

ACCESSING SAFETY KNOWLEDGE (ASK) SHEET: RESPIRATORS IN CONSTRUCTION

RESPIRATORS are Personal Protective Equipment designed to limit the amount of contaminants breathed in by a worker. These contaminants can be air-borne from the construction area, they can be created by the use of tools on materials used in construction or they can be by-products, fumes or gases of the construction materials. The respirators can be

- simple as a paper-filter mask or
- a half- or full-face covering rubber or silicone mask fitted and using disposable cartridges to filter the air breathed or
- a half or fully face covering fitted to the face with supplied air delivered by hose to the worker.

The efficiency of a respirator—that is, its ability to protect the worker’s lungs—is called the Assigned Protection Factor or APF. A protection factor of 10 means that no more than one-tenth of the contaminants to which the worker is exposed leak into the mask. An APF of 100 means only one percent leakage. The respirator supplied in various situations is based on the hazard faced (e.g. dust respirators for exposures to dusts and gas and vapor respirators for exposures to gases) and the expected level of exposure. The goal, according to OSHA, is to make sure exposure inside the mask does not get above the OSHA permissible exposure limits (PELs) which are listed on the Material Safety Data Sheets (MSDS) required for all chemical products used in construction. The more face covered by the respirator mask the more protection it offers except in cases of some loose-fit-designed supplied-air respirators.

Paper filter respirators, designed to remove ONLY particulate material (dust, airborne granules) will be rated according to the following table with N = Not Oil Resistant, R = Oil Resistant and P = Oil Proof:

| RATING | DESCRIPTION |
|--------------------|---|
| N 95, R 95, P 95 | Filters at least 95% of airborne particles |
| N 99, R 99, P 99 | Filters at least 99% of airborne particles |
| N 100, R100, P 100 | Filters at least 99.97% of airborne particles |

The actual amount of protection provided by respirators is absolutely dependent on their fit and proper use. Before using a Cartridge or Supplied air respirator a worker must receive a Pulmonary Function test to assure that their lungs are strong enough to overcome the restricted air-flow from a respirator and have size and fit of the brand/type used ensured by an authorized person. This “fit-test” is valid only for the type, brand and size noted on the certification. The worker should additionally be trained in mask maintenance for cleaning, storing and cartridge replacement.

While the requirement of the employer to “provide a safe workplace free from recognized hazards” can often be fulfilled by providing information about MSDS and protection from those hazards, in the case of respiratory protection being REQUIRED by MSDS, the required respiratory protection, medical qualification, training, and, in some conditions, follow-up medical testing is the responsibility of the employer. It is the responsibility of the worker to properly use the employer-provided required protection and disciplinary action can be employed to enforce this responsibility.

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