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**Armed Forces Pest Management Board
Technical Guide No. 14**

Personal Protective Gear and Equipment for Pest Management Personnel

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AFPMB Technical Guides

This is one of a series of Technical Guides (TGs) published by the Armed Forces Pest Management Board (AFPMB), Strategy and Information Division (SID). The AFPMB is a directorate within the Office of the Under Secretary of Defense for Acquisitions and Sustainment, that recommends policies and procedures, provides guidance, and coordinates the exchange of information related to pest management throughout the Department of Defense (DoD). SID collects, stores, and disseminates published and unpublished information on arthropod vectors and pests, natural resources, and environmental biology. All TGs are available at the AFPMB website: https://www.acq.osd.mil/eie/afpmb/pest_tech_guidance.html.

TGs provide technical guidance for the use of the DoD pest management community. They are a contributing part of the overarching DoD support of integrated pest management, combining principles from each to meet that goal. Each TG should not be considered as stand-alone guidance, and should not be construed or referenced as policy. DoD pest management policies may be found in DoD Directive 4715.1E, "Environment, Safety, and Occupational Health (ESOH)" DoD Instruction 4150.07, "DoD Pest Management Program," other DoD directives and instructions, and implementing component directives, instructions, and regulations.

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Acknowledgements

This 2020 revision of Technical Guide (TG) 14, providing guidance to the DoD pest management community for 42 years, was prepared through the efforts of the Armed Forces Pest Management Board (AFPMB) Equipment Committee and Research, Development, Testing and Evaluation (RDT&E) Committee. The AFPMB thanks Mr. Jerold Spohn for his important contributions to the content. Reviews and significant input were provided by Dr. James Cilek, Vice Chair, AFPMB RDT&E Committee, of NECE, NAS Jacksonville, FL, and Mr. Bryon Kacprzyk, 23 CES/CEOIE, Moody AFB, GA. For previous version provenance, see the Afterword.

Disclaimer

TG 14 discusses specific proprietary products regarding respiratory system protective devices and coveralls. Mention of trade names does not constitute a guarantee or a warranty of the product by AFPMB, the military departments, or the Department of Defense (DoD). Information or inquiries concerning equipment not listed should be sent through Command Pest Management Professionals or Applied Biologists to the Equipment Committee, AFPMB, for evaluation.

Note

This TG includes Basis of Issue (BOI) Information for USA and USAF pesticide applicators based on Service Tables of Allowances (TAs). While there are no comparative tables for USN/USMC personnel, these individuals may use BOI information here as a guideline to procure personal safety equipment for military and civilian pesticide applicators. Search <https://www.webflis.info/> for the most current National Stock Numbers (NSNs).

Purpose

Personnel who handle and/or apply pesticides are required to wear personal protective equipment and clothing according to the Federal Insecticide, Fungicide, and Rodenticide Act (40 CFR 170), Occupational Safety and Health Standards (29 CFR 1910), DOD Instruction 4150.07, and individual pesticide labels. Such protective devices include respirators, gloves, goggles, and protective clothing necessary for the task being conducted and the pesticides used. Each pesticide applicator's unit of assignment must provide these items. This TG provides supply and other data necessary to request and effectively use pest management protective equipment. It also provides a methodology that pest management supervisors may use to help determine personal safety equipment requirements.

Equipment discussed in this TG is required according to General Requirements, 29 CFR 1910.132, Subpart I - Personal Protective Equipment, and applicable paragraphs of 29 CFR 1910.133 and 1910.134. This TG includes specific tri-service regulations and other guidelines which serve as procurement and issuance authorities for each equipment item.

Determining Personal Safety Equipment Requirements

Among the many challenges for pest management supervisors is determining the items of personal protective equipment (PPE) that are required for different pesticides, and then to insure shop personnel wear the required items. Equipment requirements are dictated by the type of pesticide used, its toxicity characteristics, percentage of active ingredients, and phase of handling.

In accordance with [DoD Instruction 4150.07: DoD Pest Management Program](#) and [DoDM 4150.07, Volume 1: DoD Pest Management Program Elements and Implementation: Structure and Operation](#), local workplace evaluations performed by qualified safety and health professionals may determine more appropriate PPE combinations (or other hazard control requirements, such as mechanical ventilation) based on particular pesticide preparations and use. These safety and health hazard control recommendations should be incorporated into local operations.

Note: The pesticide label is the law--if the pesticide product label requires a PPE item for use of the product, it is a lawful requirement to have it on hand and to use it.

The purpose of this section is to help pest management supervisors accurately determine equipment needs consistent with pesticides on hand. To help meet this goal, use the Safety Equipment Requirements Worksheet (Figure 1). Effectively used, this completed form will help supervisors identify specific equipment requirements and communicate these requirements to subordinates.

Supervisors should make copies of this worksheet before they start, since most pest management sections stock more than 10 different pesticides. Label each sheet according to the type of pesticide described (insecticide, herbicide, etc.). Because of space limitations in Part 2 of the worksheet, use letter codes to identify specifically when each equipment item should be worn (e.g., M - mixing; A- applying, etc.). Identify codes in the Notes section of the worksheet.

A comprehensive list of PPE for pesticide applicators is provided in the Appendix for pesticides on the AFPMB standard list of pesticides. It is an excellent reference when filling out the worksheet.

Naturally, use of this form calls for some discretion. First, some pesticide labels and Safety Data Sheets (SDS) only generally describe the specific types of personal protective clothing required. Specific PPE needs for a given situation may be more or less stringent than those recommended here. Therefore, each workplace should be evaluated to determine personal protective equipment (PPE) requirements by qualified safety and health personnel. Second, some safety equipment items, such as earplugs and helmets, are not likely to appear on a pesticide label. For example, the decision to wear earplugs or a helmet may only be based on the equipment being used and where the pesticide is applied, such as with a gasoline powered engine or near an active runway. Always refer to the equipment item's operator's manual and base safety regulations prior to applying pesticides.

Two key safety items that are not considered PPE are a shower and an eye wash. Both are required in the pest management shop or workplace where mixing occurs (areas where liquid or particulates

may fly into the eye and contaminate the body) and wherever directed by DoD guidelines and qualified safety and health personnel.

This guide covers only PPE requirements for wear. It does not address in detail personal hygiene or cleaning and decontamination of PPE. Generally, a key item of personal hygiene is avoiding eating, drinking, smoking, tobacco use, and gum chewing while applying pesticides. Pesticide applicators must wash their hands immediately after completing a pesticide application. Pesticides must be kept away from food, drink, and animal feed. PPE should be removed immediately after pesticide application, and cleaned or decontaminated according to manufacturer instructions or by what is in the SDS or on the pesticide label.

Safety Equipment Requirement Worksheet by Pesticide Type

Instructions

1. Gather copies of labels for each pesticide in stock and any other information as needed.
2. In Part 1, list each pesticide by type (Organophosphate (OP), Carbamate (C), Pyrethroid (P), Organochlorine (Cl), Biopesticide (Bio), Herbicide (Herb)).
3. In Part 2 for each pesticide, thoroughly analyze the label, the Safety Data Sheet (SDS), and other information to determine:
 - a. The safety items required, and check the box.
 - b. The phase of operations each equipment item is required for (mixing, applying, etc.), and check the box.
4. In Part 3, list any other relevant personal protection requirements.
5. Use the completed form as a training tool and post it in an appropriate area.
6. Use this information to determine adequacy of personal safety equipment on hand, consistent with TG 14 and local requirements.

| PART 1 | PART 2 | | | | | | PART 3 |
|---|---|-------------------------------------|--|--|--|--|--------|
| Pesticide Type <i>Insecticide: OP</i> <i>Malathion</i> | Equipment Items Required When Mixing (Mix), Applying (App), Aerial Application (Air), Training, etc. | | | | | | Other |
| Pesticides Requirements: | Mix | App | | | | | |
| PPE and other Safety Items | | | | | | | |
| 1. Apron | <input checked="" type="checkbox"/> | | | | | | |
| 2a. Boots, Knee 2b. Shoes, non-spark | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | |
| 3. Coveralls (Type) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | |
| 4. Hearing Protection | | | | | | | |
| 5. Faceshield | <input checked="" type="checkbox"/> | | | | | | |
| 6. Gloves (Type) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | |
| 7. Goggles / Glasses | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | |
| 8. Hat, Insect Net | | | | | | | |
| 9. Helmet | | | | | | | |
| 10. Respirator (Type) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | |
| Notes: | | | | | | | |

Figure 1. Worksheet example for Determining and Recording Personal Protection Needs. See Appendix for blank worksheet.

Safety Gear and Equipment

Note: The pesticide label is the law--if the pesticide product label requires a PPE item for use of the product, it is a lawful requirement to have it on hand and to use it.

Apron, General Purpose

(1) Description: Apron, impermeable, cotton duck, both sides coated with chloroprene rubber. Tie tape fasteners in the back; no sleeves or pockets. Universal size; 48 inches long and 34-5/8 inches wide at the waist.

(2) Use and maintenance: Wear the apron when measuring and mixing pesticides, filling sprayers, or working with solvents. Aprons are especially helpful when handling large amounts of liquid pesticides. The apron serves as an additional precaution to prevent contamination of the groin region, which is very susceptible to pesticide absorption.

To maintain aprons, simply wash them with soap and water and inspect them regularly for tears or holes. Discard the apron if tears or holes are found; *DO NOT REPAIR*.

(3) Basis of issue:

USA: One per pesticide applicator measuring or mixing pesticides or handling solvents.

USAF: As requested, when authorized by the unit commander.

(4) National Stock Number: 8415-00-082-6108.

(5) Unit of issue: Each (EA).

(6) Expendability: Nonexpendable.

(7) Authority: AR 385-10, NAVMED P-5010-8, AFI 32-1053, CTA 50-900, TA 016.

Boots, Knee

(1) Description: Boots, knee, men's, non-insulated, black rubber. Fifteen inches high with waterproofed uppers and cleated or knurled rubber soles. Nonslip rubber heels.

(2) Use and maintenance: Rubber boots should be worn when mixing or applying liquid pesticides, especially for working on large-scale operations or with liquid pesticide concentrates. (Leather or canvas boots will absorb liquid pesticides, so don't use them unless covered by rubber boots.) Wear rubber boots with the tops beneath the legs of trousers, coveralls or other protective clothing.

Maintain rubber boots by frequent washing with soap and water, inside and out, to remove pesticide contaminants.

(3) Basis of issue: One pair (PR) per pesticide applicator.

(4) National Stock Numbers:

| | |
|------------------|---------|
| 8430-00-262-8252 | Size 5 |
| 8430-00-262-8253 | Size 6 |
| 8430-00-262-8254 | Size 7 |
| 8430-00-262-8255 | Size 8 |
| 8430-00-262-8256 | Size 9 |
| 8430-00-262-8257 | Size 10 |
| 8430-00-262-8258 | Size 11 |
| 8430-00-262-8259 | Size 12 |
| 8430-00-262-8260 | Size 13 |
| 8430-00-262-8261 | Size 14 |
| 8430-00-262-8278 | Size 15 |

Boots, Hip, Black Rubber

(1) National Stock Numbers:

| | |
|------------------|---------|
| 8430-00-241-2780 | Size 10 |
| 8430-00-241-2781 | Size 11 |
| 8430-00-241-2782 | Size 12 |

(2) National Stock Number: 8415-00-082-6108.

(3) Unit of issue: Pair [PR].

(4) Expendability: Nonexpendable.

(5) Authority: AR 385-10, NAVMED P-5010-8, AFI 32-1053, CTA 50-900, TA 016.

Coveralls, Men's (IAW MIL-C-27845, USA and USAF only) (Women) Note: Federal Supply Group 84 guidance states: "Where applicable, clothing items which are intended for use by both men and women are classified in the appropriate "men's" class."¹

(1) Description: Coveralls, men's white, cotton sateen. Slide fastener closure with protective fly piece at front. Leg bottoms and wrists closed with nylon tape fasteners. Three patch pockets and a draw cord at the waist.

¹ Suggested guidance for women's sizes: size by chest measurement and then by height as follows.

- For height 5'7"-6'0" order Regular
- For height 6'1"-6'4" order Tall
- For inseam greater than 34" order Tall

(2) Use and maintenance: To mix and apply pesticides, pesticide applicators should wear coveralls that cover the entire body to protect the skin from contamination. Coveralls are authorized for pest management personnel to wear only while performing job duties. Never use them as a replacement for normal military or civilian clothing.

Worn coveralls must be washed daily in soap and water, and separately from other clothing. To prevent contamination of other clothing, shop-dedicated washing machines and dryers are typically authorized so pesticide applicators can maintain coveralls in a clean condition at all times.

Coveralls require frequent inspection to detect holes, tears and thinning of material. If one detects any of these conditions, replace them through the supply system.

(3) Basis of issue:

USA: Six per pesticide applicator when washer and dryer are located in the pest management shop. Twelve per pesticide applicator when no washer and dryer are located in the shop.

USAF: Three per AFSC 3E4X3.

(4) National Stock Numbers:

NSN 8405-01-286-6351 is the primary NSN in TA 016.

(5) Unit of issue: Each (EA).

(6) Expendability: Nonexpendable.

(7) Authority: AR 385-10, NAVMED P-5010-8, AFI 32-1053, CTA 50-900, TA 016.

Coveralls, Disposable

(1) Description: Coveralls made of spunbonded olefin (DuPont TYVEK[®]) fabric. Manufactured in several styles, colors and designs by various safety garment manufacturers.

(2) Use and maintenance: According to manufacturer specifications. Under normal conditions, use of disposable coveralls should not exceed one day or eight hours. If such garments are splashed or drenched, replace them immediately. Use garments made of untreated olefin to apply pesticide granules, dusts, and powders. Use chemically-treated coveralls, made of products such as TYVEK[®] and Dow SARANEX[®] to apply granules, dusts, powders, and liquid pesticides. Do not use olefin coveralls to handle chlorinated hydrocarbons. Do not use polyethylene-coated olefin coveralls to handle chlorinated hydrocarbons or phosphorus compounds, and avoid potential heat-stress situations.

(3) Basis of issue: Not applicable.

- (4) National Stock Number: None available. Use locally-purchased items.
- (5) Unit of issue: Refer to manufacturer guidance.
- (6) Expendability: Expendable.
- (7) Authority: Current Service regulations make no specific mention of disposable coveralls. Contact the appropriate Engineering Field Division (EFD) biologist, Command Entomologist, or local qualified safety and health personnel (DODI 6055.01) if additional assistance is needed.

Hearing Protection

(1) Description: Two types of ear protectors are discussed here. The first type, ear plugs, are made of silicon rubber and have a single or triple flange to help hold the plug in the ear. The second type is aural protectors, or ear muffs. Ear muffs have a plastic outer shell covering each ear with a sound- absorbent material and replaceable plastic ear pads inside each shell. This one-piece unit has a plastic- covered metal headpiece connecting the two shells. Ear muffs are adjustable for head size and provide sound reductions of 24 dB minimum at 500 Hz and 30 dB minimum at 8000 Hz. The appropriate safety office will make the determination for the level of ear protection required based on the equipment utilized in the Pest Management shop.

(2) Use and Maintenance: Pesticide applicators must wear ear protective devices such as earplugs and/or ear muffs whenever they operate noisy equipment or work in hazardous-noise areas.

Ear plugs are appropriate when hazardous noise exposure is intermittent and the bulk of ear muffs is undesirable. Ear plugs must be fitted by medical or safety technicians responsible for the installation Hearing Conservation Program.

Ear muffs are used to protect hearing when workers are exposed to noise levels above 85 decibels or continually exposed to noise such as that produced by powered application equipment.

Maintain earplugs by washing them with warm soapy water. Inspect aural protectors periodically to detect hardening of the vinyl pads. Replace these pads when hardening is detected.

(3) Basis of Issue: Ear muffs -- One per individual exposed to noise hazards. Ear plugs -- One set per individual (USA and USAF).

(4) National Stock Numbers: No stock number is needed for ear plugs. These are fitted and issued by the office responsible for the installation Hearing Conservation Program.

The NSNs for aural protectors (ear muff type) are 4240-00-022-2946 and 4240-00-759-3290.

(5) Unit of issue:

Ear plugs: Pair (PR)
Ear muffs: Each (EA)
Ear muff pads: Box (BX) – Each box has 50 pairs

(6) Expendability: Expendable.

(7) Authority: DA PAM 40-501, NAVMED P-5010-8, AFI 32-1053, AFOSHSTD 48-20.

Faceshield, Industrial

(1) Description: Industrial face shield with a 6-inch wide plastic mask and forehead guard.

(2) Use and Maintenance: Pesticide applicators should wear either a face shield or goggles when mixing and applying pesticides to protect the eyes and face from pesticide splashing or wind drift. There are times when a face shield is more adequate than goggles and vice versa. Remember to give the eyes as much protection as possible in each circumstance. Keep pesticide containers below eye level during mixing to prevent splashes to the face.

(3) Basis of Issue:

USA: One per pesticide applicator.

USAF: As required when approved by Ground Safety.

(4) National Stock Numbers:

4240-00-202-9473

Managed by DLA Aviation

4240-00-542-2048

Managed by General Services Administration.

(5) Unit of Issue: Each (EA).

(6) Expendability: Expendable.

(7) Authority: AR 385-10, OPNAVINST 6250.4B, AFI 32-1053, CTA 50-900, TA 016.

Gloves, Chemical and Oil Protective

(1) Description: Nitrile or natural or synthetic rubber gloves, organic solvent resistant, high sleeve, with a rolled edge cuff.

(2) Use and Maintenance: Pesticide applicators should wear gloves to prevent skin contamination during all phases of pesticide handling and to clean dispersal and protective equipment. Several types of gloves are available, but leather, cotton, or medical examination gloves are not to be worn to handle pesticides. The gloves described here are unlined and liquid proof.

Gloves should fit hands snugly and should be long enough to extend well above the wrist so they can be worn under coverall sleeves. To apply pesticides to areas above the shoulders, wear the gloves outside coverall sleeves. For lower areas, wear the gloves underneath the sleeves.

To maintain gloves, wash them after each day's use with soap and water, inside and out, and inspect them for holes and tears. To do this, fill each glove with water and gently squeeze while holding the top of the glove closed with one hand. If holes or damage are found, shred and dispose of the gloves so no one else can use them. Follow manufacturer's guidance.

(3) Basis of Issue:

USA: One pair per pesticide applicator. USAF: One pair per pesticide applicator.

(4) National Stock Numbers:

| | | |
|------------------|---------|---------------------------------------|
| 8415-00-823-7458 | Size 9 | Used by all Services. |
| 8415-00-823-7459 | Size 10 | Used by all Services. |
| 8415-00-823-7460 | Size 11 | Used by all Services. |
| 8415-01-012-9294 | Size 9 | Chemical and oil protective (Nitrile) |
| 8415-01-013-7382 | Size 10 | Chemical and oil protective (Nitrile) |

(5) Unit of issue: Pair (PR).

(6) Expendability: Expendable (USA: see CTA 50-970 for expendability).

(7) Authority: AR 385-10, NAVMED P-5010-8, AFI 32-1053, CTA 50-900, TA 016.

Goggles, Industrial

(1) Description: Chemical splash goggles, anti-fog, indirect venting, acetate frame.

(2) Use and Maintenance: See section on face shields for use guidance. To maintain goggles, wash them after each day's use with nonabrasive soap and water. Dry with a soft cloth to prevent scratching the lens.

(3) Basis of Issue:

USA: One pair per pesticide applicator.

USAF: As required for eye protection in accordance with governing directives or when authorized by Base Safety.

(4) National Stock Numbers:

| | |
|------------------|-----------------------|
| 4240-00-052-3776 | Goggles (GSA managed) |
|------------------|-----------------------|

4240-00-190-6432 Goggles, industrial, non-vented (DLA Aviation managed)

- (5) Unit of issue: Pair (Pr)
- (6) Expendability: Expendable.
- (7) Authority: AR 385-10, NAVMED P-5010-8, AFI 32-1053, TA 016.

Insect Bar, Head Net, and Hat

(1) Description: Stiff, olive green, oxford crown with quilt stitched brim hat. Olive green with chin strap and inside pocket for insect net. Black nylon tulle tricot insect net is attached to the hat by an elastic cord through top hem.

(2) Use and maintenance: Use this clothing Item for head protection against mosquitoes, black flies, and other biting or stinging insects.

(3) Basis of Issue:

USA: One per pesticide applicator.
USAF: One per pesticide applicator if required.

(4) National Stock Numbers:

8415-00-935-3130 Insect Bar, Head Net (A, N, F, M) MIL-I-11489
8415-00-935-2914 Insect Net, Hat. (A, N, F) CID A-A-55082

- (5) Unit of Issue: Each (Ea).
- (6) Expendability: Nonexpendable.
- (7) Authority: AR 385-10, NAVMED P-5010-8, AFI 32-1053, TA 016

Helmet, Safety

(1) Description: Brimless safety helmet with a thermoplastic copolymer shell, and adjustable plastic inner lining.

(2) Use and Maintenance: Use this helmet in appropriate areas for protection against flying, falling, or protruding objects. It also protects the head from contact with electrical current. To maintain the helmet, periodically wash it with soap and water.

(3) Basis of Issue:

USA: One per pesticide applicator.
USAF: One per pesticide applicator.

(4) National Stock Numbers:

| | | |
|------------------|---------------------|-------------------------------------|
| 8415-00-935-1901 | Size 6-3/4 to 7-1/2 | Color blue. (<i>GSA Managed</i>) |
| 8415-00-935-3131 | Size 6-1/2 to 8 | Color black. (<i>GSA Managed</i>) |

(5) Unit of issue: BX/10EA.

(6) Expendability: Nonexpendable.

(7) Authority: AR 385-10, NAVMED P-5010-8, AFI 32-1053, TA 016.

Respirators

(1) Basis of Issue: One per pesticide applicator (USA and USAF).

(2) Expendability: Respirator facepieces are nonexpendable. Associated parts, such as filters, retainers, etc., are expendable.

(3) Authority: AR 385-10, NAVMED P-5080-8, AFI 32-1053.

(4) It is imperative for you to **immediately notify your supervisor if you detect a leak in your respirator**. Half-face respirators are suitable for most application techniques. Full-face respirators may be required to perform some pesticide applications. Further, pesticide applicators must be placed on a medical surveillance program to test for pesticide absorption and other related pest management medical concerns. It is the applicator's responsibility to make these scheduled appointments.

3M Respirators

| | |
|------------------|---------------------------------|
| 4240-01-495-1294 | Half-face, 3M 7500 series (SM) |
| 4240-01-495-1293 | Half-face, 3M 7500 series (MED) |
| 4240-01-495-1291 | Half-face, 3M 7500 series (LG) |

| | |
|------------------|------------------------------------|
| 4240-01-314-2780 | Full-face, 3M 7800 series (SM) |
| 4240-01-342-5239 | Full-face, 3M 7800 series (SM/MED) |
| 4240-01-301-3200 | Full-face, 3M 7800 series (MED/LG) |

4240-01-389-7449701 Cartridge filter adaptor for use with 6001 OV Cartridge to use with 7800 respirator

North Respirators

4240-01-249-9261 Half-face, 550030 series, P/N: 7701P95L (LG)

4240-01-249-9262 Half-face, 550030 series, P/N: 5501NP95M-12 (MED)
4240-01-249-9263 Half-face, 550030 series, P/N: 5501NP95S-12 (SM)
4240-01-249-2573 Organic Vapor Cartridge & P100 particulate Filter (99.97% Minimum Filter Efficiency): P/N: 7581P100L
4240-01-249-2572 P100 Particulate Filter (99.97% Minimum Filter Efficiency): P/N: 7580P100

Respirator Fit Testing

(1) 29 CFR 1910.134 requires employers to develop and implement a written respiratory protection program with required worksite specific procedures and elements for required respirator use. A suitably trained program administrator must administer the program. The program must include respirator fit testing for individual employees required to wear respirators.

- a. The employer shall select a NIOSH-certified respirator.
- b. Before any employee is required to use a respirator with a negative or positive pressure tight-fitting facepiece, the pesticide applicator must be fit tested with the same make, model, style, and size of respirator that will be used. The respirator shall be used in compliance with the conditions of its certification.
- c. Fit testing requires performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) used for respiratory protection. Qualitative fit testing is a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent. It is done by temporarily converting the respirator user's actual facepiece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator facepiece with the same sealing surfaces as a surrogate for the atmosphere-supplying or powered air-purifying respirator facepiece. Quantitative fit testing is an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator. It is done by modifying the facepiece to allow sampling inside the facepiece in the breathing zone of the user, midway between the nose and mouth. This requirement is met by installing a permanent sampling probe onto a surrogate facepiece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the facepiece.

(2) The Air Force Program is described in the Air Force Occupational, Safety, and Health (AFOSH) Standard 48-137, Respiratory Protection Program, and administered by the Medical Treatment Facility's Bioenvironmental Engineering (BE) office. BE documents rationale for selection by process in the workplace-specific written plan and on the AF Form 2773, Respirator Selection Worksheet, and uploads to the Shop Detail page in the Defense Occupational and Environmental Health Readiness System (DOEHRS-IH). BE will mandate the type of respirator(s) to be used and training must be accomplished annually.

(3) Army requirements are documented in Army Regulation 11-34, Army Respiratory Protection Program. This publication instructs users to follow OSHA fit testing procedures and follow the requirements in 29 CFR 1910.134.

(4) Navy requirements are well described online in a document titled Generic Respiratory Protection Program - Policy and SOPs (OPNAVINST 5100.23 based on 29 CFR 1910.134). The document includes a form for fit testing:

<http://www.med.navy.mil/sites/nmcphc/Documents/industrial-hygiene/GENERIC-RESPIRATOR-SOP.docx>

(5) The information included in this section does not eliminate the need for each Pest Management section to contact the appropriate medical office before purchasing any respiratory protective equipment. The following offices have primary responsibility for identifying respiratory equipment requirements at each military installation:

USA: Preventive Medicine Service.
USN/USMC: Occupational Health/Industrial Hygiene
USAF: Bioenvironmental Engineering

(6) Use and Maintenance: To maintain respiratory protection devices, wash all rubber surfaces with soap and water after each day's use. Store respirators in a cool dark area if storage is to be prolonged and follow manufacturers' guidance. Cartridge use must be based on a change out schedule per 1910.134(d)(3)(iii)(B)(2). If there is no end of service life (ESLI) appropriate for conditions in the employer's workplace, the employer implements a change schedule for canisters and cartridges that is based on objective information or data that will ensure that the canisters and cartridges are changed before the end of their service life. The employer shall describe in the respirator program the information and data relied upon and the basis for the canister and cartridge change schedule and the basis for reliance on the data. Also, keep track of cartridge expiration dates to ensure they aren't exceeded as it is no longer appropriate to rely on odors for setting a cartridge change schedule.

Pesticide Application Equipment

- Must be in good working order and properly calibrated to ensure the correct amount of pesticide is being dispensed.
- Must meet specific design requirements for security, reliability, and personnel safety.
- Must be dedicated to pest management operations to prevent cross-contamination that could result from other uses.
- Must be properly labeled as pesticide contaminated.
- Must be secured when not in use to prevent accidental contamination, tampering, sabotage, or theft. AFPMB TG 7, Installation Pesticide Security, provides additional information on this requirement.

Pesticide Transport Vehicles

- Must meet design requirements for security, crash-protection, reliability, and personnel safety during operation.
- Must be dedicated to pest management operations to prevent cross-contamination that could result from other uses.
- Must be properly labeled as pesticide contaminated.
- Must have separate cab and cargo configuration, and pesticides must not be transported in the cab.
- Must have container securing devices, lockable storage, a fire extinguisher, a spill cleanup kit, and any additional equipment needed to meet the requirements of DoT hazardous material regulations in Title 49, Code of Federal Regulations and any applicable state or municipal regulations.
- Must maintain a binder containing the label(s) and the Safety Data Sheet(s) (SDS) of each pesticide being dispersed or transported, and emergency contact information for reporting spills or accidents.
- Must be secured when not in use to prevent accidental contamination, tampering, sabotage, or theft. AFPMB TG 7, Installation Pesticide Security, provides additional information on this requirement.

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Afterword

This TG was first published in 1978 as Technical Information Memorandum (TIM) 14, *Protective Equipment for Pest Control Personnel*. The basic material for the original version was extracted from *Guide to Protective Equipment for Pest Control Personnel*, US Army Environmental Hygiene Agency, June 1977, prepared by LTC Bernard A. Schiefer, MSC, US Army.

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The contributions of all the above form the foundation for this publication, now (2020) in its 42nd year of providing guidance to the DoD pest management community.