Respiratory Protection Program

2016

Agency

State of Wisconsin

5/12/2016

[Sample]

[Respirators protect workers against insufficient oxygen environments, harmful dusts, fogs, smokes, mists, gases, vapors, and sprays. These hazards may cause cancer, lung impairment, diseases, or death. Compliance with the OSHA Respiratory Protection Standard could avert hundreds of deaths and thousands of illnesses annually.]

**Table of Contents**

Glossary 4-6

Policy 7

Objective 7

Scope 7

Assignment of Responsibility 8

A. Employer 8

B. Program Administrator 8

C. Supervisor 8-9

D. Employee 9

Program 9-10

* 1. Hazard Assessment and Respirator Selection 10 7
  2. Updating the Hazard Assessment 10 8
  3. Training 10-11 8
  4. NIOSH Certification 11 9
  5. Voluntary Respirator Use 11 9
  6. Medical Evaluation 11-13 9
  7. Fit Testing 13-15 11
  8. General Respirator Use Procedures 15-16 11
  9. Air Quality 16-17 12
  10. Change Schedules 17-18 12
  11. Cleaning 18-19 12
  12. Maintenance 19-20 13
  13. Storage 20-21 14
  14. Respirator Malfunctions and Defects 21 15
  15. Emergency Procedures 22 16
  16. Program Evaluation 22-23 16

Q. Documentation and Recordkeeping 23

Attachments 24 18 - 44

* 1. Sample Hazard Assessment Forms 24
     1. Sample Hazard Assessment Log 24
     2. Respiratory Protection Hazard Assessment and Selection Form 25-26
     3. Respiratory Hazard Assessment and Certification Form 27
  2. Sample Record of Respirator Use 28 22
  3. Sample Hazard Evaluation 29-30 23
  4. Additional Information on Respirator Protection 31-34 25
  5. Sample Record of Respirator Issuance 35 29
  6. OSHA Respirator Medical Evaluation Questionnaire 36-44
  7. Respirator Inspection Checklist 45
     1. Respirator Inspection Checklist 45
     2. SCBA Inspection Checklist 46 41
  8. Sample Emergency Potential Log 47 43
  9. Sample IDLH Assessment 48
  10. Assigned Protection Factors 49
  11. Additional Resources 50 44

**Glossary**

***Definitions****.* The following definitions are important terms used in the respiratory protection standard in this section.   
  
***Air-purifying respirator*** means a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.   
  
***Assigned protection factor (APF)*** means the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program as specified by this section.   
  
***Atmosphere-supplying respirator*** means a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.   
  
***Canister or cartridge*** means a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.   
  
***Demand respirator*** means an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.   
  
***Emergency situation*** means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.   
  
***Employee exposure*** means exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.   
  
***End-of-service-life indicator (ESLI****)* means a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.   
  
***Escape-only respirator*** means a respirator intended to be used only for emergency exit.   
  
***Filter or air purifying element*** means a component used in respirators to remove solid or liquid aerosols from the inspired air.   
  
***Filtering facepiece (dust mask)*** means a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.   
  
***Fit factor*** means a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.   
  
***Fit test*** means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)   
  
***Helmet*** means a rigid respiratory inlet covering that also provides head protection against impact and penetration.   
  
***High efficiency particulate air (HEPA)*** *filter* means a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.   
  
***Hood*** means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.   
  
***Immediately dangerous to life or health (IDLH)*** means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.   
  
***Interior structural firefighting*** means the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage. (*Reference* [*OSHA 29 CFR 1910.155*](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9809))   
  
***Loose-fitting facepiece*** means a respiratory inlet covering that is designed to form a partial seal with the face.   
  
***Maximum use concentration (MUC)*** means the maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wearing a respirator, and is determined by the assigned protection factor of the respirator or class of respirators and the exposure limit of the hazardous substance. The MUC can be determined mathematically by multiplying the assigned protection factor specified for a respirator by the required OSHA permissible exposure limit, short-term exposure limit, or ceiling limit. When no OSHA exposure limit is available for a hazardous substance, an employer must determine an MUC on the basis of relevant available information and informed professional judgment.   
  
***Negative pressure respirator (tight fitting)*** means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.   
  
***Oxygen deficient atmosphere*** means an atmosphere with an oxygen content below 19.5% by volume.   
  
***Physician or other licensed health care professional (PLHCP)*** means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (e) of this section.   
  
***Positive pressure respirator*** means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.   
  
***Powered air-purifying respirator (PAPR)*** means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.   
  
***Pressure demand respirator*** means a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.   
  
***Qualitative fit test (QLFT)*** means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.   
  
***Quantitative fit test (QNFT)*** means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.   
  
***Respiratory inlet covering*** means that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.   
  
***Self-contained breathing apparatus (SCBA)*** means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.   
  
***Service life*** means the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.   
  
***Supplied-air respirator (SAR) or airline respirator*** means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

***Surgical mask*** means a loose-fitting, disposable type of facemask that creates a physical barrier between the mouth and nose of the wearer and potential contaminants in the immediate environment. Surgical masks are fluid resistant and provide protection from splashes, sprays, and splatter. Surgical masks do not seal tightly to the wearer’s face, do not provide the wearer with a reliable level of protection from inhaling smaller airborne particle.

***Surgical respirator*** means a filtering facepiece respirator with spray- or splash-resistant facemask material on the outside to protect the wearer from splashes. Also known as a surgical N95 respirator.  
  
***Tight-fitting facepiece*** means a respiratory inlet covering that forms a complete seal with the face.   
  
***User seal check*** means an action conducted by the respirator user to determine if the respirator is properly seated to the face.

1. **POLICY**

It is the policy of (*agency*) to protect its employees from hazards such as dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors in the atmosphere through a comprehensive program of recognition, evaluation, engineering, administrative and work practice controls, and personal protective equipment, including respirators. Hazard elimination and engineering and work practice controls shall be employed to control employee exposure to within allowable exposure limits. Respirators and other personal protective equipment shall be provided to affected employees under this program. The (*agency*) is committed to full compliance with applicable federal and state regulations pertaining to employee respiratory protection.

1. **OBJECTIVE**

This document is(*agency*) Respiratory Protection Program and is designed to protect employees by establishing accepted practices for respirator use, providing guidelines for training and respirator selection, explaining proper storage, and use and care of respirators. This program also serves to help the (*agency*) and its employees comply with Occupational Safety and Health Administration (OSHA) respiratory protection requirements as found in [OSHA 29 CFR 1910.134](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=12716).

1. **SCOPE**

This program applies to all (*agency*) employees who need to wear a respirator to perform assigned duties. Examples of chemicals or operations that pose potential respiratory hazards and involve respirator use are:

In addition, any employee who voluntarily wears a respirator when one is not required (i.e., in certain maintenance and coating operations) is subject to the medical evaluation, cleaning, maintenance, and storage elements of this program, and will be provided with necessary training. Employees who voluntarily wear filtering face pieces (dust masks) must follow requirements listed in [1910.134 Appendix D](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9784).

All employees and processes that fall under the provisions of this program are listed in *Attachment E*.

1. **ASSIGNMENT OF RESPONSIBILITY**
   1. **Employer**

(*agency*) is responsible for providing respirators to employees when they are necessary for health protection. (*agency*) will provide respirators that are applicable and suitable for the intended purpose at no charge to affected employees. Any expense associated with training, medical evaluations and respiratory protection equipment will be funded by the (*agency*).

* 1. **Program Administrator**

The Program Administrator for(*agency*) is (*person/position designated*). The Program Administrator is responsible for administering the respiratory protection program. Duties of the program administrator include:

* + 1. Staying informed with respiratory protection updates and maintaining an awareness of current regulatory requirements.
    2. Identifying work areas, process or tasks that require workers to wear respirators.
    3. Evaluating hazards.
    4. Selecting respiratory protection options.
    5. Monitoring respirator use to ensure that respirators are used in accordance with their specifications.
    6. Arranging for and/or conducting training.
    7. Ensuring proper storage, cleaning, inspecting, disinfecting, and maintenance of respiratory protection equipment.
    8. Conducting qualitative fit testing with Bitrex.
    9. Administering the medical surveillance program.
    10. Maintaining records required by the program.
    11. Evaluating the program.
    12. Updating written program, as needed.
  1. **Supervisors**

Supervisors are responsible for ensuring that the respiratory protection program is implemented in areas of responsibility. In addition to being knowledgeable about the program requirements for individual protection, supervisors must also ensure that the program is understood and followed by employees overseen. Duties of the supervisor include:

* + 1. Ensuring that employees overseen (including new hires) receive appropriate training, fit testing, and annual medical evaluation.
    2. Ensuring the availability of appropriate respiratory protection.
    3. Awareness of tasks requiring the use of respiratory protection.
    4. Enforcing the proper use of respiratory protection.
    5. Ensuring that respirators are properly cleaned, maintained, and stored according to this program.
    6. Ensuring that respirators fit well and do not cause discomfort.
    7. Continually monitoring work areas and operations to identify respiratory hazards.
    8. Coordinating with the Program Administrator on how to address respiratory hazards or other concerns regarding this program.
  1. **Employees**

Each employee is responsible for wearing respiratory protection when required and in the manner trained. Employees must also:

* + 1. Use the respiratory protection in accordance with the manufacturer’s instructions and the training received.
    2. Care for and maintain their respirators as instructed, guard them against damage, and store them in a clean, sanitary location.
    3. Immediately report any defects in the respiratory protection equipment. Whenever there is a respirator malfunction, immediately evacuate to a safe area and report malfunction.
    4. Promptly report to the supervisor any symptoms of illness that may be related to respirator usage or exposure to hazardous atmospheres.
    5. Report any health concerns related to respirator use or changes in health status to occupational physician.
    6. Inform supervisor or the Program Administrator of any respiratory hazards that are not adequately addressed in the workplace and any other concerns related to this program.

1. **PROGRAM**
   1. **Hazard Assessment and Respirator Selection**

The Program Administrator will select respiratory protection to be used on site, based on the hazards to which workers are exposed and in accordance with the OSHA Respiratory Protection Standard. The Program Administrator will conduct a hazard evaluation for each operation, process, or work area where airborne contaminants may be present in routine operations or during an emergency. A log of identified hazards will be maintained by the Program Administrator (*Reference Sample Hazard Assessments, Attachment A – 1, A – 2, and A – 3. Also Reference Sample Hazard Evaluation, Attachment C*)*.* The hazard evaluations shall include:

* + 1. Identify and develop a list of hazardous substances used in the workplace by department or work process.
    2. Review of work processes to determine where potential exposures to hazardous substances may occur. This review shall be conducted by surveying the workplace, reviewing the process records, and communicating with employees and supervisors.
    3. Exposure monitoring to quantify potential hazardous exposures.

The proper type of respirator for the specific hazard involved will be selected in accordance with the manufacturer’s instructions (*Reference* *Attachment D*). Selection of the employees and appropriate respiratory protection shall be documented by the Program Administrator (*Reference Attachment E*).

Employers must use the assigned protection factors listed in *Attachment J* to select a respirator that meets or exceeds the required level of employee protection. When using a combination respirator (e.g., airline respirators with an air-purifying filter), employers must ensure that the assigned protection factor is appropriate to the mode of operation in which the respirator is being used.

* 1. **Updating the Hazard Assessment**

The Program Administrator must revise and update the hazard assessment as needed (i.e., any time work process changes may potentially affect exposure). If an employee feels that respiratory protection is needed during a particular activity, notification must be made to the supervisor or the Program Administrator. The Program Administrator will evaluate the potential hazard, and arrange for outside assessment if necessary. The Program Administrator will then communicate the results of that assessment to the employees. If it is determined that respiratory protection is necessary, all other elements of the respiratory protection program will be in effect for those tasks, and the respiratory program will be updated accordingly.

* 1. **Training**

The Program Administrator will provide training to respirator users and respective supervisors on the contents of the Respiratory Protection Program, responsibilities required, and the OSHA Respiratory Protection Standard. All affected employees and supervisors will be trained prior to overseeing or using a respirator in the workplace.

**The training will cover the following topics:**

* + 1. The (*agency*) Respiratory Protection Program.
    2. The OSHA Respiratory Protection Standard (29 CFR 1910.134).
    3. Respiratory hazards encountered at (*agency*) and their health effects.
    4. Proper selection and use of respirators.
    5. Limitations of respirators.
    6. Respirator donning and user seal (fit) checks.
    7. Fit testing.
    8. Emergency use procedures.
    9. Maintenance and storage.
    10. Medical signs and symptoms limiting the effective use of respirators.

Employees will be retrained annually or as needed (e.g., change in departments or work processes and need to use a different respirator). Employees must demonstrate their understanding of the topics covered in the training through hands-on exercises and a written test. The Program Administrator will document respirator training and the documentation will include the type, model, and size of respirator for which each employee has been trained and fit tested. For employees using respirators when not required, (*agency*) must provide these employees with information in [OSHA 1910.134 Appendix D.](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9784)

* 1. **NIOSH Certification**

All respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH) and shall be used in accordance with the terms of that certification. Also, all filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. The label must not be removed or defaced while the respirator is in use.

* 1. **Voluntary Respirator Use**

The Program Administrator shall authorize voluntary use of respiratory protective equipment as requested by all other workers on a case-by-case basis, depending on specific workplace conditions and the results of medical evaluations.

The Program Administrator will provide all employees who voluntarily choose to wear the above respirators with a copy of Appendix D of the OSHA Respiratory Protection Standard 1910.134 (Appendix D outlines the requirements for voluntary use of respirators by employees). Employees who choose to wear a half face piece APR must comply with the procedures for medical evaluation, respirator use, cleaning, and maintenance and storage portions of this program.

**NOTE:** Exception: Employers are not required to include in a written respiratory protection program those employees whose only use of respirators involves the voluntary use of filtering face pieces (dust masks), however requirements of 1910.134 Appendix D still apply.

* 1. **Medical Evaluation**

Employees who are either required to wear respirators, or who choose to wear a half face piece APR voluntarily, must pass a medical exam provided by (*agency*) before being permitted to wear a respirator on the job. Employees are not permitted to wear respirators until a physician has determined that they are medically able to do so. Any employee refusing the medical evaluation will not be allowed to work in an area requiring respirator use.

A licensed physician at (*medical location*) will provide the medical evaluations. Medical evaluation procedures are as follows:

* + 1. The medical evaluation will be conducted using the questionnaire provided in [Appendix C](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9783) of the OSHA Respiratory Protection standard 1910.134. The Program Administrator will provide a copy of this questionnaire to all employees requiring medical evaluations (*Reference Attachment F- Appendix C of the OSHA Respiratory Protection Standard Medical Evaluation Questionnaire*).
    2. To the extent feasible, the (*agency*) will provide assistance to employees who are unable to read the questionnaire. When this is not possible, the employee will be sent directly to the physician for medical evaluation.
    3. All affected employees will be given a copy of the medical questionnaire to complete, along with a stamped and addressed envelope for mailing the questionnaire to the (*agency*) physician. Employees will be permitted to complete the questionnaire on company time. The employer shall provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP.
    4. The employer shall ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix C or whose initial medical examination demonstrates the need for a follow-up medical examination.
    5. The follow-up medical examination shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.
    6. All employees will be granted the opportunity to speak with the physician about their medical evaluation, if they so request.
    7. The Program Administrator shall provide the evaluating physician with a copy of this program, a copy of the OSHA Respiratory Protection Standard, the list of hazardous substances by work area, and the following information about each employee requiring evaluation:
       1. Employee work area or job title.
       2. Proposed respirator type and weight.
       3. Length of time required to wear respirator.
       4. Expected physical work load (light, moderate or heavy).
       5. Potential temperature and humidity extremes.
       6. Any additional protective clothing required.
    8. Positive pressure air purifying respirators will be provided to employees as required by medical necessity.
    9. After an employee has received clearance to wear a respirator, additional medical evaluations will be provided under the following circumstances:
       1. The employee reports signs and/or symptoms related to the ability to use the respirator, such as shortness of breath, dizziness, chest pains or wheezing.
       2. The evaluating physician or supervisor informs the Program Administrator that the employee needs to be reevaluated.
       3. Information found during the implementation of this program, including observations made during the fit testing and program evaluation, indicates a need for reevaluation.
       4. A change occurs in workplace conditions that may result in an increased physiological burden on the employee.

A list of (*agency*) employees currently involved in the Respiratory Protection Program is provided in *Attachment E* of this program.

All examinations and questionnaires are to remain confidential between the employee and the physician. The Program Administrator will only retain the physician’s written recommendations regarding each employee’s ability to wear a respirator.

* 1. **Fit Testing**

Employees will be fit tested with the make, model, and size of respirator that they will actually wear. Employees will be provided with several models and sizes of respirators so that they may find an optimal fit. Fit testing of powered air purifying respirators will be conducted in the negative pressure mode. Specific fit testing procedures are mandatory under [OSHA 1910.134 Appendix A](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9780).

1. The employer shall ensure that employees using a tight-fitting facepiece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) as stated in this paragraph.
2. The employer shall ensure that an employee using a tight-fitting facepiece respirator is fit tested prior to initial use of the respirator, whenever a different respirator facepiece (size, style, model or make) is used, and at least annually thereafter.
3. The employer shall conduct an additional fit test whenever the employee reports, or the employer, PLHCP, supervisor, or program administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.
4. If after passing a QLFT or QNFT, the employee subsequently notifies the employer, program administrator, supervisor, or PLHCP that the fit of the respirator is unacceptable, the employee shall be given a reasonable opportunity to select a different respirator facepiece and to be retested.
5. The fit test shall be administered using an OSHA-accepted QLFT or QNFT protocol. The OSHA-accepted QLFT and QNFT protocols and procedures are contained in [OSHA 1910.134 Appendix A](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9780).
6. QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less.
7. If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half facepieces, or equal to or greater than 500 for tight-fitting full facepieces, the QNFT has been passed with that respirator.
8. Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators shall be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.
9. Qualitative fit testing of these respirators shall be accomplished by temporarily converting the respirator user's actual facepiece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator facepiece with the same sealing surfaces as a surrogate for the atmosphere-supplying or powered air-purifying respirator facepiece.
10. Quantitative fit testing of these respirators shall be accomplished by modifying the facepiece to allow sampling inside the facepiece in the breathing zone of the user, midway between the nose and mouth. This requirement shall be accomplished by installing a permanent sampling probe onto a surrogate facepiece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the facepiece.
11. Any modifications to the respirator facepiece for fit testing shall be completely removed, and the facepiece restored to NIOSH-approved configuration, before that facepiece can be used in the workplace.
    1. **General Respirator Use Procedures**
       1. Employees will use their respirators under conditions specified in this program, and in accordance with the training they receive on the use of each particular model. In addition, the respirator shall not be used in a manner for which it is not certified by NIOSH or by its manufacturer.
       2. All employees shall conduct user seal checks each time they wear their respirators. Employees shall use either the positive or negative pressure check (depending on which test works best for them) as specified in the OSHA Respiratory Protection Standard.
          1. **Positive Pressure Test:** This test is performed by closing off the exhalation valve with your hand. Breathe air into the mask. The face fit is satisfactory if some pressure can be built up inside the mask without any air leaking out between the mask and the face of the wearer.
          2. **Negative Pressure Test:** This test is performed by closing of the inlet openings of the cartridge with the palm of you hand. Some masks may require that the filter holder be removed to seal off the intake valve. Inhale gently so that a vacuum occurs within the face piece. Hold your breath for ten (10) seconds. If the vacuum remains, and no inward leakage is detected, the respirator is fit properly.
       3. All employees shall be permitted to leave the work area to go to the locker room to maintain their respirator for the following reasons:
          1. To clean their respirator if it is impeding their ability to work.
          2. To change filters or cartridges.
          3. To replace parts.
          4. To inspect respirator if it stops functioning as intended.

Employees should notify their supervisor before leaving the area.

* + 1. Employees are not permitted to wear tight-fitting respirators if they have any condition, such as facial scars, facial hair, or missing dentures that would prevent a proper seal. Employees are not permitted to wear headphones, jewelry, or other items that may interfere with the seal between the face and the face piece.
    2. Before and after each use of a respirator, an employee or immediate supervisor must make an inspection of tightness or connections and the condition of the face piece, headbands, valves, filter holders and filters. Questionable items must be addressed immediately by the supervisor and/or Program Administrator.
  1. **Air Quality**

For supplied-air respirators, only Grade D breathing air shall be used in the cylinders. The Program Administrator will coordinate deliveries of compressed air with the (*agency*) vendor and will require the vendor to certify that the air in the cylinders meets the specifications of Grade D breathing air described by ANSI.

The Program Administrator will maintain a minimum air supply of one fully charged replacement cylinder for each SAR unit. In addition, cylinders may be recharged as necessary from the breathing air cascade system located near the respirator storage area.Maximum use concentration (MUC) will not be exceeded and comply with the following:

1. The employer must select a respirator for employee use that maintains the employee's exposure to the hazardous substance, when measured outside the respirator, at or below the MUC.
2. Employers must not apply MUCs to conditions that are immediately dangerous to life or health (IDLH); instead, they must use respirators listed for IDLH conditions in paragraph (d)(2) of the [OSHA 29 CFR 1910.134](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=12716) standard.
3. When the calculated MUC exceeds the IDLH level for a hazardous substance, or the performance limits of the cartridge or canister, then employers must set the maximum MUC at that lower limit.
4. The respirator selected shall be appropriate for the chemical state and physical form of the contaminant.
5. Oxygen content of 19.5-23.5%.
6. Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less.
7. Carbon monoxide (CO) content of 10 ppm or less.
8. Carbon dioxide content of 1,000 ppm or less.
9. Lack of noticeable odor.
10. The employer shall ensure that compressed oxygen is not used in atmosphere-supplying respirators that have previously used compressed air.
11. The employer shall ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.
    1. **Compressed Cylinders and Cartridges**

The employer shall ensure that cylinders used to supply breathing air to respirators meet the following requirements. Cylinders are to be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 180). Cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air. The moisture content in the cylinder does not exceed a dew point of -50 deg.F (-45.6 deg.C) at 1 atmosphere pressure.

The employer shall ensure that compressors used to supply breathing air to respirators are constructed and situated so as to prevent entry of contaminated air into the air-supply system and have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions and have a tag containing the most recent change date and the signature of the person authorized by the employer to perform the change. The tag shall be maintained at the compressor. For compressors that are not oil-lubricated, the employer shall ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm. For oil-lubricated compressors, the employer shall use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.

The employer shall ensure that breathing air couplings are incompatible with outlets for nonrespirable worksite air or other gas systems (no asphyxiating substance shall be introduced into breathing air lines), use only the respirator manufacturer's NIOSH-approved breathing-gas containers, and marked and maintained in accordance with the Quality Assurance provisions of the NIOSH approval for the SCBA as issued in accordance with the NIOSH respirator-certification standard at 42 CFR Part 84. The employer shall ensure that all filters, cartridges and canisters used in the workplace are labeled and color coded with the NIOSH approval label and that the label is not removed and remains legible.

* 1. **Change Schedules**

Respirator cartridges shall be replaced as determined by the Program Administrator, supervisor(s), and manufacturers’ recommendations. If the respirator is equipped with an end-of-service-life indicator (ESLI) certified by

NIOSH for the contaminant;

1. If there is no ESLI appropriate for conditions in the employer's workplace, the employer implements a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life.
2. The employer shall describe in the respirator program the information and data relied upon and the basis for the canister and cartridge change schedule and the basis for reliance on the data.
   1. **Cleaning**

Respirators are to be regularly cleaned and disinfected at the designated respirator cleaning station. Respirators issued for the exclusive use of an employee shall be cleaned as often as necessary. Atmosphere-supplying and emergency use respirators are to be cleaned and disinfected after each use.

The following procedure is to be used when cleaning and disinfecting reusable respirators:

1. Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure- demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
2. Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
3. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain.
4. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
   1. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43 deg. C (110 deg. F).
   2. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43 deg. C (110 deg. F).
   3. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
5. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
6. Components should be hand-dried with a clean lint-free cloth or air-dried.
7. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.
8. Test the respirator to ensure that all components work properly.

The Program Administrator will ensure an adequate supply of appropriate cleaning and disinfection materials at the cleaning station. If supplies are low, employees must notify supervisor, who will inform the Program Administrator.

* 1. **Maintenance/Repair**

Respirators are to be properly maintained at all times in order to ensure that they function properly and protect employees adequately. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or deteriorated parts will be replaced prior to use. No components will be replaced or repairs made beyond those recommended by the manufacturer. Reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

* + 1. All respirators shall be inspected routinely before and after each use.
    2. Respirators kept for emergency use shall be inspected after each use, and at least monthly by the Program Administrator to assure that they are in satisfactory working order
    3. The Respirator Inspection Checklist (Reference *Attachment G – 1 and G - 2*) will be used when inspecting respirators.
    4. A record shall be kept of inspection dates and findings for respirators maintained for emergency use.
    5. Employees are permitted to leave their work area to perform limited maintenance on respiratory protection in a designated area that is free of respiratory hazards. Situations when this is permitted include:
       1. Washing face and respirator face piece to prevent any eye or skin irritation;
       2. Replacing the filter, cartridge or canister;
       3. Detection of vapor or gas breakthrough or leakage in the face piece; or
       4. Detection of any other damage to the respirator or its components.
  1. **Storage**

All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the facepiece and exhalation valve.

* + 1. Respirators must be stored in a clean, dry area, and in accordance with the manufacturer’s recommendations. Each employee will clean and inspect their own air-purifying respirator in accordance with the provisions of this program, and will store respirator in a plastic bag in the designated area. Each employee will label full name on the bag and that bag will only be used to store that employee’s respirator.
    2. Respirators shall be packed or stored so that the face piece and exhalation valve will rest in a near normal position.
    3. Respirators shall not be placed in places such as lockers or toolboxes unless they are in carrying cartons.
    4. Respirators maintained at stations and work areas for emergency use shall be stored in compartments built specifically for that purpose, be quickly accessible at all times, and be clearly marked.
    5. The Program Administrator will store (*agency*) supply of respirators and respirator components in their original manufacturer’s packaging in the (*designated area*).
  1. **Respirator Malfunctions and Defects**
     1. For any malfunction of an ASR (atmosphere-supplying respirator), such as breakthrough, face piece leakage, or improperly working valve, the respirator wearer should inform the supervisor that the respirator no longer functions as intended, and go to the designated safe area to maintain the respirator. The supervisor must ensure that the employee either receives the needed parts to repair the respirator or is provided with a new respirator.

All workers wearing atmosphere-supplying respirators will work with a partner. The Program Administrator shall develop and inform employees of the procedures to be used when a partner is required to assist a coworker who experiences an ASR malfunction.

* + 1. Respirators that are defective or have defective parts shall be taken out of service immediately. If, during an inspection, an employee discovers a defect in a respirator, the supervisor must be notified immediately. Supervisors will give all defective respirators to the Program Administrator. The Program Administrator will decide whether to:
       1. Temporarily take the respirator out of service until it can be repaired.
       2. Perform a simple fix on the spot, such as replacing a head strap.
       3. Dispose of the respirator due to an irreparable problem or defect.

When a respirator is taken out of service for an extended period of time, the respirator will be tagged out of service, and the employee will be given a replacement of a similar make, model, and size. All tagged out respirators will be kept in the (*designated area*).

* 1. **Emergency Procedures**

In emergency situations where an atmosphere exists in which the wearer of the respirator could be overcome by a toxic or oxygen-deficient atmosphere, the following procedure must be followed. The locations (*agency*)where the potential for dangerous atmosphere exists are listed in *Attachment H* of this document. The locations in the (*agency*)where the potential for IDLH (Immediately Dangerous to Life and Health) exist are listed in *Attachment I* of this document. All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer's recommendations, and shall be checked for proper function before and after each use. Locations of emergency respirators are also listed in *Attachment H*.

* + 1. When the alarm sounds, employees in the affected area must immediately don their emergency escape respirator, shut down their process equipment, and exit the work area.
    2. All other employees must immediately evacuate the building. (*agency*) Emergency Action Plan describes these procedures (including proper evacuation routes and rally points) in greater detail.
    3. Employees who must remain in a dangerous atmosphere must take the following precautions:
       1. Employees must never enter a dangerous atmosphere without first obtaining the proper protective equipment and permission to enter from the Program Administrator or supervisor.
       2. Employees must never enter a dangerous atmosphere without at least one additional person present. The additional person must remain in the safe atmosphere.
       3. Emergency response plan must be activated for potential rescue measures.
       4. Communications (voice, visual or signal line) must be maintained between all parties.
       5. Respiratory protection in these instances is for escape purposes only. (*agency*) employees are not trained as emergency responders, and are not authorized to act in such a manner.
  1. **Program Evaluation**

The Program Administrator will conduct periodic evaluations of the workplace to ensure that the provisions of this program are being implemented. The evaluations will include regular consultations with employees who use respirators and their supervisors, site inspections, air monitoring and a review of records. Items to be considered will include:

* + 1. Comfort.
    2. Ability to breathe without objectionable effort.
    3. Adequate visibility under all conditions.
    4. Provisions for wearing prescription glasses.
    5. Ability to perform all tasks without undue interference.
    6. Confidence in the face piece fit.

Identified problems will be noted in an inspection log and addressed by the Program Administrator. These findings will be reported to (*agency*)management. The report will list plans to correct deficiencies in the respirator program and target dates for the implementation of those corrections.

* 1. **Documentation and Recordkeeping**
     1. A written copy of this program and the OSHA Respiratory Protection Standard shall be kept in the Program Administrator’s office and made available to all employees for review.
     2. Copies of training and fit test records shall be maintained by the Program Administrator. These records will be updated as new employees are trained, as existing employees receive refresher training, and as new fit tests are conducted.
     3. For employees covered under the Respiratory Protection Program, the Program Administrator shall maintain copies of the physician’s written recommendation regarding each employee’s ability to wear a respirator. The completed medical questionnaires, records, and evaluating physician’s documented findings will remain confidential in the employee’s medical records at the location of the evaluating physician’s practice.

**ATTACHMENT A - 1**

Sample Hazard Assessment Log

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Hazard Assessment Log**  (*Date*) | | | | |
| Department | Contaminants | Exposure Level  (8 hr TWA\*) | PEL\*\* | Controls |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

\* Summarized from Industrial Hygiene report provided by *(Responsible Person)*.

\*\* These values were obtained from a survey on average exposures as published in the American Journal of Industrial Hygiene or other validated recognized resource

.

**ATTACHMENT A – 2**

Respiratory Protection Hazard

Assessment and Selection Form

Agency/Institution:

Worksite:

General Description of Job Task:

Job Classification(s)

Level of physical exertion required to perform job:

Respiratory hazard(s) present:

OSHA PEL:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ACGIH TLV (if applicable): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Is monitoring data available? \_\_\_\_\_\_\_Yes \_\_\_\_\_\_\_\_No

If yes, attach to this form.

Contaminant concentrations present in the workplace:

Contaminant(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Concentration:

Contaminant(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Concentration:

Contaminant(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Concentration:

Does data indicate levels that exceed applicable limits? \_\_\_\_\_\_Yes \_\_\_\_\_\_No

Does data indicate IDLH concentrations? \_\_\_\_\_\_Yes \_\_\_\_\_\_ No

Note: Wherever hazardous exposure(s) cannot be identified or reasonably quantified, the atmosphere must be considered IDLH.

Does data indicate oxygen deficiency (less than 19.5%)? \_\_\_\_\_\_Yes \_\_\_\_\_\_No

Is the respirator for routine use or emergency use?

Additional factors (i.e. temperature and humidity levels, etc.):

Communication requirements:

Are engineering/ administrative controls feasible? \_\_\_\_\_\_\_\_Yes \_\_\_\_\_\_\_\_No

If no, describe reasons:

Type of respirator selected: \_\_\_\_\_\_ air purifying \_\_\_\_\_\_\_\_ atmosphere supplying

Style of respirator selected: \_\_\_\_\_\_ tight-fitting \_\_\_\_\_\_\_\_\_\_ lose-fitting

Make:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Model#\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Type of canister or cartridge to be used:

Cartridge/canister change schedule if applicable

Name of Evaluator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Phone: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ATTACHMENT A – 3**

**Respiratory Hazard Assessment and Certification Form**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Job Description** | **SDS Product/Trade Name** | **Contaminant** | **Concentration** | **ppm** | **mg/m3** | **Recommended Respiratory Protection** | **Service Life** |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

I have performed an evaluation of the work areas indicated above, assessed the hazards and selected the appropriate respiratory protection.

|  |  |  |
| --- | --- | --- |
| Signature | Name and Title (print) | Date |

**ATTACHMENT B**

Sample Record of Respirator Use

|  |  |
| --- | --- |
| **Required and Voluntary Respirator Use at *(Agency Name)*** | |
| **Type of Respirator** | **Department/Process** |
| Filtering face piece (dust mask) | Voluntary use for warehouse workers |
| Half-face piece APR or PAPR with P100 filter | Prep and Assembly  Voluntary use for maintenance workers when cleaning spray booth walls or changing spray booth filter |
| SAR, pressure demand, with auxiliary SCBA | Maintenance - dip coat tank cleaning |
| Continuous flow SAR with hood | Spray booth operations  Prep (cleaning)\* Reference note below |
| Half-face piece APR with organic vapor cartridge | Voluntary use for Dip Coat Tenders, Spray Booth Operators (gun cleaning), and maintenance workers (loading coating agents into supply systems) |
| Escape SCBA | Dip Coat, Coatings Storage Area, Spray Booth Cleaning Area |

**\* until ventilation is installed.**

**ATTACHMENT C**

28

Sample Hazard Evaluation

29

|  |  |
| --- | --- |
| **Process Hazard Evaluation for** *(agency)*  *(Date)* | |
| **Process** | **Noted Hazards** |
| Prep-sanding | Ventilation controls on some sanders are in place, but employees continue to be exposed to respirable wood dust at 2.5 - 7.0 mg/m3 (8 hour time-weighted-average, or TWA). Half-face piece APRs with P100 filters and goggles are required for employees sanding wood pieces. PAPRs will be available for employees who are unable to wear an APR. |
| Prep-cleaning | Average methylene chloride exposures measured at 70 ppm based on 8-hour TWA exposure results for workers cleaning and stripping furniture pieces. Ventilation controls are planned, but will not be implemented until designs are completed and a contract has been set for installation of the controls. In the meantime, employees must wear supplied air hoods with continuous airflow, as required by the Methylene Chloride Standard 1910.1052. |
| Assembly | Ventilation controls on sanders are in place, but employees continue to be exposed to respirable wood dust at 2.5 - 6.0 mg/m3 (8 hour TWA); half-face piece APRs with P100 filters and goggles are required for employees sanding wood pieces in the assembly department. PAPRs will be available for employees who are unable to wear an APR. The substitution for aqueous-based glues will eliminate exposures to formaldehyde, methylene chloride, and epoxy resins. |
| Maintenance | Because of potential IDLH conditions, employees cleaning dip coat tanks must wear a pressure demand SAR during the performance of this task. |
| Cleaning Spray Booth Walls | Employees may voluntarily wear half-face piece APRs with P100 cartridges. Although exposure monitoring has shown that exposures are kept within PELs during this procedure**,** *(agency)*will provide respirators to workers who are concerned about potential exposures. |
| Loading Coating Agents into Supply Systems | Employees may voluntarily wear half-face piece APRs with organic vapor cartridges. Although exposure monitoring has shown that exposures are kept within PELs during this procedure, (*agency name*) will provide respirators to workers who are concerned about potential exposures. |
| Changing Booth Filters | Employees may voluntarily wear half-face piece APRs with P100 cartridges. Although exposure monitoring has shown that exposures are kept within PELs during this procedure**,** (*agency*)will provide respirators to workers who are concerned about potential exposures. |

**\*(Include documentation of the sampling data that hazard evaluation derived from).**

**ATTACHMENT D**

30

Respirator Protection

**Types of Respirators:**

Respirators are classified into two main classes according to the type of hazardous environment in which the respirator is to be used and the degree of danger to life and health, which that environment presents.

I. **Supplied-Air Respirators:**

A supplied-air-respirator provides uncontaminated breathing air to the user from an external source of air connected by a high-pressure hose to the face piece, hood, or helmet. They offer certain advantages over other types of respirators and may be the preferred form of respiratory protection in some applications. Some models are equipped with an air cylinder for emergency escape from an Immediately Dangerous to Life or Health (IDLH) atmosphere. An IDLH atmosphere poses an immediate hazard to life or produces irreversible debilitating effects on health.

Supplied-air respirators are approved for use under the following conditions where the use of air-purifying respirators is precluded:

1. In atmospheres where contaminants do not emit a detectable odor or taste or cause irritation at safe concentrations.
2. To protect against substances that would generate a high heat reaction with the absorbent in an air-purifying respirator.
3. Where chemicals in the atmosphere are absorbed very poorly by the absorbents used in air-purifying respirators, causing very short service life, or where the chemicals are not absorbed at all.
4. Where there are two or more contaminants in the atmosphere for which different air-purifying elements are recommended, such as ammonia and benzene, and a combination element is not available.
5. When the concentration of a substance is greater than the approved limit for an air-purifying respirator.

**Self-Contained Breathing Apparatus (SCBA):**

The Self-Contained Breathing Apparatus (SCBA) is a special type of supplied-air respirator that gives the user an independent air supply from a pressurized tank on thewearer’s back. Air supply must last for at least 30 minutes, but is dependent upon the wearer’s size and the type of work performed. SCBAs are used under the following conditions:

31

1. In oxygen-deficient atmospheres where the oxygen level is below 19.5%.
2. In poorly ventilated areas and/or in confined spaces such as tanks, tunnels, or vessels. **Note:** SCBAs are not required if the confined space is well ventilated and the concentration of toxic contaminants is known to be below the upper protection limit recommended for the respirator.
3. In atmospheres where the concentration of contaminants is Immediately Dangerous to Life or Health (IDLH).
4. In atmospheres where the concentration of toxic contaminants is unknown. Any unknown concentration must be treated as IDLH.
5. For firefighting. (Not recommended; reference emergency action plan).

**Air-Purifying Respirators:**

This type of respirator usually consists of a facepiece fitted with appropriate mechanical filters or chemical cartridges or canisters to remove dusts, mists and specific fumes, gases and vapors from the breathing air. The filters and cartridges are color-coded to help the user match the right respirator, filter and/or cartridge to the hazard(s) present in the work area. They are the lightest and the easiest to use type of respiratory protection. The vast majority of work environments fall within their protection limits. Air-purifying respirators include:

1. **Powered Air-Purifying Respirators** (PAPRs) have air blowers to pull air through the cartridges and filters. Some PAPRs are available with hoods or other protective headgear for use in specific types of environments. A PAPR equipped with a hood may be used instead of a tight-fitting face piece by wearers with facial hair, scars, or spectacles. PAPRs are available with chemical cartridges or with High Efficiency Particulate Air-Purifying (HEPA) filters.
2. **Full-Face Piece Air-Purifying Respirators** are equipped with chemical cartridges and/or filters and a face shield to protect the wearer’s face and eyes from liquid splashes or flying particles. Some devices include a speaking diaphragm for easier communication.
3. **Half-Mask Air-Purifying Respirators** cover only the nose and mouth. They often use the same cartridges and filters as full-face piece models. Most manufacturers offer two or three sizes to fit nearly all workers. They usually come with a rubber or silicone face piece and can be worn with prescription or non-prescription glasses or goggles.

32

1. **Mouthpiece Respirators** are for emergency escape from known concentrations of contaminants. They are lightweight and easily worn around the neck or clipped to a belt. Mouthpiece respirators however are not designed for extended or routine use.
2. **Disposable Respirators** protect the wearer from low (nuisance) concentrations of fumes, mists and/or dust. Some models include an exhalation channel that exhausts air directly for less hot air and moisture buildup in the mask.

**Respirator Approval:**

The National Institute for Occupational Safety and Health (NIOSH) is responsible for the testing and certification of respiratory protective devices. If approval is given, the items certified are given a TC number, signifying it has been tested and certified. Respiratory protective devices must bear the TC number to be approved for use.

**Selection Process:**

1. **Identify the airborne contaminant(s):**

An important source of information on airborne contaminants is the Safety Data Sheet (SDS) for each product. The SDS identifies the ingredients in each product that have been determined to be a health hazard and the physical and chemical characteristics of the product such as vapor pressure and flash point.

The physical form of the hazard will also help you determine the type of respiratory protection needed.

**Dusts** are tiny suspended particles resulting from a mechanical process such as grinding.

**Mists** are tiny liquid droplets usually created by spraying operations.

**Fumes** are small particles formed by a condensing gas or vapor such as in welding.

**Vapors** are substances that evaporate from a liquid or solid.

**Gases** are formless fluids that occupy the space in which they are enclosed. Examples include nitrogen and carbon monoxide.

**Smoke** is a mixture of suspended particles and gases which are the result of combustion. Smoke can contain toxic contaminants.

2. **Determine the concentration level of the contaminant:**

Sensitive monitoring instruments will give a precise reading of the airborne concentration level of the contaminant. If testing indicates exposure to an airborne concentration level at or above the Permissible Exposure Level (PEL) established for that substance, respiratory protection must be utilized.\* This testing must be done by an industrial hygienist or other qualified staff.

33

3. **Evaluate the conditions of exposure:**

There are many variables that can affect your choice of respiratory protection. Always keep these factors in mind:

**The nature of the task.** The length of exposure to each hazard? Is the work strenuous, which makes breathing more difficult?

**The characteristics of the work area.** Is the work area a confined space and/or poorly ventilated? Will air temperatures be hot or cold? Could more than one contaminant be present?

**The type of work process.** Does the way chemicals are combined, heated or applied create an additional or new health hazard? An example of this could be a paint spraying or welding operation.

4. **Match the hazard, concentration level and the conditions of exposure to the proper type of respirator:**

A wide range of supplied-air and air-purifying respirators are available from various manufactures. Contact supervisor and/or agency/program administrator for help in selecting the proper respirator for the specific work area.

**\* Note:** The OSHA Respiratory Protection Standard (29 CFR 1910.134) requires the employer to prevent occupational diseases caused by breathing contaminated air by the use of engineering control measures such as the enclosure of the operation or the substitution of less toxic materials. When effective engineering controls are not feasible, or while these controls are being instituted, appropriate respirators must be used in accordance with the requirements of the standard.

**ATTACHMENT E**

34

Sample Record of Respirator Issuance

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *(Agency)*  **Personnel in Respiratory Protection Program**  *(Date)* | | | | |
| **Respiratory protection is required for and has been issued to the following personnel:** | | | | |
| **Name** | **Department** | **Job Description/ Work Procedure** | **Type of Respirator** | **Date Issued** |
|  |  | Operator | Half mask APR P100 filter when sanding/hood powered air purifying respirator PAPR for cleaning |  |
|  |  | Dip tank cleaning | SAR, pressure demand with auxiliary SCBA |  |
|  |  | Spray Booth | SAR, continuous |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**ATTACHMENT F**

35

APPENDIX C 1910.134

OSHA RESPIRATOR MEDICAL EVALUATION QUESTIONNAIRE

**To the employer:** Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

**Part A. Section 1.** (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

1. Today's date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Your name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Your age (to nearest year):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Sex (circle one): Male/Female

5. Your height: \_\_\_\_\_\_\_\_\_\_ ft. \_\_\_\_\_\_\_\_\_\_ in.

6. Your weight: \_\_\_\_\_\_\_\_\_\_\_\_ lbs.

7. Your job title:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. The best time to phone you at this number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): Yes/No

11. Check the type of respirator you will use (you can check more than one category):

1. \_\_\_\_\_\_ N, R, or P disposable respirator (filter-mask, non-cartridge type only).
2. \_\_\_\_\_\_ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).

12. Have you worn a respirator (circle one): Yes/No

36

If "yes," what type(s):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part A. Section 2.** (Mandatory) Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator (please circle "yes" or "no").

1. Do you currently smoke tobacco, or have you smoked tobacco in the last month: Yes/No

2. Have you ever had any of the following conditions?

1. Seizures: Yes/No
2. Diabetes (sugar disease): Yes/No
3. Allergic reactions that interfere with your breathing: Yes/No
4. Claustrophobia (fear of closed-in places): Yes/No
5. Trouble smelling odors: Yes/No

3. Have you ever had any of the following pulmonary or lung problems?

1. Asbestosis: Yes/No
2. Asthma: Yes/No
3. Chronic bronchitis: Yes/No
4. Emphysema: Yes/No
5. Pneumonia: Yes/No
6. Tuberculosis: Yes/No
7. Silicosis: Yes/No
8. Pneumothorax (collapsed lung): Yes/No
9. Lung cancer: Yes/No
10. Broken ribs: Yes/No

37

1. Any chest injuries or surgeries: Yes/No

1. Any other lung problem that you've been told about: Yes/No

4. Do you currently have any of the following symptoms of pulmonary or lung illness?

1. Shortness of breath: Yes/No
2. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes/No
3. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes/No
4. Have to stop for breath when walking at your own pace on level ground: Yes/No
5. Shortness of breath when washing or dressing yourself: Yes/No
6. Shortness of breath that interferes with your job: Yes/No
7. Coughing that produces phlegm (thick sputum): Yes/No
8. Coughing that wakes you early in the morning: Yes/No
9. Coughing that occurs mostly when you are lying down: Yes/No
10. Coughing up blood in the last month: Yes/No
11. Wheezing: Yes/No
12. Wheezing that interferes with your job: Yes/No
13. Chest pain when you breathe deeply: Yes/No
14. Any other symptoms that you think may be related to lung problems: Yes/No

5. Have you ever had any of the following cardiovascular or heart problems?

1. Heart attack: Yes/No
2. Stroke: Yes/No
3. Angina: Yes/No
4. Heart failure: Yes/No

38

1. Swelling in your legs or feet (not caused by walking): Yes/No
2. Heart arrhythmia (heart beating irregularly): Yes/No
3. High blood pressure: Yes/No
4. Any other heart problem that you've been told about: Yes/No

6. Have you ever had any of the following cardiovascular or heart symptoms?

1. Frequent pain or tightness in your chest: Yes/No
2. Pain or tightness in your chest during physical activity: Yes/No
3. Pain or tightness in your chest that interferes with your job: Yes/No
4. In the past two years, have you noticed your heart skipping or missing a beat: Yes/No
5. Heartburn or indigestion that is not related to eating: Yes/No
6. Any other symptoms that you think may be related to heart or circulation problems: Yes/No

7. Do you currently take medication for any of the following problems?

1. Breathing or lung problems: Yes/No
2. Heart trouble: Yes/No
3. Blood pressure: Yes/No
4. Seizures: Yes/No

8. If you've used a respirator, have you ever had any of the following problems? (If you've never used a respirator, check the following space and go to question 9:

1. Eye irritation: Yes/No
2. Skin allergies or rashes: Yes/No
3. Anxiety: Yes/No
4. General weakness or fatigue: Yes/No
5. Any other problem that interferes with your use of a respirator: Yes/No

39

9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: Yes/No

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently): Yes/No

11. Do you currently have any of the following vision problems?

1. Wear contact lenses: Yes/No
2. Wear glasses: Yes/No
3. Color blind: Yes/No
4. Any other eye or vision problem: Yes/No

12. Have you ever had an injury to your ears, including a broken ear drum: Yes/No

13. Do you currently have any of the following hearing problems?

1. Difficulty hearing: Yes/No
2. Wear a hearing aid: Yes/No
3. Any other hearing or ear problem: Yes/No

14. Have you ever had a back injury: Yes/No

15. Do you currently have any of the following musculoskeletal problems?

1. Weakness in any of your arms, hands, legs, or feet: Yes/No
2. Back pain: Yes/No
3. Difficulty fully moving your arms and legs: Yes/No
4. Pain or stiffness when you lean forward or backward at the waist: Yes/No
5. Difficulty fully moving your head up or down: Yes/No
6. Difficulty fully moving your head side to side: Yes/No

40

1. Difficulty bending at your knees: Yes/No
2. Difficulty squatting to the ground: Yes/No
3. Climbing a flight of stairs or a ladder carrying more than 25 lbs: Yes/No
4. Any other muscle or skeletal problem that interferes with using a respirator: Yes/No

**Part B** Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen: Yes/No

If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions: Yes/No

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals: Yes/No

If "yes," name the chemicals if you know them:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Have you ever worked with any of the materials, or under any of the conditions, listed below:

1. Asbestos: Yes/No
2. Silica (e.g., in sandblasting): Yes/No
3. Tungsten/cobalt (e.g., grinding or welding this material): Yes/No
4. Beryllium: Yes/No
5. Aluminum: Yes/No
6. Coal (for example, mining): Yes/No
7. Iron: Yes/No
8. Tin: Yes/No

41

1. Dusty environments: Yes/No
2. Any other hazardous exposures: Yes/No

If "yes," describe these exposures:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. List any second jobs or side businesses you have: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. List your previous occupations: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. List your current and previous hobbies: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. Have you been in the military services? Yes/No

If "yes," were you exposed to biological or chemical agents (either in training or combat): Yes/No

8. Have you ever worked on a HAZMAT team? Yes/No

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): Yes/No

If "yes," name the medications if you know them:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. Will you be using any of the following items with your respirator(s)?

HEPA Filters: Yes/No

Canisters (for example, gas masks): Yes/No

Cartridges: Yes/No

11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?:

1. Escape only (no rescue): Yes/No
2. Emergency rescue only: Yes/No

42

1. Less than 5 hours per week: Yes/No
2. Less than 2 hours per day: Yes/No
3. 2 to 4 hours per day: Yes/No
4. Over 4 hours per day: Yes/No

12. During the period you are using the respirator(s), is your work effort:

1. Light (less than 200 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift:\_\_\_\_\_\_\_\_\_\_\_\_hrs.\_\_\_\_\_\_\_\_\_\_\_\_mins.

Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.

1. Moderate (200 to 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift:\_\_\_\_\_\_\_\_\_\_\_\_hrs.\_\_\_\_\_\_\_\_\_\_\_\_mins.

Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

c) Heavy (above 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift:\_\_\_\_\_\_\_\_\_\_\_\_hrs.\_\_\_\_\_\_\_\_\_\_\_\_mins.

Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator: Yes/No

If "yes," describe this protective clothing and/or equipment:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

43

14. Will you be working under hot conditions (temperature exceeding 77 deg. F): Yes/No

15. Will you be working under humid conditions: Yes/No

16. Describe the work you'll be doing while you're using your respirator(s):

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

Name of the first toxic substance: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Estimated maximum exposure level per shift:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of the second toxic substance:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Estimated maximum exposure level per shift:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Duration of exposure per shift:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of the third toxic substance:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Estimated maximum exposure level per shift:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Duration of exposure per shift:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The name of any other toxic substances that you'll be exposed to while using your respirator:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ATTACHMENT G - 1**

44

Respirator Inspection Checklist

|  |  |
| --- | --- |
| **Type of Respirator:** | **Location:** |
| **Respirator Issued to:** | **Type of Hazard:** |
| Face piece | \_\_\_\_\_\_\_\_\_ Cracks, tears, or holes  \_\_\_\_\_\_\_\_\_ Face mask distortion  \_\_\_\_\_\_\_\_\_ Cracked or loose lenses/face shield |
| Head straps | \_\_\_\_\_\_\_\_\_ Breaks or tears  \_\_\_\_\_\_\_\_\_ Broken buckles |
| Valves: | \_\_\_\_\_\_\_\_\_ Residue or dirt  \_\_\_\_\_\_\_\_\_ Cracks or tears in valve material |
| Filters/Cartridges: | \_\_\_\_\_\_\_\_\_ Approval designation  \_\_\_\_\_\_\_\_\_ Gaskets  \_\_\_\_\_\_\_\_\_ Cracks or dents in housing  \_\_\_\_\_\_\_\_\_ Proper cartridge for hazard |
| Air Supply Systems | \_\_\_\_\_\_\_\_\_ Breathing air quality/grade  \_\_\_\_\_\_\_\_\_ Condition of supply hoses  \_\_\_\_\_\_\_\_\_ Hose connections  \_\_\_\_\_\_\_\_\_ Settings on regulators and valves |
| Rubber/Elastomer Parts | \_\_\_\_\_\_\_\_\_ Pliability  \_\_\_\_\_\_\_\_\_ Deterioration |

|  |  |
| --- | --- |
| Inspected by: | Date: |
| Action Taken: | |

**ATTACHMENT G – 2**

45

SCBA Inspection Checklist

|  |
| --- |
|  |

SCBA Identification Number:

|  |  |  |  |
| --- | --- | --- | --- |
| **1. Is the Face piece in good condition?** *Look for these Items:* | **Yes** | **No** | **N/A** |
| * Excessive dirt |  |  |  |
| * Cracks, tears, holes or distortions from improper storage |  |  |  |
| * Inflexibility |  |  |  |
| * Cracked or badly scratched lenses in full face pieces |  |  |  |
| * Incorrectly mounted full face piece lens or broken or missing mounting clips |  |  |  |
| **2. Are the headstraps or head harness in good condition?** *Look for these items:* |  |  |  |
| * Breaks in the straps |  |  |  |
| * Loss of elasticity |  |  |  |
| * Broken or malfunctioning buckles and attachments |  |  |  |
| * Excessively worn serrations on the head harness which might permit slippage |  |  |  |
| **3. Is the exhalation valve in good condition?** *Look for these items:* |  |  |  |
| * Foreign material under the valve seat |  |  |  |
| * Cracks, tears or distortion in the valve material |  |  |  |
| * Improper insertion of the valve body in the face piece |  |  |  |
| * Cracks, breaks or chips in the valve body, particularly in the sealing surface |  |  |  |
| * Missing or defective valve cover |  |  |  |
| * Improper installation of the valve in the valve body |  |  |  |
| **4. Is the breathing tube in good condition?** *Look for these items:* |  |  |  |
| * Damaged, worn or missing end connectors |  |  |  |
| * Missing or loose hose clamps |  |  |  |
| * Deterioration or the hose material |  |  |  |
| **5. Is the high pressure air supply in good condition?** *Look for these items:* |  |  |  |
| * Air supply lines, hoses, attachments and end fittings worn |  |  |  |
| * Valves and air flow regulators inoperable |  |  |  |
| * Low pressure alarm inoperable |  |  |  |
| * Air cylinder less than full |  |  |  |
| * Gauges inoperable |  |  |  |
| * Air cylinder damaged |  |  |  |
| * Air cylinder hydrostatic test out of date |  |  |  |
| **6. Is the cylinder harness in good condition?** *Look for these items:* |  |  |  |
| * Straps or frame showing wear or damage |  |  |  |
| * Broken or malfunctioning buckles and attachments |  |  |  |
| * Air cylinder attachment devices inoperable |  |  |  |

|  |  |
| --- | --- |
| Inspected by: | Date: |
| Action Taken:  46 | |

**ATTACHMENT H**

Sample Emergency Potential Log

**The following work areas at** (agency) **have been identified as having foreseeable emergencies:**

|  |  |  |
| --- | --- | --- |
| **Area** | **Type of Emergency** | **Location of Emergency Respirator(s)** |
| Spray Booth Cleaning Area | Spill of hazardous waste | Locker #1 in the Spray Booth Area |
| Dip Coat Area | Malfunction of ventilation system, leak in supply system | Storage cabinet #3 in Dip Coat/Drying Area |
| Coatings Storage Area | Spill or leak of hazardous substances | Locker #4 in the Coatings Storage Area |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Program Administrator Date**

**ATTACHMENT I**

47

Sample Immediately Dangerous to Life and Health (IDLH) Assessment Log

**The Program Administrator has identified the following area as presenting the potential for IDLH conditions:**

|  |  |  |
| --- | --- | --- |
| Process | IDLH Condition | Procedure |
| Dip Coat Tank Cleaning | Maintenance workers will be periodically required to enter the dip tank to perform scheduled or unscheduled maintenance. | Workers will follow the permit required confined space entry procedures specified in the (agency) Confined Space Program. As specified in these procedures, the Program Administrator has determined that workers entering this area shall wear a pressure demand SAR. In addition, an appropriately trained and equipped standby person shall remain outside the dip tank and maintain constant voice and visual communication with the worker. In the event of an emergency, the standby person shall immediately notify the Program Administrator and will proceed with rescue operations in accordance with rescue procedures outlined in the (agency) Confined Space Program. |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Program Administrator Date**

48

**ATTACHMENT J**

Table 1. -- Assigned Protection Factors5

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type of respirator1, 2 | Quarter mask | Half mask | Full facepiece | Helmet/ hood | Loose-fitting facepiece |
| 1. Air-Purifying Respirator | 5 | 310 | 50 | .............. | .............. |
| 2. Powered Air-Purifying Respirator (PAPR) | .............. | 50 | 1,000 | 425/1,000 | 25 |
| 3. Supplied-Air Respirator (SAR) or Airline Respirator     • Demand mode     • Continuous flow mode     • Pressure-demand or other positive-pressure mode | .............. .............. .............. | 10 50 50 | 50 1,000 1,000 | .............. 425/1,000 .............. | .............. 25 .............. |
| 4. Self-Contained Breathing Apparatus (SCBA)     • Demand mode     • Pressure-demand or other positive-pressure mode (e.g., open/closed circuit) | .............. .............. | 10 .............. | 50 10,000 | 50 10,000 | .............. .............. |

Note\*

1. Employers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration.
2. The Assigned Protection Factors (APF) in Table 1 are only effective when the employer implements a continuing, effective respirator program as required by this section [29 CFR 1910.134](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=12716), including training, fit testing, maintenance, and use requirements.
3. The APF category includes filtering facepieces, and half masks with elastomeric facepieces.
4. The employer must have evidence provided by the respiratory protection manufacturer that testing demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a workplace protection factor (WPF) or a simulated workplace protection factor (SWPF) study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators, and receive an APF of 25.
5. APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29 CFR 1910 subpart Z, employers must refer to the appropriate substance-specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by [29 CFR 1910.134 (d)(2)(ii)](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=12716).

49

**ATTACHMENT K**

Additional Resources

-[Hospital Respiratory Protection Program](https://www.osha.gov/Publications/OSHA3767.pdf)

* Surgical Masks Filtering and Facepiece Respirators: Figure 2: Page 6
* NIOSH Filter Classes: Figure 7: Page 7
* Respiratory Protection Selection Guide: Figure 9: Page 24
* Respiratory Protection Program Evaluation Checklist: Appendix C: Page 44
* Reparatory Protection Program Template: Page 49

-[OSHA Assigned Protection Factors Publication](https://www.osha.gov/Publications/3352-APF-respirators.pdf)

-[3M Center for Respiratory Protection](http://www.3m.com/3M/en_US/safety-centers-of-expertise-us/respiratory-protection/)

* Respiratory Selection Guide

-[NIOSH Workplace Safety & Health Topics](http://www.cdc.gov/niosh/topics/respirators/)

50