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# PURPOSE

To establish the minimum requirements necessary for a respiratory protection program at TI sites.

# SCOPE

This standard applies to selection, use, inspection, storage and maintenance of all types of respiratory protection equipment used on a routine, non-routine and emergency basis.

# reference documents

## TI Standard Policy and Procedure (SP&P) 04-04-01: "Environmental, Health and Safety"

# Definitions

[TI ESH Standards Glossary of Definitions](https://sps01.itg.ti.com/sites/wwf/esh/standards/Knowledge_Bank/00.01.xlsx)

# requirements

## Controls

### Sites shall use engineering and administrative controls to protect employees from inhalation hazards. Where engineering or administrative controls are not feasible or cannot reduce the exposure below exposure limits, then respiratory protection shall be provided.

## Provisions for Hazard Assessment

### Sites shall document which work areas or specific tasks require the use of respiratory protection per TI ESH Standard 01.01 “Personal Protective Equipment”.

### Whenever a new respiratory hazard is introduced into the workplace, when there is a respiratory incident, or when there is a change to this standard or to a local regulatory requirement the hazard assessment shall be updated.

## Provisions for Respirator Equipment Selection

### Sites shall ensure that respirators are properly selected and suitable to protect against respiratory hazards.

### Sites shall also ensure that respirators are available in sufficient quantity and in different sizes and styles to fit all employees who may be required to use them.

### All respirators used for respiratory hazards shall be certified by a recognized third party.

#### Note: Over-the-counter, single strap “dust” masks are designed to filter nuisance airborne particulate and are not certified respirators.

### Where air-purifying respirators are used, sites shall develop a change-out schedule to ensure cartridges do not have contaminant breakthrough during use.

## Note: Stating “The site will dispose of all air purifying cartridges after each use” or using an “end-of-service-life indicator” meets the intent of this requirement. If respirators will be reused and do not have an “end-of-service-life indicator”, then time cannot be the only factor to determine the change-out schedule. Contaminant concentration must be known to calculate the change-out frequency.

## Supplied-Air Respirators [Airline and Self Contained Breathing Apparatus (SCBA)]

### Sites shall use supplied-air respirators in the following scenarios:

#### When personal exposure could exceed the maximum concentration levels recommended for air-purifying respirators;

#### When employees work in oxygen deficient or immediately dangerous to life and health (IDLH) atmospheres;

#### When the odor threshold of the airborne contaminant is higher than its TLV/PEL; or

#### When there is a potential for employee exposure to an unknown atmosphere.

### Loose-fitting respirators (hoods and helmets) that use supplied-air shall not be worn for emergency response or into IDLH atmospheres.

### All supplied-air respirators shall only use Grade D quality “breathing” air or better, which includes the following:

#### Oxygen (volume/volume) within 19.5-23.5%;

#### Hydrocarbon (condensed): no more than 5 milligrams per cubic meter of air;

#### Carbon monoxide (CO): no more than 10 parts per million (ppm);

#### Carbon dioxide (CO2): no more than 1,000 ppm; and

#### No noticeable odor.

### Sites that use a compressor to produce “breathing” air shall have the air certified, at least annually, by a third party to ensure that it meets Grade D quality or better.

### All airline respirators used in any potentially IDLH or oxygen deficient conditions shall be equipped with an emergency escape bottle.

### All SCBA’s used in emergency service shall be inspected monthly and before and after each use.

## Provisions for Identification and Training of Affected Personnel

### Sites shall identify all employees under TI supervision who could be expected to use a respirator in the course of their job and provide them with adequate training to safely use a proper respirator. The training shall consist of the following:

#### Proper selection and use of respirators, including areas with specific respirator requirements;

#### Proper inspection of respirators prior to use;

#### Proper methods for putting on, taking off (donning and doffing), adjusting, and wearing respirators including hands-on practice;

#### Limitations or special hazards when using respirators including the following:

##### Understanding seal interference due to facial hair;

##### Recognizing the maximum use concentration for air-purifying respirators,

##### Determining air-purifying respirator change-out schedule for cartridges, and

##### Proper maintenance, cleaning, storage, and disposal of respirators.

### Initial training shall be provided before affected personnel are permitted to work in areas or perform tasks where the use of PPE (respirators) is required.

### Refresher training shall be provided annually.

## Provisions for Medical Surveillance

### Sites shall assure that each employee in the respiratory protection program has annual medical clearance for use of a particular respirator type from an approved medical source (e.g., TI’s approved Occupational Health Clinics).

#### Sites shall notify the local occupation health personnel, the WWESH Medical Surveillance Program Administrator and the TI Medical Director when an individual fails a medical clearance examination. Notification shall be made to medicalsurveillance@list.ti.com within 2 working days from receipt of the results.

#### Sites shall have a means to identify the names of employees under the medical surveillance program for the use of respirators and document the reason (e.g., perform highly toxic bottle changes, emergency response) for placing the individuals into the surveillance program.

#### If an individual is not medically approved to wear a respirator, the individual shall be removed from the respirator program until the individual receives medical approval.

#### Sites shall designate individuals responsible for implementing the medical surveillance requirements at the site.

## Provisions for Fit Testing

### Sites shall annually fit test (either through qualitative or quantitative methods) all affected employees who may be required to wear a tight-fitting respirator. Fit testing is done to ensure that the respirator has a proper fit to provide maximum protection.

### Sites that choose to perform quantitative fit testing shall use a respirator fit factor of 100 or greater for half-faced respirators and 500 or greater for full-faced respirators.

### Fit testing shall not occur until the employee is medically approved to wear a respirator.

### Personnel who use respirators with a tight-fitting facepiece (examples: half-face and full-face respirators) shall not have any facial hair that may interfere with the face seal of the respirator.

## Provisions for Turnkey Contractor Respirator Usage

### TI turnkey contractors shall be responsible for providing and ensuring that proper respiratory protection is utilized by their employees.

## Provisions for Recordkeeping

### Sites shall maintain respiratory protections records in accordance with SP&P 04-07-01 “Record Retention”.

# STANDARD Approval

This standard has been approved by David Thomas, TI Vice President.

# Revision history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Rev#** | **Date** | **Nature of Revision** | **Author/Editor** | **Approver** |
| A | 02/18/2003 | Periodic review | Gene Schaefers | Brenda Harrison |
| B | 12/22/2006 | Periodic review; 3.3 (i) New information for end of service life indicator. | Gene Schaefers | Brenda Harrison |
| C | 12/11/2007 | Record Retention SP&P number added to 3.3.L | John Willis | Brenda Harrison |
| D | 06/14/2012 | Removed written program requirement, formatting changes, and response to worldwide comments | Mike Alton | David Thomas |
| E | 11/18/2016 | Periodic review; Added breathing air testing requirements; Clarified cartridge change-out schedule requirements; minor changes of verbiage and document flow. | Hayden Baker | ELC |
| F | 09/25/2019 | Added medical surveillance requirements | Hayden Baker | ELC |