



# **Understanding Recreation Worker Respiratory Protective Equipment (RPE) Use**

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## Introduction

Respiratory Protective Equipment (RPE) is Personal Protective Equipment (PPE), used to protect a worker against the inhalation of hazardous substances in workplace air. RPE should only be used where adequate control of exposure cannot be achieved by other control measures: elimination, substitution, engineering controls and administrative controls. Common areas in a recreation environment that RPE should be worn include but not limited to refrigeration plant rooms, aquatic chemical rooms, ice paint mixing, cleaning supplies and grounds chemicals. Most common issues include lack of workplace assessment as to when RPE is required by a worker, poor selection of RPE, failure to properly fit RPE to each individual worker and no training on how to use this PPE.

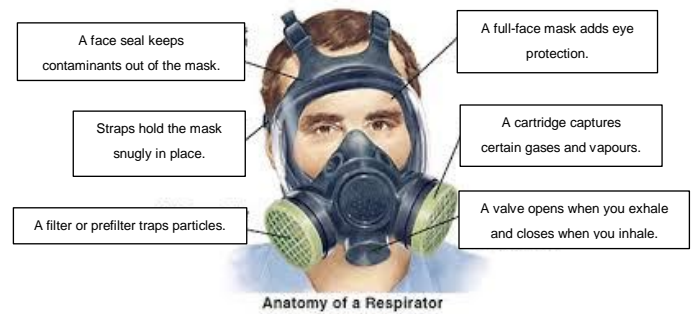
**Respiratory Protective Equipment not worn or selected appropriately will be ineffective and may provide a worker with a false sense of protection.**



## RPE Policy and Procedure

Employers must clearly define the intended use of RPE by recreation workers. Given the risks and hazards associated with many of the toxic and noxious gases found in recreation facilities it may be diligent to limit the use of any RPE to escape vs. entry into any area with excessive build-up of chemical vapour. Supervisory staff must carefully review all Safety Data Sheets (SDS) related to facility chemical use. Once identified, who is expected to use or be in proximity should be acknowledged. Once this information is generated, Standard Operating Procedures (SOP) should be developed followed by initial and ongoing workplace specific training. Recreation facilities are designed to be chemical user friendly. Anytime that a worker requires the use of RPE the facilities use schedule

should be reviewed. Chemical removal or addition to any system should be planned when the public is not in the building.



## Air-Purifying vs. Air Supplied Respirator

The chemical SDS will identify one of two RPE categories: the *air-purifying respirator*, which forces contaminated air through a filtering element, and the *air-supplied respirator*, in which an alternate supply of fresh air is delivered.

Air-purifying respirators are a tight-fitting device with replaceable filters, cartridges or canisters (for gases and vapours).

Air-Purifying Respirator Types include:

1. Particulate. Capture particles in the air, such as dusts, mists and fumes.
2. Gas and Vapour. Are normally used when there are only hazardous gases and vapours in the air.
3. Combination. Are normally used in atmospheres that contain hazards of both particulates and gases and vapours.



Knowing the different devices and how they are designed to function is important. Self-Contained

Breathing Apparatus (SCBA), sometimes referred to as a Compressed Air Breathing Apparatus (CABA), air pack, or simply Breathing Apparatus (BA) are device worn to provide breathable air in an IDLH (Immediate Danger to Life and Health) Atmosphere.

## Recreation Regulatory Use Requirements of RPE

There is no requirement under the *Operating Engineers Regulation* for self-contained breathing apparatus (SCBA) to be kept outside of a refrigeration plant room, but there are a variety of legislative obligations that must be given consideration as the refrigeration plant room owner determines what level of preparedness they wish to ensure is in place in case of an emergency involving refrigeration room chemical releases. The *CSA B-52 Mechanical Refrigeration Code* for protective equipment is general and not specific or detailed.

**Section 9.1.1. states:** *“The owner of a refrigeration system shall supply and maintain for its employees the personal protective equipment required by the jurisdiction where the system is located”.*

As the Code is national, it is believed that the CSA Technical Committee left detailed requirements up to provincial and territorial jurisdictions to avoid duplications and/or inconsistencies. Users of the Code should contact their provincial jurisdiction for direction specific to their plant room design and operation. Owners must then interpret the general duties as outlined in *Sections 25 and 26 of the Occupational Health and Safety Act (OHS) and how they might apply to this issue.*

*Section 79 of the Industrial Regulations states: “A worker that is required to wear or use any protective clothing, equipment or device shall be instructed and trained in its care and use before wearing or using the protective clothing, equipment or device. R.R.O. 1990, Reg. 851, s. 79.”*

Best practice has users often selecting respirators approved by the National Institute for Occupational Safety and Health (NIOSH). Proper use requires that respirators be fitted so that there is an effective seal between the respirator and the worker's face unless the respirator is equipped with a hood or a helmet. In general, this means that the respirator must be of an appropriate size for the worker's face and that facial hair and scars or other irregularities must not

interfere with the seal and that these devices are not to be worn unless the worker has passed an appropriate qualitative or quantitative fit test.

There are two methods of testing the fit of respirators. One is "qualitative", where simple tests are used to check for signs of leakage where tests measure the leakage using special instrumentation. The other is "quantitative" which is a pass/fail test method that relies on the test subject's sensory response to detect a challenge agent to assess the adequacy of the respirators fit."

There are also procedures for field checking and testing of the respirator seal. The respirators must be cleaned and disinfected after use on each shift, or more often if necessary, if they are used exclusively by one worker. They must be cleaned and disinfected after each use if they are used by more than one worker. After being cleaned and disinfected, each respirator must be inspected to determine if it is in proper working condition. Where the inspection indicates that parts are damaged or deteriorated, they must be replaced before the respirator is used again.

Respirators that are not in use should be stored in a clean, convenient, and sanitary location. The storage area should protect the equipment from dust, sunlight, heat, extreme cold, excessive moisture and damaging chemicals. It is recommended that individual respirators be placed in plastic bags or closed containers and stored in a manner that will prevent distortion of rubber or plastic parts.

In aquatic facilities that use gas chlorination there is specific regulatory obligation to be met under Regulation 565 (13) states: Where a gas chlorinator is used in a public pool, the owner and the operator of the pool shall ensure that, (a) full-face, self-contained, air-supplied respiratory equipment is provided suitable for use in a chlorine atmosphere for a period of fifteen minutes and kept in a dust-tight cabinet located outside the area of probable contamination; (b) the chlorination equipment is operated by a person or persons trained in the operation of chlorination equipment; (c) the chlorination system automatically ceases to inject chlorine solution whenever the circulation system ceases to supply clean water to the pool; (d) every chlorine cylinder on the pool premises is anchored at all times to prevent its accidental movement; (e)

except when a chlorine cylinder is connected to the chlorinator, a chlorine cylinder valve protection hood is fitted in place on the cylinder; (f) a wrench for operating the chlorine cylinder valve is fitted to the valve stem of each chlorine cylinder that is connected to the chlorinator; (g) a platform weigh scale of not less than 135 kilograms capacity for each chlorine cylinder in use is provided; and (h) the operator takes all steps necessary to ensure the safety of the bathers before connecting or disconnecting a chlorine cylinder. R.R.O. 1990, Reg. 565, s. 13; O. Reg. 494/17, s. 9.



## Adequate Room Ventilation

As previously shared, the use of RPE should be the last line of worker safety. Employers must consider what other controls can be put in place to eliminate the potential exposure to toxic gases or vapour. This will include but not limited to adequate ventilation systems. Older systems should be evaluated to determine if they meet current codes, regulations or standards while existing systems must be regularly maintained and tested to confirm they continue to be ready to assist workers in case of an emergency. Facility management must keep detailed records of these activities.

## Conclusion

Entry into areas that have elevated concentrations of any noxious gas should only be attempted by competent individuals. Facility staff should focus on public safety through emergency evacuation. Understanding the proper use, care and limitations of all on-site PPE is each worker's obligation under the Internal Responsibility System (IRS). Although noxious gases can kill, the key to safety is for all staff to understand the potential hazards and risks associated with any chemical and take the necessary precautions to prevent injury and death.

## Resources

- [Ministry of Labour Respirators](#)

# Respirator Basics

1

**Choose the right respirator.**



There are many kinds of respirators available. To choose the right one for the job, read the MSDS for the controlled substance to which you will be exposed. If it doesn't say, or if there's no MSDS, refer to the Respirator Chart in IHSA's *Construction Health and Safety Manual* or consult the manufacturer.

2

**Use NIOSH-approved filters.**



Make sure your filters are all approved by NIOSH (National Institute for Occupational Safety and Health). Follow the manufacturer's instructions and keep them for future reference.

3

**Get a fit test.**



Get a "fit test" by a qualified person who is trained to do it. The test checks if the respirator fits your face properly. The tester should use a procedure that complies with the latest version of CSA Standard Z94.4.

4

**Inspect the respirator.**



Inspect your respirator for defects, cracking, and areas that are wearing out. If there's a problem, don't use it. Tell your supervisor.

5

**Make sure you're clean-shaven.**



You must be clean-shaven to wear the kind of respirator that requires a tight seal with your face. Any facial hair, even short stubble, can negatively affect the seal.

6

**Adjust the respirator.**



Adjust the facepiece and the straps so that the respirator fits your face snugly. There must be a good seal between the respirator and your face.

7

### Do a negative-pressure seal check.



How to do a negative-pressure seal check:

- ▶ Block the filter inlets with your hands.
- ▶ Inhale and hold for 5 seconds.
- ▶ The mask should collapse slightly, but it should not allow air into the facepiece.
- ▶ If there's a leak, try it again. If there's still a leak, don't use the respirator. Tell your supervisor.

8

### Do a positive-pressure seal check.



How to do a positive-pressure seal check (after doing the negative-pressure seal check):

- ▶ Block the exhaust port with your hand.
- ▶ Exhale for 5-10 seconds.
- ▶ The mask should expand outward slightly, but it should not allow air to escape.
- ▶ If there's a leak, try it again. If there's still a leak, don't use the respirator. Tell your supervisor.
- ▶ If there is no leak, you can start work.

9

### Fit a filtering facepiece respirator.



If you're using a filtering facepiece respirator:

- ▶ Pinch the metal nose clip so that it forms a tight seal to your nose.
- ▶ Adjust the respirator until you feel that there's a good fit.
- ▶ Get a fit test (see #3). If there is a leak, don't use the respirator. Tell your supervisor.
- ▶ If there is no leak, you can start work.

10

### Clean the respirator.



When you've finished your work, follow the manufacturer's instructions for cleaning the respirator facepiece. This usually means:

- ▶ Removing the cartridges and filters
- ▶ Immersing the facepiece in warm water with a mild detergent
- ▶ Cleaning it with soft brush or sponge
- ▶ Rinsing it in warm water, then air drying.

11

### Store the respirator.



Store your respirator according to the manufacturer's instructions. Store it in a clean area away from dust, chemicals, sunlight, heat, extreme cold, excessive moisture, tools, and equipment.



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For more information and details, see the section on Respiratory Protection in IHSA's *Construction Health and Safety Manual*. You can order or download it at [ihsa.ca](http://ihsa.ca) or call **1-800-263-5024**