

### IMPORTANT HSE TOPICS

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

#### What is Personal Protective Equipment (PPE)?

PPE and safety equipment are to be worn where danger of personal injury exists. PPE DOES NOT eliminate the hazard - its purpose is to reduce the consequences of worker exposure to work site hazards.

#### What are the common hazards and types of Personal Protective Equipment?

- » **Eyes Hazards:** chemical or metal splash, dust, projectiles, gas and vapour, radiation. Options: safety glasses, goggles, face shields, visors.
- » **Head Hazards:** impact from falling or flying objects, risk of head bumping, hair entanglement. Options: a range of helmets and hoods.
- » **Breathing Hazards:** dust, vapour, gas, oxygen deficient atmospheres. Options: disposable filtering face piece or respirator, half or full-face respirators, air fed helmets, breathing apparatus.
- » **Protecting the body Hazards:** flash fire, temperature extremes, adverse weather, chemical or metal splash, impact or penetration, contaminated dust, excessive wear or entanglement of own clothing. Options: flame resistant overalls, specialist protective clothing, e.g. chemical resistant aprons, high visibility clothing
- » **Feet and Legs Hazards:** wet, electrostatic build-up, slipping, cuts and punctures, falling objects, metal and chemical splash, abrasion. Options: safety boots and shoes with protective toe caps and penetration resistant midsole, gaiters, leggings.
- » **Hands and Arms Hazards:** abrasion, temperature extremes, cuts and punctures, impact, chemicals, electric shock, skin infection, disease or contamination. Options: gloves, gauntlets, mitts, wrist cuffs, armllets.

#### How do you select the correct PPE?

To allow the right type of PPE to be chosen, carefully consider the different hazards in the workplace. This will enable you to assess which types of PPE are suitable to protect against the hazard and for the job to be done.

Ask your supplier for advice on the different types of PPE available and how suitable they are for different tasks. It may be necessary in a few particularly difficult cases to obtain advice from specialist sources and from the PPE manufacturer. Use only equipment that has been certified to meet Canadian or international standards. Consider the following when assessing whether PPE is suitable:

- » Is it appropriate for the risks involved and the conditions at the place where exposure to the risk may occur? For example, eye protection designed for providing protection against hydrocarbon liquids will not offer adequate face protection for someone using an angle grinder to cut steel or stone.
- » Does it prevent or adequately control the risks involved without increasing the overall level of risk?
- » Can it be adjusted to fit the wearer correctly?
- » Has the state of health of those who will be wearing it been taken into account? What are the needs of the job and the demands it places on the wearer? For example, the length of time the PPE needs to be worn, the physical effort required to do the job and the requirements for visibility and communication.
- » If more than one item of PPE is being worn, are they compatible? For example, does a particular type of respirator make it difficult to get eye protection to fit properly?

Appendix A: PPE Selection Guide for Oil and Gas Workers provides guidance on the most frequently used PPE for oil and gas workers.

#### Maintenance

Make sure equipment is:

- » well looked after and properly stored when it is not being used, for example in a dry, clean cupboard, or in the case of smaller items, such as eye protection, in a box or case;
- » kept clean and in good repair follow the manufacturer's maintenance schedule (including recommended replacement periods and shelf lives). Simple maintenance can be carried out by the trained wearer, but more intricate repairs should only be done by specialists.

Make sure suitable replacement PPE is always readily available.

### Storage

- » Store your PPE in a clean location where it won't get damaged
- » Store rubber based PPE out of direct sunlight as it will shorten its usable life.

### Training and Supervision

#### Employer responsibilities

- » Consider alternative ways of controlling hazard so PPE is not required (i.e., elimination or substitution, engineering and administrative controls).
- » Assess the need for PPE for hazards that cannot be adequately controlled otherwise and prescribe types that are required.
- » Post areas requiring PPE to be worn (e.g., Hearing Protection).
- » Establish hearing conservation and respiratory protection programs if required.
- » Use the Controlling Chemical Hazards guideline or web project to define the proper chemical management for the work with chemicals you wish completed.

#### Supervisor responsibilities

- » Ensure the availability of the required Guidance Sheets for chemical management.
- » Make sure anyone using PPE is aware of why it is needed, when it is to be used, repaired or replaced and its limitations.
- » Train and instruct people how to use it properly and make sure they are doing this.
- » Because PPE is the last resort after other methods of protection have been considered, it is important that users wear it all the time they are exposed to the risk. Never allow exemptions for those jobs which take 'just a few minutes'.
- » Check regularly that PPE is being used and investigate fully any reasons why it is not. Safety signs can be useful reminders to wear PPE.
- » Designate an area for storing, putting on and taking off PPE. Clean this area regularly.

#### Worker responsibilities

- » Ensure that you are taught or shown: how to fit the PPE correctly, how to inspect it, how often to change or replace, maintain and store your PPE.
- » Only use 'single use' PPE once (e.g., disposable gloves, coveralls, respirators).
- » Keep your PPE clean and well maintained.

#### PRECAUTIONS YOU SHOULD TAKE:

- Ensure PPE has been certified for the work you plan to do.
- Ensure that PPE does not interfere with other PPE.
- Ensure PPE is inspected, is clean and is free from damage before use.
- Ensure PPE is adjusted to fit you properly.
- Ensure that you have all the PPE required for the work you are doing.
- Use only single use PPE once.

### Appendix A: PPE Selection Guide for Oil and Gas Workers

PPE	When Required	Type	Special Requirements
Hard Hats	All operational areas	CSA Class G	<ul style="list-style-type: none"> <li>Replace any hard hat that has taken a blow or that is &gt; 5 years old</li> <li>Do not paint, modify or clean with solvents (use only soap and water)</li> <li>Regularly inspect suspension for wear and replace if worn</li> </ul>
Eye Protection	All operational areas	CSA Class 1A Eye Glasses (with side shields)	<ul style="list-style-type: none"> <li>Hoods provide protection for the entire head, face shields for the face and goggles for the eyes – select eyewear that provides more coverage if the materials pose a health risk through skin contact</li> <li>Supplement welding hoods for the welders with protective barriers around the work to protect other workers</li> <li>Supplement eye protection for workers working with hazardous liquids with eye wash stations and emergency showers.</li> </ul>
	Handling liquids including hydrocarbons, acids and bases	CSA Class 2B Goggles &/or CSA Class 6A Face shield &/or CSA Class 5A Hood	
	Welding	CSA Class 3 Welding Hood	
Foot wear	All operational areas	CSA Class G (Green triangle)	<ul style="list-style-type: none"> <li>Leather or fabric foot wear that has been contaminated with chemicals poses a risk to health and must be replaced.</li> <li>Work with your supplier to select chemical resistant foot wear – different materials have different resistance to chemical penetration (see GS Reducing Skin Contact and GS Gloves).</li> </ul>
	Handling liquids including hydrocarbons, acids and bases	Chemical resistant foot wear that has CSA Class G approval	
Hearing Protection	All operational areas posted as requiring hearing protection and any areas where noise levels may exceed 85 dB(A)	CSA Class A earmuff or CSA Class A earplugs	<ul style="list-style-type: none"> <li>Any area where you must shout to communicate is over 85 dB(A) – use hearing protection</li> <li>Have more than one type of hearing protection available – fit and comfort are important factors in the effectiveness of hearing protectors</li> <li>Employers with workers who work for more than 8 hours in an area that exceeds 85 dB(A) must provide audiometric testing for workers and establish a hearing conservation program.</li> <li>Hearing protection is not effective for long periods above 105 dB(A) – call a specialist to help you put limits on exposure time (see GS Specialist).</li> </ul>
	Any area that exceeds 105dB(A)	CSA Class A earmuff and Class A earplugs	

PPE	When Required	Type	Special Requirements
Clothing	All operational areas	Flame resistant outer layer approved to NFPA 2112 or CAN/CGSB 155.20 flame resistant clothing standards. (.e.g Nomex, Indura and Kermel). Non-fusible undergarments	<ul style="list-style-type: none"> <li>▪ Clothing worn beneath flame resistant clothing and against the skin should be made of flame resistant fabrics or natural fibers that do not melt (non-fusible). Appropriate natural fibers include wool, silk, and cotton.</li> <li>▪ Do not wear non-flame resistant clothing over flame resistant clothing. Single use flame resistant clothing may be used over or instead of standard flame resistant clothing for particularly dirty jobs (see GS - Flame Resistant Clothing for more detailed guidance).</li> </ul>
	Any area where clothing may be contaminated with flammable liquids	Impermeable flame resistant outer layer approved to NFPA 2112 or CAN/CGSB 155.20 Non-fusible undergarments	
	All operational areas where workers may be exposed to traffic	High visibility flame resistant outer layer approved to NFPA 2112 or CAN/CGSB 155.20 flame resistant. Non-fusible undergarments	
Gloves	When handling: very hot/cold, hazardous ,toxic or corrosive materials, objects with sharp or rough edges	Need to be selected for specific task based on: <ul style="list-style-type: none"> <li>(a) The type of hazard (chemical, etc.)</li> <li>(b) The task</li> <li>(c) The user (size and fit, state of health, etc.)</li> <li>(d) The workplace conditions (ergonomics, temperature, wet or dry, etc.),</li> </ul>	<ul style="list-style-type: none"> <li>▪ Gloves are a control measure of last resort and should always be used in conjunction with other measures. If protective gloves are used incorrectly, or badly maintained, the wearer may not be protected - when gloves fail they fail to protect which exposes the user to the contaminant.</li> <li>▪ Different glove materials have different resistances to chemicals and/or abrasion.</li> <li>▪ Work with your glove supplier to identify the appropriate glove for the task (see GS – Gloves for more detailed guidance).</li> </ul>
Respiratory Protective Equipment (RPE)	Whenever there is the potential to exceed Occupational Exposure Limits for airborne hazardous materials.	NIOSH approved equipment – specifically selected for type of work being done and the hazardous materials in air.	<ul style="list-style-type: none"> <li>▪ Whenever RPE is used by a worker, their employer must develop a RPE Code of Practice/Program that complies with CSA Standard Z94.4-02: Selection, Use and Care of Respirators.</li> <li>▪ RPE should be suitable for the substance being used, the task and the wearer. Ask your safety equipment supplier or a qualified occupational hygienist for help in choosing the correct RPE.</li> <li>▪ RPE effectiveness depends on facial seal. Workers must be clean shaven and have completed a fit test prior to using RPE (see GS Selection and Use of RPE for more information).</li> </ul>