




Personal Protective Equipment

Respirator Usage and Safety




What is a respirator?

- Worn on face
- Covers nose and mouth
- Forms a tight seal against skin
- Filters out certain airborne particles



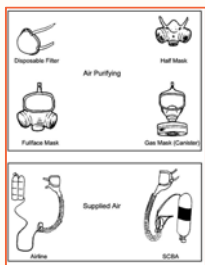
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TYPES OF RESPIRATORS

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Classification of Respirators

- Air-Purifying Respirators
 - Removes contaminants from the air
 - Particulate respirators
 - "Gas mask" respirators
- Air-Supplying Respirators
 - Provides clean source of air
 - Supplied air respirators (SAR)
 - Self-contained breathing apparatus (SCBA)



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Particulate Filtering Facepiece

- Air-Purifying Particulate Respirator (APR)
- Disposable or single-use respirators
- Some have exhalation valve
- Goggle or eye protection needed
- N95s




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NIOSH Particulate Filter Approval Categories

Minimum Filter Efficiency	N series Not resistant to oil	R Series Somewhat resistant to oil	P Series Strongly resistant to oil
95%	N95	R95	P95
99%	N99	R99	P99
100% (99.97%)	N100	R100	P100 (~HEPA)

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Elastomeric Respirators

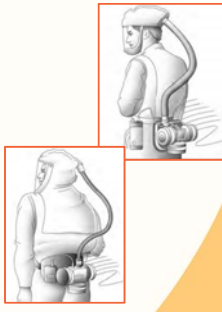
- Air-Purifying Particulate Respirators (APR)
- Reusable facepiece with disposable filter cartridges
- Half-face APRs
 - Only covers nose and mouth
 - Goggles or faceshield needed
- Full-face APRs
 - Covers entire face
- Variety of filters



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Powered Air-Purifying Respirators (PAPRs)


- Air-Purifying Particulate Respirators (APR)
- Battery-powered blower pulls air through filters then moves filtered air towards facepiece
- Can be cooling device
- Not all require fit-testing and seal checks
- Check batteries



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Self-Contained Breathing Apparatuses (SCBAs)

- Air-Supplying Respirator
- Supply uncontaminated air to full facepiece
- Used in high risk environments
- Minimum usage time of 30 minutes
- Follow-up medical examination required
- Not commonly used in veterinary medicine



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RESPIRATOR USAGE AND SAFETY

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Selecting a Respirator

- Type of hazards
- Identity and concentration of the contaminant
- Degree of protection provided by each type of respirator
- Activity of the person wearing the respirator
- Time constraints

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Standards and Regulations

- OSHA
 - Occupational Safety and Health Administration
 - OSHA 1910.134
- FDA
 - Food and Drug Administration
- NIOSH
 - National Institute for Occupational Safety and Health



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NIOSH-Approved

Example of Exterior Markings on a NIOSH-Approved Filtering Facepiece Respirator

1. NIOSH TC Approval Number - TC-844-xxxx

2. Brand name, registered trademark, or an easily understood abbreviation

3. NIOSH name in block letters or a NIOSH logo



4. Filter Class (N, R, or P) and Filter Efficiency Level (95, 99, or 100)

5. Lot Number - recommended but not required

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Proper Use of Respirators

- Fit-tested
- Seal checked
- Training
- Medical evaluation
 - Personal health questions
 - Medications
 - Work conditions

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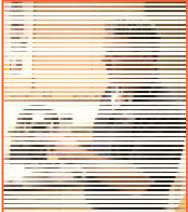
Health Effects When Wearing Respirators

- Increased resistance to breathing
- Reduced endurance
- Reduced visual field
- Increased risk for heat stress
- Decreased voice clarity/loudness
- Decreased hearing ability
- Discomfort or irritation
- Psychological stress

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Before Usage

- Inspect all parts of the respirator before use
- Batteries charged
- Proper air flow
- Do NOT use the respirator if it is not working properly



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Safe Respirator Usage

- Do not use a respirator unless
 - Formally trained and
 - Fit tested
- Select the correct respirator for the job
 - Particulate filter will not protect against gases or vapors
- Inspect the respirator before each use
- Ensure the face seal
 - Remove facial hair
 - Prevent hair or eyeglasses from interfering
- Do not wear contact lenses with a respirator

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During Usage


- Immediately leave contaminated area if respirator stops working
- PAPR – make sure battery charge is available
- SCBA – make sure air is available in tank



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Cleaning

- Follow manufacturer’s cleaning guidelines
- Warm water/mild detergent
- Disinfectant solution
- Dry thoroughly
- Never soak entire unit in detergent



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Respirator Storage

- Store in accordance with manufacturer’s instructions
- Check expiration dates
- Never use and discard if:
 - Color changes
 - Shrinking
 - Wearing/thinning of material
 - Stretching
 - Cuts/tears/holes

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Resources

- Occupational Safety and Health Administration (OSHA) – Respiratory Protection
 - <https://www.osha.gov/SLTC/respiratoryprotection/>
- National Institute for Occupational Safety and Health (NIOSH) – Respirators
 - <http://www.cdc.gov/niosh/topics/respirators/>
- U.S. Food and Drug Administration (FDA) – Masks and N95 Respirators
 - <http://www.fda.gov/medicaldevices/productsandmedicalprocedures/generalhospitaldevicesandsupplies/personalprotectiveequipment/ucm055977.htm>
- U.S. Department of Agriculture – Foreign Animal Disease Preparedness and Response Plan (FAD PREP) NAHEMS Guidelines: Personal Protective Equipment
 - http://www.aphis.usda.gov/animal_health/emergency_management/downloads/naheems_guidelines/fadprep_nahems_guidelines_ppe_final_april2011.pdf

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