ENVIRONMENT, HEALTH & SAFETY
UNIVERSITY OF MICHIGAN

Respirator Equipment Selection Guidance and the NIOSH Respirator Selection Logic Process

Revision Date: 10/12/21

As stated in this Guideline, the EHS Representative for specific University departments/areas are encouraged to use the NIOSH Respirator Selection Logic Process to aid in the proper selection of respiratory protective devices.

Selection logic determinations should be communicated to those employees in the Respiratory Protection Program in the applicable area and made freely available to them for reference and training purposes.

The entire NIOSH Respirator Selection Logic guideline document is available online via the following link: https://www.cdc.gov/niosh/docs/2005-100/default.html

In addition to the NIOSH Respirator Selection Logic and the information collected, the EHS Representative will also use Table 1 below as a guide in selection when the following hazards exist:

Table 1

HAZARD	**MINIMUM REQUIRED RESPIRATOR, CARTRIDGES, AND FILTERS**
Oxygen (O_2) Deficiency	Self-Contained Breathing Apparatus (SCBA)
Gas, Vapor, Particulate Contaminants	
Atmospheres Immediately Dangerous to Life or Health (IDLH)	Self-Contained Breathing Apparatus (SCBA)
Atmospheres **not** Immediately Dangerous to Life or Health (IDLH)	Half or Full-facepiece respirator with chemical cartridge, filter or both. Available filters include particulate filters N95 (no oil present), R95 or P95 (oil present), or a combination of a particulate filter and some other kind of filtering/absorbing chemical cartridge. PAPR or supplied-air systems can be an option.
Asbestos / Lead	• Half mask with HEPA filter; • Full facepiece with HEPA filter; and • PAPR with HEPA filter. • HEPA/particulate filters must be rated at N100 (no oil present), R100, or P100 (oil present)
Pepper spray or other crowd control agent	Gas Mask (CS/CN P100 Respirator) with gas canister
Formaldehyde	Half or Full-facepiece with a formaldehyde cartridge **NOTE**: If eye discomfort is experienced, than a full-facepiece is required.
Isocyanates	Self-Contained Breathing Apparatus (SCBA) or Supplied-Air Respirator (SAR)

Table 1 (continued)

HAZARD	MINIMUM REQUIRED RESPIRATOR, CARTRIDGES, AND FILTERS
Ethylene Oxide	Up to 5 ppm: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister. **NOTE**: End of service life indicator (ESLI) required.
Solvents	Half or Full facepiece with organic vapor cartridges
Mercury Vapor	Half or Full facepiece with mercury vapor cartridges
Silica	Half or Full facepiece with HEPA filter rated at N100 or P100
Welding Fumes	Welding respirator with HEPA filter N95 (no oil), R95 or P95 (oil present)
Infectious Agents, i.e., Pathogenic micro-organisms that can be transmitted via air and can cause disease in humans – includes Tuberculosis (TB), pigeon excrement, Severe Acute Respiratory Syndrome (SARS), etc.	• Half face with HEPA filter; • PAPR with HEPA filter; and • Disposable Dust Mask for protection against infectious diseases such as TB and SARS. Refer to UMHS infectious disease respirator plan(s). • HEPA/particulate filters must be rated at N100 or P100 • N95 Disposable Particulate Respirator is acceptable for TB protection
Nuisance Dusts (Does not include asbestos, radioactive material, or other toxic particulates)	N95 Disposable Particulate Respirator

NOTE: The potential for eye irritation or eye injury from chemical splash or flying particulates may require the use of tight-fitting full-face APR, PAPR, and SAR or supplied-air hoods or helmets. The use of half mask respirators in conjunction with chemical splash goggles is not advisable due to the difficulty in obtaining a good seal with the respirator, the goggles, or both. A tight-fitting full-face APR, PAPR, and SAR or supplied-air hoods or helmets should be worn whenever both respiratory protection and eye protection are required.

If applicable, any operating procedures developed within an operating department shall clearly identify hazards that require or potentially require respiratory protection. The procedure shall state the minimum type of respiratory protection required for protection from the hazard. These procedures shall provide instructions on when and where protective equipment must be used and what type of equipment to use in situations that may arise.