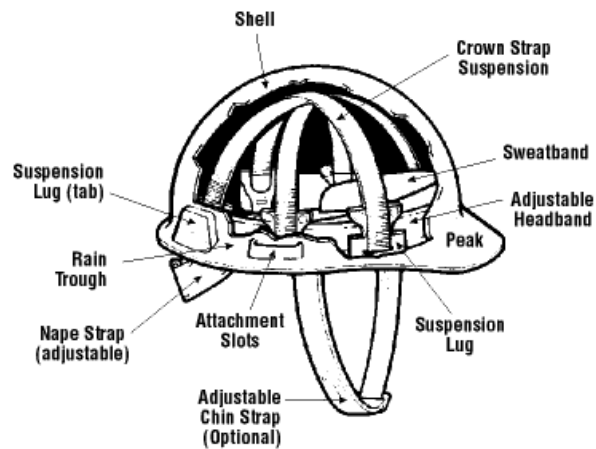


Figure 3 - Components of a Hard Hat





**1.0 Eye and Face Protection**

Eye and face protection are of particular importance at Canadian Plains Energy Services (CPES) as, based on the hazard sources and energy release, the eyes and face may be in the line of fire. When selecting eye and face protection, particular care must be taken to identify the line of fire involved in the work activity in order to ensure sufficient protection is provided.

**1.1 Eye Protection**

All personnel on CPES work sites are required to wear eye protection that must meet the appropriate standards.

A. Eye protection and prescription eye wear:

- CSA Standard Z94.3-02, *Eye and Face Protectors*
- CSA Standard Z94.3-07, *Eye and Face Protectors or*
- CSA Standard Z94.3-99, *Industrial Eye and Face Protectors*

However, prescription safety eyewear may consist of frames that meet the requirements of ANSI Standard Z87.1-2003, *Occupational and Educational Personal Eye and Face Protection Devices* provided the lenses meet the requirements of CSA Standard Z94.3-07, *Eye and Face Protectors*.

B. Plastic lenses: if impracticable and there is no danger of impact, lenses made of treated safety glass must meet the following standards:

- ANSI Standard Z87.1-2003, *Occupational and Educational Personal Eye and Face Protection Devices, or*
- ANSI Standard Z87.1-2003, *Occupational and Educational Personal Eye and Face Protection Devices, or*
- ANSI Standard Z87.1-1989, *Practice for Occupational and Educational Eye and Face Protection*

There are many types of lens material outlined in Figure 1, which provide the properties of each available material (where ultraviolet protection is required, manufacturer's specifications must be consulted to ensure that the appropriate protection is provided). The colour of the lenses does not necessarily correspond to the protection offered however when selecting lenses consider the environment in which they are working;

- day vs. night
- indoors vs. outdoors
- summer vs. winter

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### Eye and Face Protection

Figure 1 – Comparison of Lens Materials

Material	Characteristics
Polycarbonate	Strongest material for impact resistance Lightweight Can be coated for scratch resistance Most have built-in UV radiation protection
Plastic (CR39)	About one-half the weight of glass Resistant to solvents and pitting More choices for coatings and tinting
Trivex	More impact resistant than CR39 Plastic Less impact resistant than polycarbonate UV radiation absorption properties
Glass <i>* not approved as safety eye protection</i>	High-density material (heavy lenses) Loses impact resistance if scratched Does not meet impact criteria as set by CSA

In some cases, the HIAC process (referred to in HSEMS manual section 2) a chemical SDS or a CPES procedure (or a client procedure) may require the use of specialty eye protection. Specialty eye protection may include goggles, shaded lenses or safety glasses equipped with foam backing (which fits close to the face).

Safety glasses are not required inside enclosed vehicles however they must be worn prior to exiting the cab.

- C. Contact lenses: may be worn by individuals working on CPES work sites provided the appropriate use of eye and face protection according to this standard are adhered to. Wearing contact lenses around chemicals may increase the risk of injury to the individual and it may delay or reduce the effectiveness of first aid treatment. Individuals who wear contact lenses must notify their supervisor so that the appropriate precautions may be taken in the event of an emergency.

### 1.2 Face Protection

For tasks which pose a risk to the employees face or an increased risk to the eyes and/or where there is a risk of falling debris from overhead work, appropriate face protection must be worn.

Some examples of tasks which require the use of double eye protection; face protection (face shield) in addition to safety glasses or goggles are, but not limited to;

- Scraping or chipping
- Using a hand or bench grinder
- Handling any chemicals for which the SDS requires the use of face protection
- Using a chop saw

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### Eye and Face Protection

- Drilling /milling
  - Buffing, grinding or cutting with a zip disk
- A. Full face piece - respirator: if a worker is required to wear a full-face piece respirator and the face piece is intended to prevent materials from striking the eyes, the face piece must meet the following standards:
- CSA Standard Z94.3-07, *Eye and Face Protectors*
  - CSA Standard Z94.3-02, *Eye and Face Protectors, or*
  - ANSI Z87.1-2003, *Occupational and Educational Personal Eye and Face Protection Devices, or*
  - ANSI Z87.1-1989, *Occupational and Educational Personal Eye and Face Protection Devices*
- B. Full face piece – welding or cutting; where protection from ultraviolet radiation associated with welding or cutting is required appropriate eye and face protection is required, refer to SWP 43.  
\*Safety glasses must be worn under welding helmets at all times.

Figure 2 – CSA Recommended Shades

#### Shade Numbers for Selected Arc Processes (from CSA W117.2)

Process	Electrode Diameter (mm)	Current (Amperes)	Minimum Shade	Suggested Shade
SMAW (Shielded Metal Arc Welding)	<2.5	<60	7	-
	2.5 – 4	60 – 160	8	10
	4 – 6.4	160 – 250	10	12
	> 6.4	250 – 550	11	14
GMAW (Gas Metal Arc Welding)		<60	7	-
FCAW (Flux-Cored Arc Welding)		60 – 160	10	11
		160 – 250	10	12
		250 - 500	10	14
MCAW (Metal Core Arc Welding)				
Air Carbon Arc Cutting				
	Light	<500	10	12
	Heavy	500 - 1000	11	14

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**Eye and Face Protection**
**Shade Numbers for Cutting (from CSA W117.2)**

Process	Plate Thickness (in mm)	Minimum Shade No.	Suggested Shade No.
Light	<25	3	4
Medium	25 – 150	4	5
Heavy	>150	5	6

**2.0 Selection, Use and Care**
**2.1 Selection**

In order to properly protect the eyes and face from incidents or injury, select the protection required based on HIAC, tasks and environment.

- Eye and face protection should be selected so that they fit as closely to the face as possible.
- Different brands and styles of eye and face protection fit differently so trying multiple types may be necessary to receive the best possible fit.
- Workers may require different shades of lenses based on the work environment and task. Consider potential lighting and risks when selecting the shade of lenses, i.e. dark lenses inside buildings can create a greater risk than a lighter shade, especially in the early morning, evening and in the winter season.
- Hazard sources that need to be considered when selecting the appropriate protective equipment are:
  - Chemical
  - Flammable/Explosive
  - Gravity
  - Mechanical
  - Motion
  - Nature
  - Pressure/Energized

**2.2 Use**

- Anti-fog sprays should be used when working in cold environments or where the worker may be required to move from one temperature to another.
- Eye and face protection must be used according to the manufacturer's specifications.
- Safety glasses must be worn under welding helmets at all times.
- Double eye protection must be worn when there is work overhead or a risk of debris falling into the eyes.

**2.3 Care**

- Eye and face protection must be inspected prior to each use and replaced if there are any deep scratches or pitting as this will decrease the strength of the equipment.
- Eye and face protection must be cleaned at regular intervals to ensure the user's vision is not compromised.
- Eye and face protection should not be left in the work area, however if left in the work area, it must be inspected and cleaned before each use.
  - Eye and face protection can be positioned for use within shops in order to promote use (i.e. hanging on grinders, chop saws, etc.), however caution should be taken as to not allow the eye and face protection to be scratched or broken.

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### **Eye and Face Protection**

- Eye and face protection should be cleaned before each use to avoid loose material entering the eyes of the user.
- Eye and face protection must be cared for and maintained according to the manufacturer's specifications.

## 1.0 Hearing Protection

Hearing protection should be worn if the noise or sound level at the workplace exceeds 85 decibels (A-weighted) or dB(A), based on the HIAC process and legislation. Hearing protection can reduce the noise exposure level and the risk of hearing loss. Hearing protection must meet CAN/CSA-Z94.2-02, *Hearing Protection Devices-Performance Selection, Care and Use*.

**Table 1** – Noise Exposure Limits

Noise Exposure Limits when Criterion Level = 85 dB(A)		
3 dB(A) Exchange Rate	Maximum Permitted Daily Duration (hours)	5 dB(A) Exchange Rate
Allowable Level dB(A)		Allowable Level dB(A)
85	8	85
88	4	90
91	2	95
94	1	100
97	0.5	105
100	0.25	110

The criterion level, often abbreviated as *L<sub>c</sub>*, is the steady noise level permitted for a full eight-hour work shift and within BC, AB, SK, MB, ON it is 85 dB(A).

*Note: Once the noise levels in a workplace are registered between 80dBA – 85dBA, signage is to be posted to inform all personnel and visitors that hearing protection is required.*

### 1.1 Types of Hearing Protection

- A. **Ear plugs:** inserted to block the ear canal and may be pre-molded or moldable (i.e. foam ear plugs). See Figure 1 – Types of Hearing Protection
  - Disposable,
  - Reusable, or
  - Custom molded

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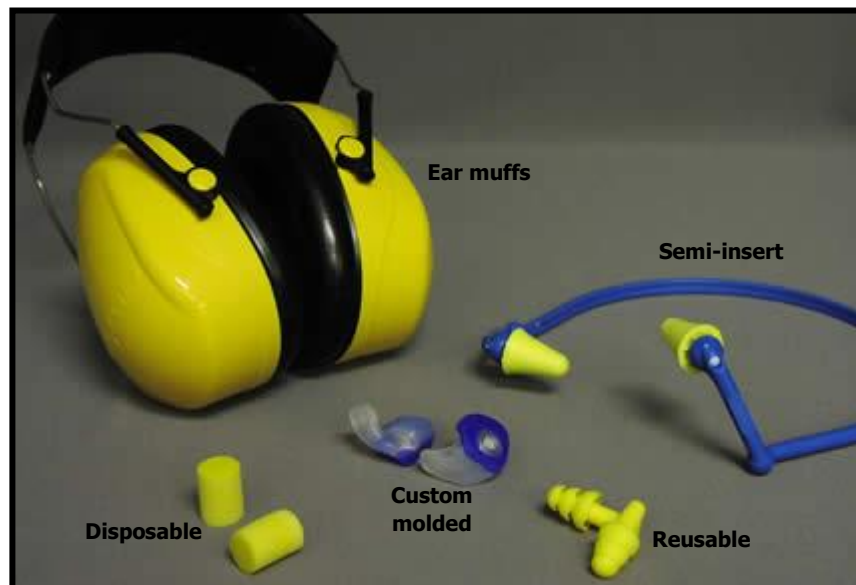
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### Hearing Protection

- B. **Semi-insert ear plugs:** consist of two ear plugs held over the ends of the ear canal by a rigid headband. See Figure 1 – Types of Hearing Protection
- C. **Earmuffs:** consist of sound-attenuating material and soft ear cushions that fit around the ear and hard outer cups and are held together by a head band. See Figure 1 – Types of Hearing Protection

The effectiveness of hearing protection is reduced greatly if the hearing protectors do not fit properly or if they are worn only part time during periods of noise exposure. To maintain their effectiveness, they should not be modified. See Table 2 – Maximum Protection Provided for Non-continuous Use

Figure 1 – Types of Hearing Protection



In order to get full benefit, hearing protectors must be worn all the time while performing noisy tasks or in proximity of a noisy environment. If hearing protectors are removed only for a short duration, the protection is substantially reduced.

When selecting hearing protection attention must be paid to the noise reduction ratio (NRR) of the equipment. The NRR is the approximate number of dBA that equipment will filter, i.e. ear plugs with a 15 NRR in an 85 dBA environment, when used correctly, will reduce the user's exposure level to approximately 70 dBA.

NIOSH recommends using subject fit data based on ANSI S12.6-1997 to estimate hearing protector noise attenuation, and also recommends that the labeled NRRs be derated as follows (to account for user error):

- Earmuffs - Subtract 25% from the manufacturer's labeled NRR

- Formable earplugs - Subtract 50% from the manufacturer's labeled NRR
- All other earplugs - Subtract 70% from the manufacturer's labeled NRR

See Figure 3- Proper Fit vs. Improper Fit

## **2.0 Restrictions**

The use of portable music playing, blue tooth or any other devices which require the insertion of an earpiece are prohibited on all CPES work sites. The use of in-ear devices may impede a worker's ability to hear warning signals or other communications; they also interfere with the effective use of any required hearing protection.

## **3.0 Selection, Use and Care**

Refer to the Canadian Plains Energy Services (CPES) Code of Practice 04 – Noise Control and Hearing Protection, when selecting the appropriate hearing protection equipment.

### **3.1 Selection**

- Hearing protection should be selected based on the HIAC process; site and tasks should be reviewed to identify operations which could produce a hazardous level of noise.
- Provides adequate protection, check the manufacturer's literature.
- Comfortable enough to be accepted and worn.
- Hazard sources that need to be consider when selecting the appropriate protective equipment are:
  - Flammable/Explosive
  - Mechanical
  - Noise

### **3.2 Use**

- All hearing protection equipment should be used in accordance with the manufacturer's specifications, see Figure 2 – Proper Insertion of Ear Plugs.
  - Remember that not everyone's ear canals are the same and so not all hearing protection will fit everyone in the same manner.
- Inspect hearing protection prior to use.

### **3.3 Care**

- Follow the manufacturer's instructions.
- Check hearing protection regularly for wear and tear.
- Replace ear cushions or plugs that are no longer pliable.
- Replace a unit when head bands are so stretched that they do not keep ear cushions snugly against the head.
- Disassemble earmuffs to clean, based on manufacturer's specifications.
- Wash earmuffs with a mild liquid detergent in warm water, and then rinse in clear warm water. Ensure that sound-attenuating material inside the ear cushions does not get wet. Refer to manufacturer's specifications.
- Use a soft brush to remove skin oil and dirt that can harden ear cushions.



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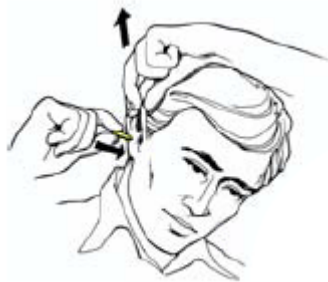
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- Squeeze excess moisture from the plugs or cushions and then place them on a clean surface to air dry.
  - Check the manufacturer's recommendations first to find out if the ear plugs are washable.

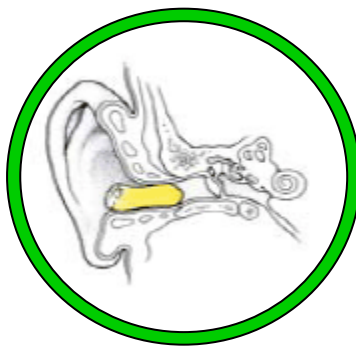
Figure 2 – Proper Insertion of Ear Plugs



Steps:

Roll plug to compress  
Pulled the ear upward with the opposite hand  
Insert plug straight into the ear

Figure 3 – Proper Fit vs. Improper Fit



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### Foot Protection

#### 1.0 Foot Protection

All Canadian Plains Energy Services (CPES) employees and visitors on all active work sites shall wear approved foot protection at all times. All foot protection must meet CSA standards Z195-02, or ASTM Standard F2413-05, *Specification for Performance Requirements for Protective Footwear*, see Table 1 – CSA Footwear Symbols. Safety footwear should have the CSA green triangle affixed but should also have the appropriate international protection code marking affixed, see Table 2 – International Protection Codes. In addition, all foot protection must extend above the ankle to ensure proper support and shall be a minimum of 6-inch (15.24 cm) height to offer adequate ankle protection.

Table 1 – CSA Footwear Symbols

Selection of Safety Footwear		
Marking	Criteria	Use
	Green triangle indicates sole puncture protection with a Grade 1 protective toe (withstand impacts up to 125 Joules) and resist cracking after being subjected to 1.5 million flexes.	Any industrial or heavy work environment, including construction, where sharp objects are present (such as nails).
	Yellow triangle footwear has sole puncture protection and Grade 2 protective toe (withstand impact up to 90 joules) and resist cracking after being subjected to 1.5 million flexes.	Light industrial work environments that need both puncture and toe protection.
	Blue rectangle footwear provides Grade 1 protective toe with no protective sole	For industrial work that does not require puncture protection.
	Grey rectangle footwear provides Grade 2 protective toe with no protective sole	For institutional and non-industrial work that does not require puncture protection.
	White rectangle with orange Greek letter "omega" footwear has soles that provide electric shock resistance. Such certified footwear contains a sole and heel design assembly that, at the point of manufacturing, has electrical insulating properties intended to withstand 18,000 Volts and a leakage current not exceeding 1mA.	Any industrial environment where accidental contact with live electrical conductors can occur.  REMEMBER: Electric shock resistance is greatly reduced by wet conditions and with wear. Also know that conductive footwear as listed in CSA Z195-09 relates to an electrical discharge that might ignite volatile, flammable materials that are close to the wearer. Live electrical work should follow recommendations for an electrically conductive clothing ensemble (as specified under CAN/ULC-60895).

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### Foot Protection




	<p>Yellow Rectangle with green letters "SD" and grounding symbol indicates soles are static dissipative.</p> <p>Note: SD footwear without toe protection will not have sole protection certified by CSA.</p>	<p>Any industrial environment where a static discharge can be hazardous for workers or equipment.</p>
	<p>Red rectangle with black letter "C" and grounding symbol indicates soles that are electrically conductive.</p>	<p>For any industry where static discharge can create a hazard of explosion.</p>
	<p>White label with green fir tree symbol indicates protection when using chainsaws. Protective features are designed into the boots to prevent a running chainsaw from cutting all the way through the boot uppers so as to protect the shins, ankles, feet and toes.</p>	<p>For forestry workers and others who work with or around hand-held chainsaws and other cutting tools.</p>

Table 2 - Internal Protection Code Markings

### Protection Code

<b>Position:</b>	1	2	3	4	5
<b>Mark:</b>	1	P	M	E	X

Position 1	Level of toe protection	1 = Grade 1 2 = Grade 2 0 = not
Position 2	Presence of puncture-resistant toe	P = present 0 = Not
Position 3	Presence of metatarsal protection	M = present 0 = not
Position 4	Type of electrical protection	E = shock resistant S = static dissipative C = conductive 0 = no protection
Position 5	Chainsaw protection	X = present 0 = not

## **2.0 Selection, Use and Care**

### **2.1 Selection**

- The appropriate foot protection must be selected based on the HIAC process.
- Depending on the hazard source associated with the task being performed, determine the type of foot protection required.
- The traction provided must be considered when selecting footwear for the task.
- Hazard sources that need to be considered when selecting the appropriate protective footwear are;
  - Chemical
  - Electrical
  - Mechanical
  - Motion
  - Nature
  - Temperature

### **2.2 Use**

- Inspect foot protection prior to each use to ensure the condition meets the intentions of the manufacturer. If it does not meet all necessary conditions, footwear must be replaced immediately.
- Proper fit and comfort are essential, the heel cup of the boot should grip the heel when walking.
- Foot protection should be fully laced up to provide support and protection to the ankles.
- Manufacturer's specifications are required for appropriate and accurate use of protective footwear.

### **2.3 Care**

- Foot protection with exposed metal toe caps must be replaced due to the risks associated with working around electrical hazard sources.
- Always follow the manufacturer's specifications for appropriate care of protective footwear.

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**Protective Clothing****1.0 Clothing**

All workers, excluding those in the office environment, are required to wear long pants and long sleeve shirts. In addition, workers should ensure that their clothing does not pose a hazard through poor fit (e.g. coveralls that are too long, etc.), and is in a condition which will protect them from the hazards in their work area (free of tears which could snag on equipment, etc.).

Hoodies are permitted on the work site except when:

- working around rotating equipment
- peripheral vision is compromised
- otherwise specified by the prime contractor or client
- increased risk has been identified by the HIAC process

**2.0 Flame Resistant Clothing (FRC)**

Where the potential for flash fire exists, workers shall wear flame resistant clothing (FRC) as their outermost layer. This includes rainwear. Fabrics which can melt or shrink (i.e. nylon, polyester) must not be worn, even as undergarments. All clothing worn under FRC must be made from natural fibers (i.e. wool, cotton).

Flame resistant clothing is designed to avoid ignition in the event of an arc flash or flash fire. FRC will resist catching fire for up to four seconds preventing the extensive burns that are typically caused by the ignition of clothing in arc or flash fire situations. FRC must be kept in good repair in accordance with the manufacturer's specifications.

CPES's FRC requirements align with the specifications of:

- Canadian General Standards Board CGSB 155.20-2000 (Protection against hydrocarbon flash fire)
- NFPA 2112 (Flame resistant garments for protection against flash fire)

The FRC materials approved by Strike and available through its approved vendors are:

- Indura Ultra Soft - not inherently flame-resistant
- Nomex IIIA – inherently flame-resistant
- Tecasafe Plus - inherently flame-resistant

All FRC should be cared for (cleaned, laundered, repaired) as per manufacturer's instructions.

**3.0 Welding Operations**

Welding clothing is designed to resist damage from continuous exposure to sparks, slag, and heat from welding operations. As a result, Strike grants an exemption on FRC to welders such as leather and specialty designed fabrics, such as heavy cotton canvas, e.g. Carhartt.

Where the potential for flash fire exists, welders/helpers shall wear FR-rated welding clothing of a hazard rating category (HRC) of 2 or higher and which meets NFPA-2112 standard, or one of the approved FRC materials as per above.

**4.0 Arc Flash**

Arc flash is defined as the type of electrical explosion or discharge that results from a low-impedance connection through air to ground, or another voltage phase, in an electrical system. It usually results in an explosion of superheated shrapnel with deafening noise and supersonic concussive forces, which poses extreme risk to an unprotected worker.

Where the potential for arc flash exists, workers shall wear arc flash rated clothing of a minimum hazard category rating (HRC) of 2 or higher as their outermost layer. Fabrics which can melt or shrink (i.e. nylon, polyester) must not be worn, even as undergarments.

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**Protective Clothing**

CPES's specification on arc flash rated clothing is based on CSA-Z462 Workplace Electrical Safety Standard (based on the American NFPA-70E).

When working on or around live circuits, you must wear the proper PPE to protect against electric arc flash. CPES's SWP-38 Arc Flash must be consulted as part of the HIAC process prior to beginning any work involving working around live electrical equipment.

The arc flash rated materials approved by Strike and available through its approved vendors are:

- Indura Ultra Soft
- Nomex IIIA
- Tecasafe Plus

All arc flash rated clothing should be cared for (cleaned, laundered, repaired) as per manufacturer's instructions.

**5.0 Chemical Protective Clothing**

When required to work with chemicals, it is essential to check the product MSDS, as part of the HIAC process, before selecting the clothing to be worn. This information can be attained from the product MSDS or from the supplier of the protective clothing and additional information is available in applicable Strike COPs, SWPs and/or SJPs.

As chemical protective clothing has a permeation rate at which particular chemicals will pass through it, the permeation rate is usually expressed in a format of milligrams per sq. meter per second. The permeation rate of a particular substance can vary from seconds to days or weeks in some cases.

Breakthrough time is another measure of permeability it is the time it takes a substance to completely penetrate a material. One final measure is the degradation of a material; this is a measure of the physical deterioration of a material when it is exposed to the property. Deterioration can range from almost nothing to complete disintegration.

Additional considerations when selecting protective clothing for work with chemicals include:

- Potential consequences of exposure
- Length of exposure
- Potential amount of the chemical that the worker may be exposed to
- Likelihood of the chemicals coming in contact with the individual's clothing

**6.0 Chainsaw Operations**

Chainsaw operations have unique risk/hazards and require particular care when selecting the appropriate PPE. A review of SWP 13 - Chain Saw Operation is essential. The requirements by Strike include;

- wire mesh face shield
- safety glasses
- hard hat
- hearing protection
- reflective clothing with long sleeves
- pants/chaps
- gloves and boots

Chain saw operations require very specific protective clothing; all clothing including pants/chaps, gloves and boots must be made from ballistic nylon. Ballistic nylon is comprised of long fibers which if cut will be pulled into the chainsaw, clogging the drive mechanism and stopping the chain. Footwear is of particular importance since the chain will easily cut into heavy leather – refer to protective footwear.

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**Protective Clothing****7.0 Adverse Weather Clothing**

The work that Strike performs may require workers to perform these tasks in adverse weather conditions that range from;

- Hot and arid
- Cold and wet
- Cold and arid

When selecting specialty PPE for these weather conditions it is essential that the HIAC process is followed and that all selected PPE adheres to this standard. Rain or winter clothing for example, must be tested to the same standard of flame resistance as all other FRC and they must be made of appropriate material for the task. Nature/temperature must never be forgotten as a hazard source, and factor in all decisions regarding the most appropriate equipment for the task.

**8.0 High Visibility Clothing**

Any employees working around moving equipment, acting as a spotter, swamper, and traffic controller or in any other situation where HIAC has identified the need, shall wear high visibility clothing (HVC). HVC must have reflective striping which adheres to CSA Z96-02-High Visibility Safety Apparel. HVC is designed to be much more easily identified by the human eye. The reflective stripes are located on the body in specific positions which allows the eye to easily identify the shape as a human being. The CSA standard sets out 3 classes of HVC; the higher the class the more recognizable the wearer becomes. See Figure 1

## PERSONAL PROTECTIVE EQUIPMENT

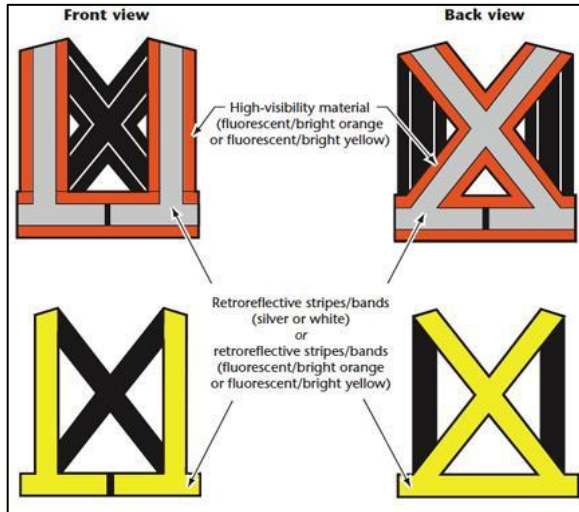
September 16, 2020

## Section 6.7

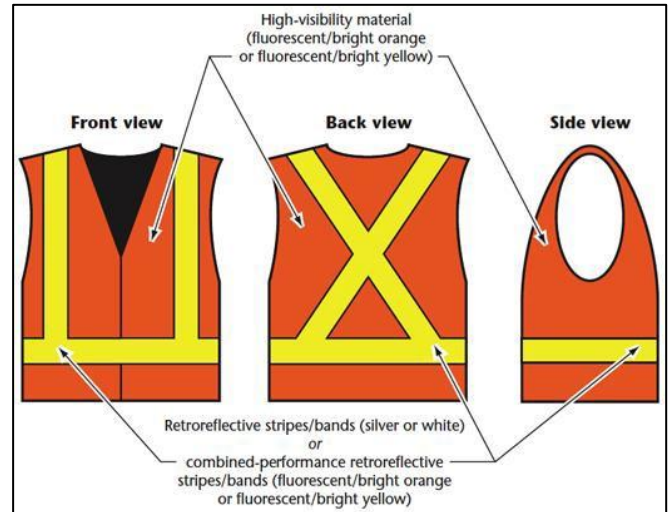
### Protective Clothing

**Figure 1 - HVC Classifications**

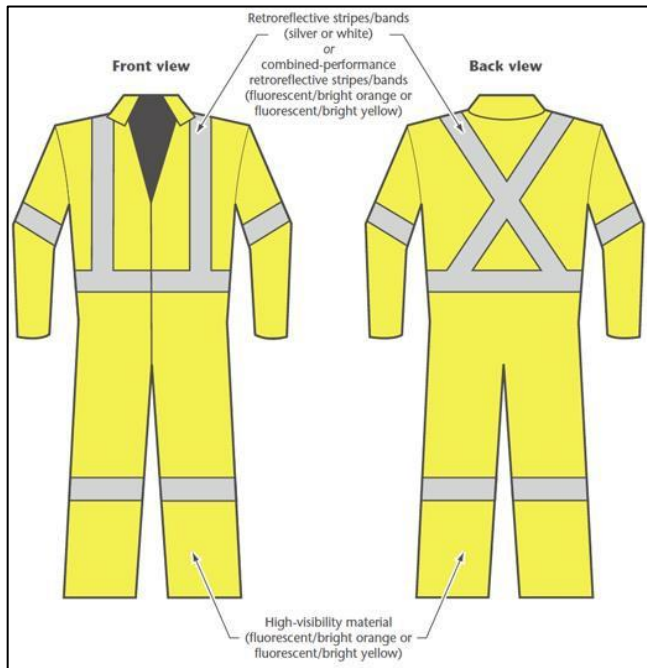
#### Class 1



#### Class 2



#### Class 3







## **PERSONAL PROTECTIVE EQUIPMENT**

## **Section 6.7**

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### **Protective Clothing**

#### **9.0 Selection, Use and Care**

1. Selection
  - All clothing should be selected according to the weather conditions and individual user comfort.
  - Remember that layers of protective clothing often provide a level of protection greater than the sum of the parts.
  - Always consult with your supervisor or site safety representative if you are unsure about the requirements or a particular item of clothing.
  - Hazard sources that need to be considered when selecting the appropriate protective equipment are;
    - Chemical
    - Electrical
    - Flammable/Explosive
    - Mechanical
    - Nature
    - Pressure/Energized
    - Temperature
2. Use
  - All clothing must fit appropriately so that it does not create a risk for entanglement or snag.
  - All protective clothing must be inspected and used according to the manufacturer's specifications.
  - Avoid any clothing with loose or hanging parts, such as tie strings or straps when working around moving or rotating equipment.
3. Care
  - All clothing must be maintained, repaired and laundered in accordance with the manufacturer's recommendations.
  - Clothing must be replaced as soon as it is no longer in the condition required to meet the intention of the manufacturer.

## **1.0 Hand Protection**

Hand protection (i.e. gloves) is one part of Strike's minimum PPE requirements, and shall therefore be worn by any worker in the work environment (vehicles, offices, break times, etc. are exempted) and in accordance with the HIAC process. Appropriate hand protection should be readily available to all workers and visitors and suitable to the nature of their intended task/work. Hand protection selected will vary depending on the task/work being performed.

## **2.0 Selection, Use and Care**


- Before deciding what the appropriate glove is for your task at hand that will offer the greatest level of protection, assess the Risk of exposure to the Hazards involved in your task. This assessment should include a review of:
  1. The physical hazards (e.g., impacts, abrasion, tearing, puncture, fire/flames, temperature, and biological hazards). The requirement for chemical-resistant gloves. Check the safety data sheet (SDS) and other sources for information.
  2. Determine the flexibility and touch sensitivity needed for the task. This need 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.
- When selecting hand protection, always consult the appropriate SDS, Strike COP/SWP/SJP and manufacturer's specifications for the tools or equipment involved in the task.
- Be aware that some materials may cause reactions in some workers such as allergies to latex - offer alternatives where possible (i.e. Nitrile).
- Do not wear gloves with metal parts near electrical equipment.
- Particular care must be taken when selecting gloves for chemical operations as certain chemicals may pass easily through popular glove types - always consult the SDS prior to use.
- Any time that the HIAC process has identified the risk of Arc Flash, the Strike SWP 38 – Arc Flash must be consulted in order to identify the proper risk category and the corresponding PPE.
- Weather conditions must be taken into consideration when selecting hand protection (i.e., insulated gloves should be used in cold environments).
- Hazard sources that need to be consider when selecting the appropriate protective equipment are:
  - Biological
  - Chemical
  - Electrical
  - Flammable/Explosive
  - Mechanical
  - Nature
  - Noise
  - Temperature

Since there are many uses for hand protection there are multiple standards used to certify their various protective properties. The following sections will outline several of the most common.

## 2.1 Cut Resistance

Cut resistance in industrial work gloves is measured on a scale of A1-thru-A9 based on the ANSI/ISEA 105. It is important to understand the protection levels associated with each standard. Generally, low cut-resistance levels (A1-A3) provide protection against minor nuisance cut hazards found in lower-risk environments, such as handling boxes. Cut-resistance levels of A4 and above are better suited for applications where cut risks are higher, generally where cut resistance has been identified by the HIAC as a requirement. Strike recommends A5 cut protection as an appropriate compromise between cut resistance and flexibility.

Ratings Chart									
Markings & Indications									
ANSI LEVEL	A1	A2	A3	A4	A5	A6	A7	A8	A9
CUT	CUT	CUT	CUT	CUT	CUT	CUT	CUT	CUT	CUT
Weight (grams) needed to cut through material	≥ 200	≥ 500	≥ 1000	≥ 1,500	≥ 2,200	≥ 3000	≥ 4000	≥ 5000	≥ 6000
TYPICAL TASKS	General Purpose, Warehousing, Small Parts Assembly	General Purpose, Plastics Injection and Moulding, Pulp and Paper	Raw Material Handling, General Manufacturing, Construction	HVAC, Aerospace, Food Prep	Glass or Metal Sheet Handling, Automotive Assembly, HVAC	Metal Fabrication, Glass Manufacturing, Changing Blades	Meat Prep/ Processing, Glass Manufacturing, Metal Stamping	Metal Stamping, Recycling, Heavy Assembly	Sharp metal Stamping, Recycle Sorting, Metal Fabrication



## 2.2 Impact Protection

Based on the results, gloves are assigned a Level 1, Level 2, or Level 3 rating. All performance levels are displayed directly on the gloves to provide a simple visual of the level of performance. The higher the number the greater the absorption of force by the glove. This means a Level 1 allows more of the force through (transmitted) than the Level 2.



To achieve effective protection from impact hazards, materials used for the bumper must be optimized for deformation to reduce the impact absorbed by the hands. One of the most common impact-resistant materials used to achieve this is TPR (Thermoplastic rubber).

TPR performs well at a relatively low thickness. It has shock-absorbing properties and offers high durability for bending, stretching, and moving. All this helps maintain range of motion for workers to work comfortably while also providing impact protection. TPR also performs well in cold and hot environments.

## 2.3 Puncture Resistance

The standard, based on the EN 388 testing method, tests the maximum force required for a blunt puncture probe to penetrate a specimen between two plates in a sample holder. The average is recorded to give the final newton rating (ranging from 10 to 150 newtons). These results are represented by levels 1 to 5, with the greater number being the higher level of puncture resistance.

	LOW HIGH					
Level	0	1	2	3	4	5
Force (N) needed to puncture specimen at 500mm/min	< 2 N	≥ 2 N	≥ 4 N	≥ 6 N	≥ 8 N	≥ 10 N

## 2.4 Abrasion Resistance

Abrasion resistance testing on protective gloves and sleeves is used to determine the abrasiveness of the safety material. The abrasion resistance tests examine the wear resistance of the glove and sleeve material and assign it a safety ranking per a credited certification, such as ANSI/ISEA 105-2016 or EN 388:2016. In each certification, the greater the abrasion resistance rating, the stronger the material can withstand abrasive environments.

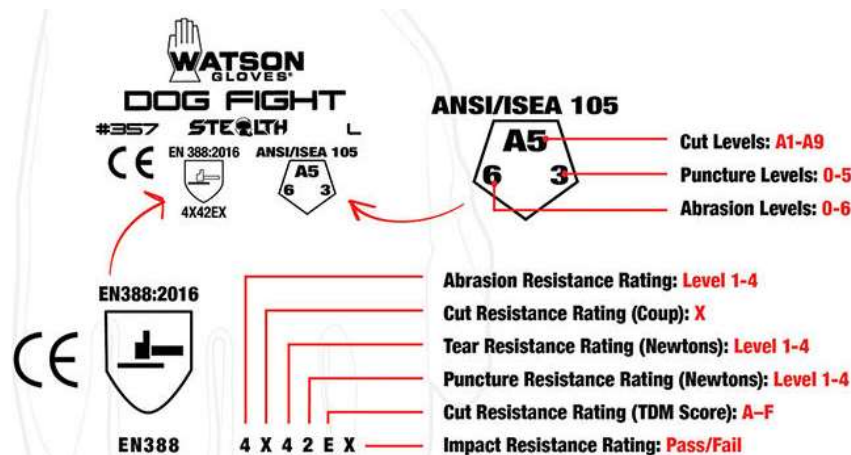
**ANSI/ISEA 105-2016 Abrasion Rating Chart**

ABRASION LEVEL RATING	0	1	2	3	4	5	6
GRAM LOAD	500	500	500	500	1000	1000	1000
ABRASION CYCLES TO FAIL	<100	≥100	≥500	≥1,000	≥3,000	≥10,000	≥20,000



## 2.5 Glove Marking Standards

Many gloves have multiple ratings, the ANSI 105 Standard has unified the labeling for clarity.



## 2.6 Chemical Resistance Glove Standards

Resistance to permeation is assessed by measuring the time for a chemical to break through the glove material. Glove pictogram must be accompanied by at least a 3-digit code. This code refers to the code letters (A-T) of at least 3 chemicals (from a list of 18 standard chemicals as shown below), for which a breakthrough time of at least 30 minutes has been obtained.

CODE LETTER	CHEMICAL	CAS NUMBER	CATEGORY
A	Methanol	67-56-1	Primary alcohol
B	Acetone	67-64-1	Ketone
C	Acetonitrile	75-05-8	Nitrile Compound
D	Dichloromethane	75-09-2	Chlorinated Paraffin
E	Carbon Disulfide	75-15-0	Sulphur <small>Containing Organic Compound</small>
F	Toluene	108-88-3	Aromatic hydrocarbon
G	Diethylamine	109-89-7	Amine
H	Tetrahydrofuran	109-99-9	Heterocyclic & Ethereal
I	Ethyl Acetate	141-78-6	Ester
J	n-Heptane	142-85-5	Saturated hydrocarbon
K	Sodium hydroxide 40%	1310-73-2	Inorganic base
L	Sulfuric Acid 96%	7664-93-9	Inorganic Mineral Acid
M	Nitric Acid 65%	7697-37-2	Inorganic Mineral Acid
N	Acetic Acid 99%	64-19-7	Organic Acid
O	Ammonium Hydroxide 25%	1336-21-6	Organic base
P	Hydrogen Peroxide 30%	7722-84-1	Peroxide
S	Hydrofluoric Acid 40%	7664-39-3	Inorganic Mineral Acid
T	Formaldehyde 37%	50-00-0	Aldehyde

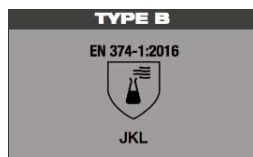
Permeation: The process by which a chemical agent migrates through the protective glove at a molecular level (performance level 0 to 6). Performance levels are assessed according to the breakthrough times of the chemicals.

BREAKTHROUGH TIME	PERFORMANCE LEVEL	BREAKTHROUGH TIME	PERFORMANCE LEVEL
> 10 minutes	Level 1	> 120 minutes	Level 4
> 30 minutes	Level 2	> 240 minutes	Level 5
> 60 minutes	Level 3	> 480 minutes	Level 6

Gloves are separated into 3 classification types based on permeation performance:



TYPE A: Protective glove with permeation resistance of at least 30 minutes each for at least 6 test chemicals.



TYPE B: Protective glove with permeation resistance of at least 30 minutes each for at least 3 test chemicals

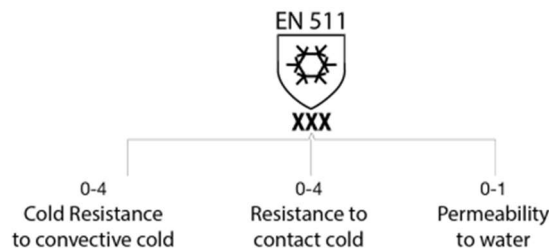


TYPE C: Protective glove with permeation resistance of at least 10 minutes each for at least 1 test chemicals

## 2.7 Protection from Cold

EN 511 Protection from Cold is the standard that evaluates performance in cold and extreme conditions. Protection against cold is shown by a pictogram that is followed by three performance levels, each representing the level for a specific quality:

1. **Resistance to convective cold** (Performance levels 0-4)
2. **Resistance to contact cold** (Performance level 0-4)
3. **Permeability by water** (Performance level 0 – Water Penetration after 30 or 1-No water penetration after 30 minutes)



## 2.8 Use

- Ensure the gloves fit properly and are inspected before use.
- Ensure all exposed skin is covered by gloves. Gloves should be long enough so that there is no gap between the glove and sleeve.
- Wet hand protection should be replaced whenever possible and dried according to the manufacturer's specifications.

## 2.9 Care

- Do not use worn or torn gloves; replace as required.
- Follow the manufacturer's instructions for decontamination and maintenance.



## 1.0 Respiratory Protection

Certain tasks and/or jobs require the use of respiratory protection for performance of the task/job or in an emergency situation. Once the need for respiratory protective equipment has been identified, Strike COP 02 – Respiratory Protective Equipment must be consulted.

There are two main classes of respirators; air-purifying respirators (APR) and supplied-air respirators (SAR).

### 1.1 Air-purifying respirator (APR)

An air-purifying respirator is a respirator designed with an air-purifying filter, cartridge or canister that removes specific air contaminants (dusts, fumes, metals, gases, etc.) by passing ambient air through an air-purifying element.

These respirators are tight fitting and come in different forms, depending on requirement (see Figure 1):

- Quarter-mask: covering the nose and mouth
- Half-mask: covering the face from the nose to below the chin (see Figure 2 for components)
- Full facepiece: covering the face from above the eyes to below the chin (also protect eyes from exposure to irritating chemicals)
- Mouth bit respirator: fits in the mouth and comes with a nose clip to hold nostrils closed and is used for escape purposes only

Figure 1 – Forms of Air-purifying Respirators

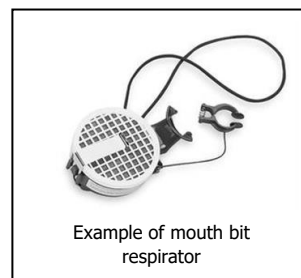
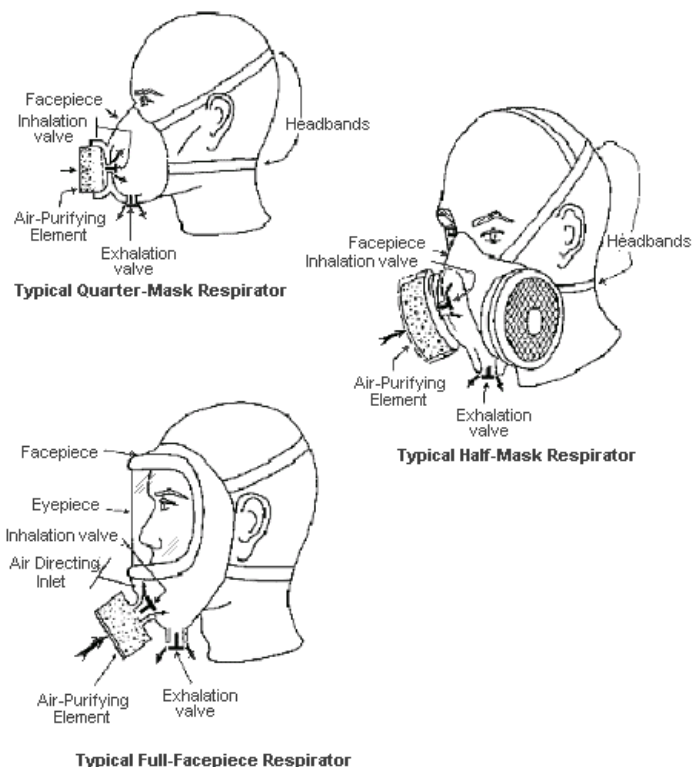
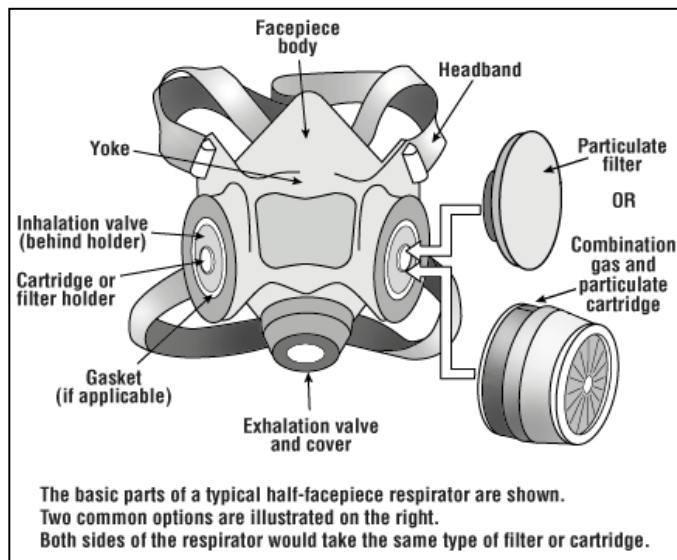


Figure 2 – Components of Half-mask Respirator



Once the most appropriate type of respirator has been selected, the filter must be selected. Filters fall into three broad categories:

1. Particulate filters: which trap small pieces of solid material
2. Gas cartridges: which absorb the undesired vapor
3. Combination gas and particulate filters

Particulate filters are further divided into three series depending on their vulnerability to airborne oil:

- N-Series which are not resistant to oil
- R-Series which are oil resistant and can be used in an environment where oil is present for one 8-hour period
- P-Series which are oil proof and may be used as long as the manufacturer's specifications and chemical properties allow

If the need for a gas absorbent filter has been identified, then the appropriate one must be selected. Table 1 illustrates the different types of filters and the colour code for each. The product SDS, Strike procedures, relevant occupational legislation (such as provincial or federal OHS codes) and any manufacturer's specifications should be consulted regarding filter selection.



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## Section 6.9

### Respiratory Protection

Table 1 – Respirator Filter Colour Codes and Contaminants

Contaminant	Colour Coding on Cartridge/Canister
Acid gases	White
Hydrocyanic acid gas	White with 1/2 inch green stripe completely around the canister near the bottom
Chlorine gas	White with 1/2 inch yellow stripe completely round the canister near the bottom
Organic vapors	Black
Ammonia gas	Green
Acid gases and ammonia gas	Green with 1/2 inch white stripe completely around the canister near the bottom
Carbon monoxide	Blue
Acid gases & organic vapors	Yellow
Hydrocyanic acid gas and chloropicrin vapor	Yellow with 1/2 inch blue stripe completely around the canister near the bottom
Acid gases, organic vapors, and ammonia gases	Brown
Radioactive materials, except tritium & noble gases	Purple (magenta)
Pesticides Organic vapor canister plus a particulate filter Multi-Contaminant and CBRN agent	Olive
Any particulates - P100	Pink
Any particulates - P95, P99, R95, R99, R100	Orange
Any particulates free of oil - N95, N99, or N100	Teal

### 1.2 Supplied-air respirator (SAR)

Supplied-air respirators supply clean air from a compressed air tank or through an air line in tanks or from compressors (these must meet certain standards for purity and moisture content).

These respirators may have either tight-fitting or loose-fitting respiratory inlets. See Figure 3

- Tight-fitting: half or full-face piece
- Loose-fitting: hoods or helmets that cover the head and neck, or loose-fitting facepieces with rubber or fabric side shields

SAR respirators are generally used in situations which are Immediately Dangerous to Life and Health (IDLH). Of particular concern are tasks performed in an environment where the potential release of H<sub>2</sub>S is possible in such cases Strikes COP 01 must be reviewed to determine the need for additional PPE such as a self-contained breathing apparatus (SCBA). If the HIAC process (HSEMS Manual Section 2) has

identified the need for a SAR then its selection, use and care must be completed in accordance with Strikes COP 02 – Respiratory Protective Equipment.

Figure 3 – Example of SAR Respirators

Tight-fitting



Loose-fitting



## 2.0 Sand Blasting Operations

Abrasive blasting is a task which requires particular care when selecting the appropriate respiratory protective equipment. Before any sandblasting operations are undertaken, the SDS must be consulted to determine any additional manufacturer's recommended PPE. Abrasive blasting requires the use of a supplied-air respirator in accordance with Strikes COP 02 - Respiratory Protective Equipment and SWP 78 Abrasive Blasting. The air supplied to the respirator must meet CSA Standard-Z180.1-*Compressed Breathing Air and Systems*. In addition to respiratory protective equipment workers involved in sandblasting must be completely covered by material which offers protection from abrasion which includes the head, neck, hands and wrists.

## 3.0 Selection, Use and Care

### 3.1 Selection

- Respirator and filters must be selected based on HIAC, product SDS, OHS regulations and Strike practices and procedures.
- Hazard sources that need to be considered when selecting the appropriate protective equipment are:
  - Biological
  - Chemical
  - Flammable/Explosive

### 3.2 Use

- All RPE must be inspected prior to each use and replaced if it is not in the condition to perform its intended purpose.
- Filters must be replaced according to the manufacturer's specifications.
- Respirators must be inspected, fit tested and used according to Strikes COP-02 Respiratory Protection, as well as the manufacturer's specifications.
- All workers required to wear a tight seal respirator or who may be required to wear one in the event of an emergency, must be fit tested and clean shaven.

**3.3 Care**

- Respirators must be stored in a clean dry environment and out of direct sunlight when not in use.
- Respirators should be cleaned using gentle products designed for that purpose.
- All respiratory protective equipment (RPE) must be cared for and maintained according to the manufacturer's specifications.

**1.0 Fall protection PPE**

In situations where the need for fall protection PPE has been identified through the HIAC process and no other control strategies are sufficient or reasonably practical, personal fall protection PPE must be used. Strike's COP-06 Fall Protection should be consulted before selecting or using any fall protection PPE.

Fall Protection PPE System Components:

- **Full Body Harness:** Consists of a series of straps passed over the shoulders, across the chest, and around the legs. Unlike safety belts, which must not be used for fall arrest due to the potential for additional injury to the back and abdominal regions, a full body safety harness spreads the force of the fall over the entire body, and stands a good chance of keeping the worker in an upright position in the event of a fall.
- **Shock Absorbing Lanyard:** A flexible line of webbing or wire rope used to secure a body harness to a lifeline or anchor and whose primary function is to dissipate energy and limit deceleration forces which are imposed on the body during a fall.
- **Self-Retracting Lifeline:** Similar to a seat belt in a car, a retractable lifeline extends or retracts to accommodate a worker's movement, and locks in place in the event of a fall.

Only full body harnesses shall be worn. Waist-type belts will not be used as injuries will result when the wearer's fall is arrested. The harness connection point to the fall-arrest line should be made at the top dorsal position. An alternative attachment position is when a line and rope-grab device is used on steeply sloping roofs and the user needs to manually operate the device by having the device in front. In these circumstances the user can make the connection onto a front connection point as recommended by the manufacturer; refer to COP-06 – Fall Protection.

**2.0 Selection, Use and Care****2.1 Selection**

- All fall protection PPE selection should involve consideration of the HIAC process, pertinent provincial or federal regulations, Strike policies, procedures and codes of practice, customer or contractor policies.
- All anchor points and tie off locations must be selected according to COP-06 and manufacturer's specifications.
- Hazard sources that need to be considered when selecting the appropriate fall protection equipment are:
  - Gravity
  - Mechanical
  - Motion
  - Nature

**2.2 Use**

- All fall protection PPE must be used and inspected in accordance with manufacturer's specifications.
- All fall protection PPE must be formally inspected by a certified inspector according to the requirements of the manufacturer and not less than once a year.

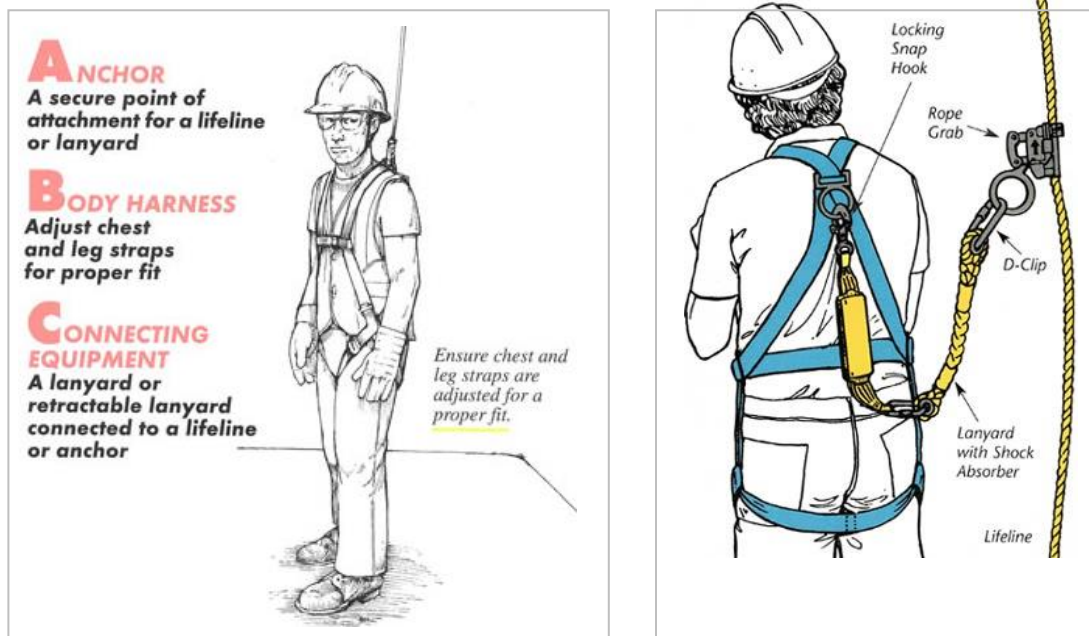
- All fall protection PPE must be inspected prior to use according to CF-S-27-Harness Lanyard Checklist.
- All employees must be trained by an approved trainer prior to using any fall protection PPE.
- All protective must meet the corresponding CSA code Z259.10-M90 – *Full Body Harness*, Z259.11-M92 - *Lanyards*, CSA-Z259.12-01 - *Hardware Components*, Z259.2.2-98 - *Self Retracting Devices*.

*Note: There is currently no CSA standard for temporary anchor points or dog leashes, however many of them are certified as lanyards*

### 2.3 Care

- Never write on or modify any piece of fall protection PPE unless it is specifically authorized by the manufacturer.
- Only clean in a method approved by the manufacturer.

Figure 1 – ABC's of Personal Fall Protection and Components of Fall Protection





## **PERSONAL PROTECTIVE EQUIPMENT**

April 1, 2021

## **Section 6.11**

### **PPE Training**

#### **1.0 Training**

All Canadian Plains Energy Services (CPES) employees will receive training for all CPES PPE required at the time of their orientation and prior to beginning work. CPES will ensure that all users are properly trained in proper selection, use, care and assigned maintenance of PPE. Training will include the selection, use, care and/or limitations of required PPE.

Training on specialty PPE (respirators, fall protection, arc flash, etc.) will be conducted as needed prior to any employee beginning a task which would require specific PPE for task use.

Refresher training for PPE shall be conducted through tailgate and safety meetings and on an as needed basis for all employees. Refresher training for specialty PPE shall be conducted on a schedule, in compliance with the manufacturer's specifications, applicable provincial or federal regulations or as needed to ensure competency of the user.

All employees and visitors are responsible for using the equipment in accordance with the training they have received.

## **1.0 References**

- Alberta OH&S Code, Part 18 – Personal Protective Equipment
- British Columbia OH&S Regulations, Part 8 – Personal Protective Clothing and Equipment
- Saskatchewan Occupational Health and Safety Regulations, Part 7 – Personal Protective Equipment
- Manitoba Workplace Safety and Health Regulations, Part 8 – Personal Protective Equipment
- Ontario Regulations 213/91 Constructions Projects, General Construction – Protective Clothing Equipment and Devices
- Canadian Center for Occupational Health and Safety
- CSA Group
- NIOSH

## **2.0 Additional Information**

Related Canadian Plains Energy Services (CPES) Documentation

- HSEMS Manual, Section 2 – Hazard Identification, Assessment and Control (HIAC)
- HSEMS Manual, Section 8 - Training and Communication
- Codes of Practice:
  - ✧ COP 01 – Working in Hydrogen Sulfide (H<sub>2</sub>S)
  - ✧ COP 02 – Respiratory Protective Equipment
  - ✧ COP 04 – Noise Control and Hearing Protection
  - ✧ COP 06 – Fall Protection Equipment