

**A**t times, employees may have to work with chemicals or biomaterials that have the potential to become harmful airborne substances. Cal/OSHA requires employers to safeguard employees from these harmful exposures (Title 8, Section 5141) and mandates minimum regulatory requirements of the Respiratory Protection Program (Title 8, Section 5144).

Cal-OSHA requires employers to control respiratory hazards in the following order of priority:

1. Eliminate contaminants or substitute them with less toxic materials.
2. Implement engineering controls (e.g., isolation, dilution ventilation, or local exhaust ventilation).
3. Apply administrative controls (e.g., standard operating procedures (SOP) or best work practices).
4. Provide Personal Protective Equipment (PPE); used in combination with engineering and administrative controls as another layer of protection.

## RESPIRATORS

Respirators are a form of PPE used to reduce exposure to airborne contaminants such as harmful dusts, mists, fumes, gases, or vapors. The type and concentration of contaminants dictate the type of respirator that must be worn. **NOTE:** Respirators are only used as a last resort in preventing harmful exposures and **NOT** a substitute for other control measures.

### AIR-PURIFYING RESPIRATORS (APRs)

APRs remove particulates, gases, vapors, or a combination of these hazards through the use of filters and/or cartridges. Examples:

- Filtering facepiece respirators (e.g., single-use, disposable N95 respirator)
- Tight-fitting respirators – either half mask or full facepiece
- Powered air-purifying respirators (PAPR) – purified air is supplied via a battery-powered blower

### ATMOSPHERE-SUPPLYING RESPIRATORS (ASRs)

ASRs provide clean breathing air from an uncontaminated source instead of filtering out contaminants e.g., self-contained breathing apparatus (SCBA) and air-line respirator (see below).



N95 APR



Half Mask APR



Full Facepiece APR



Air-line



SCBA

## WHAT I NEED TO KNOW

If I have concerns about exposure to harmful airborne substances:

1. Notify my supervisor immediately.
2. Contact [injuryprevention@usc.edu](mailto:injuryprevention@usc.edu) or EH&S at (323) 442-2200.
3. EH&S will schedule an evaluation of my workplace with my supervisor.

## FIT TESTING

To obtain adequate respiratory protection, a proper match must exist between the respirator and the wearer; see [How to Don and Doff an N95 Respirator](#) as an example. Fit-testing is required:

- Before the initial use of a respirator
- Whenever an employee uses a different respirator facepiece
- At least annually

Respirator users shall not have facial hair or piercings that may interfere with the face-to-facepiece seal during fit-testing.

## MEDICAL SURVEILLANCE

Before any employee is fit-tested, a respirator medical evaluation must be conducted to determine the employee's ability to use a respirator.

## REFERENCES

[Cal-OSHA Respiratory Protection \(8CCR5144\)](#)

[Cal-OSHA Guide to Respiratory Protection in the Workplace](#)

[OSHA Respiratory Protection eTool](#)

[NIOSH Workplace Safety & Health Topics: Respirators](#)

