

Armed Forces Pest Management Board
TECHNICAL GUIDE NO. 14

Personal Protective Equipment
For Pest Management Personnel



Published and Distributed by the
Information Services Division
Armed Forces Pest Management Board
6900 Georgia Avenue, NW
Washington, DC 20307-5001

April 2011

-AFPMB TECHNICAL GUIDES-

This is one of a series of Technical Guides (TGs) published by the Information Services Division (ISD), Armed Forces Pest Management Board (AFPMB). The AFPMB is a directorate within the Office of the Deputy Under Secretary of Defense (Installations and Environment) that recommends policies and procedures, provides guidance, and coordinates the exchange of information related to pest management throughout the Department of Defense (DoD). As a unit of the AFPMB, the ISD collects, stores, and disseminates published and unpublished information on arthropod vectors and pests, natural resources, and environmental biology important to the DoD. Other ISD products include country- or region-specific Disease Vector Ecology Profiles (DVEPs). All TGs and DVEPs, as well as ISD's database of over 200,000 articles on pest management and medical zoology, are available at the AFPMB Web site <<http://www.afpmb.org>>.

TGs (formerly Technical Information Memoranda or TIMs) are not policy documents; rather, they provide technical guidance for the use of the DoD pest management community and others. TGs are a contributing part of the overarching DoD approach to integrated pest management, combining principles from each to meet that goal. Therefore 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/ regulations.

Inquiries, comments or suggestions for improving TGs may be directed to the Chief, ISD, at (301) 295-7476, FAX (301) 295-7473 or via <http://www.afpmb.org/contact>.

Personal Protective Equipment for Pest Management Personnel

Table of Contents

About Technical Guides	i
Table of Contents	ii
Purpose	iii
Determining Personal Safety Equipment Requirements.....	1
Safety Equipment Requirement Worksheet.....	2
Safety Equipment.....	3
<i>Apron, General Purpose</i>	3
<i>Boots, Knee</i>	4
<i>Coveralls, Men's</i>	5
<i>Coveralls, Safety, Industrial</i>	6
<i>Coveralls, Disposable</i>	6
<i>Hearing Protection</i>	7
<i>Faceshield, Industrial</i>	8
<i>Gloves, Chemical and Oil Protective, Man's</i>	9
<i>Goggles, Industrial</i>	11
<i>Insect Bar, Head Net and Hat</i>	11
<i>Helmet, Safety</i>	12
<i>Respirator Fit Testing</i>	13
<i>Respirators</i>	13
Bibliography	15
Appendix: Personal Protective Equipment Requirements	18

Acknowledgements

The previous revision of Technical Guide (TG) 14 was prepared through the efforts of the Armed Forces Pest Management Board (AFPMB) Equipment Committee. For this latest revision, the AFPMB acknowledges and thanks Colonel Brian M. Spears, USAF for his significant efforts as well as those of Lieutenant Colonel Sonya S. Schleich, USA. The AFPMB Pesticides Committee provided final editing and publication preparation. Special thanks are also given to Mr. Clifford Myers, Chemist/AFPMB Pesticides Committee Chair, Defense Logistics Agency-Aviation, Joint Commodities Division (FAJ), for his guidance and information relating to national stock numbers and cancellations. Reviews of this Guide were provided by CAPT Mark Beavers, USN, and CDR Daniel Szumlas, USN, AFPMB Equipment Committee Chair.

Disclaimer

TG 14 discusses specific proprietary products regarding respiratory system protective devices and disposable 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 any 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 pest 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 <http://www.dlis.dla.mil/webflis/> 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 pest management operations 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 contains 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.

THIS PAGE INTENTIONALLY LEFT BLANK

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 DODI 4150.07, DoD Pest Management Plan, 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.

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 Material Safety Data Sheets (MSDS) 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.

Two key safety items that are not considered PPE are a shower and an eye wash. Both are required in the pesticide 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 MSDS 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 sources 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 Material Safety Data Sheet (MSDS), and other information to determine:
 - a. The safety items required and check the box.
 - b. The phase of the 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 Equipment

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 body contamination of the pubic region with pesticide. This region of the body 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 per pesticide applicator (USA and USAF).

(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

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

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

(6) Expendability: Nonexpendable.

(7) 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)

(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.

(2) Use and maintenance: To mix and apply pesticides, pest 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: 3 per AFSC 3E4X3.

(4) National Stock Numbers:

8405-00-082-5529	Small short
8405-00-082-5530	Small regular
8405-00-082-5531	Small long
8405-00-082-5532	Medium short
8405-00-082-5533	Medium regular
8405-00-082-5534	Medium long
8405-00-082-5535	Large short
8405-00-082-5536	Large regular
8405-00-082-5537	Large long
8405-00-082-5538	X-large short
8405-00-082-5539	X-large regular
8405- 00-082-5540	X-large long

NOTE: 8405-01-057-6440 is the primary NSN in TA 016.

8405-00-131-6507	COVERALLS, long sleeve, olive drab (SM)
8405-00-131-6508	COVERALLS, long sleeve, olive drab (MED)
8405-00-131-6509	COVERALLS, long sleeve, olive drab (LG)
8405-00-131-6510	COVERALLS, long sleeve, olive drab (XLG)

(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.

Maintenance of earplugs consists of washing them with soap and warm 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 muffs) are 4240-00-022-2946 and 4240-00-759-3290.

NOTE: Ear muffs have replaceable, adhesive-backed ear pads. The NSN for these is 6540-01-094-8292. This number is good for the Army, Navy, and Air Force. Because of this NSN's 6540 prefix, it is a medical supply item. Contact the installation medical supply unit to order these pads.

(5) Unit of issue:

Ear plugs: Pair (Pr).

Ear muffs: Each (Ea).

Ear muff pads: Box (Bx). Each box has 50 pair.

(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 Defense General Supply Center.

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: Natural or synthetic rubber gloves, organic solvent resistant, 14 inches long, black, 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.

EPA Chemical Resistance Category Chart

The following information and EPA Chemical Resistance Category Chart are from the Purdue Pesticide Programs, Purdue University Cooperative Extension Service accessible at website:

<http://www.ppp.purdue.edu/Pubs/PPP38.html>.

Labels refer to chemical resistance categories (A through H) for personal protective equipment. Items in these categories are made of materials that the pesticide cannot pass through during the times indicated below the chart. The categories are based on the solvents used in the pesticides, not the pesticides themselves. Therefore, there will be instances where the same pesticide in two different formulations (e.g., wettable powder and emulsifiable concentrate) will require PPE from two different chemical resistance categories. The following is an example of label information referring a user to the EPA Chemical Resistance Category Chart: *The chemical resistance selection category for this product is H. For more information about PPE materials that are resistant to this product for various lengths of time, consult an EPA chemical resistance category chart.* The EPA chemical resistance category chart below shows that pesticide products in the H category require barrier laminate or [Viton^{\(R\)}](#) materials for a full day's exposure, whereas butyl, nitrile, and rubber offer protection for 10 minutes of contact with the chemical. No other materials offer chemical resistance to, nor protect against, category H chemicals.

Figure 2. EPA Chemical Resistance Category Chart - Type of Personal Protective Material Category Listed on Pesticide Label	Barrier Laminate	Neoprene (Rubber*)	Butyl (Rubber*)	Nitrile (Rubber*)	Natural (Rubber*)	Polyethylene	Polyvinyl Chloride*	Viton^(R) *
A	high	high	high	high	high	high	high	high
B	high	slight	high	slight	none	slight	slight	slight
C	high	high	high	high	moderate	moderate	high	high
D	high	moderate	high	moderate	none	none	none	slight
E	high	high	slight	high	slight	none	moderate	high
F	high	moderate	high	high	slight	none	slight	high
G	high	slight	slight	slight	none	none	none	high
H	high	slight	slight	slight	none	none	none	high

High: Highly chemical resistant. Clean or replace PPE at end of each day's work period. Rinse off pesticides at rest breaks.

Moderate: Moderately chemical resistant. Clean or replace PPE within an hour or two of contact.

Slight: Slightly chemical resistant. Clean or replace PPE within ten minutes of contact.

None: No chemical resistance. Do not wear this type of material as PPE when contact is possible.

*Recommendation based on PPE at least 14 mil or greater in thickness.

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 pest pesticide applicator.

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

(4) National Stock Numbers:

4240-00-052-3776 Goggles (*GSA Managed*)

4240-00-190-6432 Goggles, industrial, non-vented

(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. (*GSA Managed*)

8415-00-935-3131 Size 6-1/2 to 8 Color black. (*GSA Managed*)

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

(6) Expendability: Nonexpendable.

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

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 office. The Air Force uses AF Form 2772, Certificate of Respirator Fit Test, to document fit testing. The form is not required; however, if not used, the fit test must be documented in the Defense Occupational and Environmental Health Readiness System (DOEHRs). Bio Environmental 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 29CFR 1910.134). The document includes a form for fit testing.

<http://www.nmcphc.med.navy.mil/downloads/ih/generic%20sop%2017%20june%202009.pdf>

(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 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 insure they aren't exceeded as it is no longer appropriate to rely on odors for setting a cartridge change schedule.

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)

4240-01-246-5407 Cartridge, organic vapor, pesticides 3M P/N 6001 OV Cartridge fits 7500 & 7800 series
4240-01-389-7449 701 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: 5501P95L-12 (LG)
4240-01-249-9262 Half-face, 550030 series, P/N: 5501NP95L-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: 7581P100
4240-01-249-2572 P100 Particulate Filter (99.97% Minimum Filter Efficiency): P/N: 7580P100

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

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

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

(10) 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 control medical concerns. It is the applicator's responsibility to make these scheduled appointments.

Bibliography

Service References:

1. AFI 32-1053 (USAF), Pest Management Program, 23 June 2009.
<http://www.afpmb.org/sites/default/files/pubs/usafento/afi32-1053.pdf>
2. Air Force Occupational, Safety, and Health (AFOSH) Standard 48-137, Respiratory Protection Program, 10 February 2005. <http://www.e-publishing.af.mil/shared/media/epubs/AFOSHSTD48-137.pdf>
3. AFOSHSTD 48-20 (USAF), Occupational Noise and Hearing Conservation Program, 30 June 2006.
<http://www.e-publishing.af.mil/shared/media/epubs/AFOSHSTD48-20.pdf>
4. Armed Forces Pest Management Board. Technical Guide 16. Pesticide Fires Prevention, Control and Cleanup, April 2010.
5. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.
http://armypubs.army.mil/epubs/11_series_collection_1.html
6. AR 385-10, The Army Safety Program, RAR, 14 June 2010.
http://armypubs.army.mil/epubs/385_series_collection_1.html
7. CTA 50-900, Clothing and Individual Equipment (Active Army, Reserve Components, and DA Civilian Employees), 20 November 2008.
8. DA PAM 40-11, Preventive Medicine, RAR, 002, 19 October 2009.
9. DA PAM 40-501, The Army Hearing Conservation Program, 10 December 1998.
10. DA PAM 40-503, Industrial Hygiene Program, 30 Oct 2000, supersedes TB Med 503, 1 Feb 1985.
11. DOD Instruction 4150.07, DoD Pest Management Program, 29 May 2008.
12. DOD Instruction 6055.1, DoD Safety and Occupational Health (SOH) Program, 19 August 1998.
www.dtic.mil/whs/directives/corres/pdf/605501p.pdf
13. Generic Respiratory Protection Program - Policy and SOPs. Navy and Marine Corps Public Health Center, Industrial Hygiene, Acquisition Technical Support Division, 620 John Paul Jones Circle, Portsmouth, VA 23708-2103.
<http://www.nmcphc.med.navy.mil/downloads/ih/generic%20sop%2017%20june%202009.pdf>
14. NAVMED P-5010-8, Manual of Naval Preventive Medicine, 9 November 2004, Pages 8-19 to 8-20.
<http://www.med.navy.mil/directives/Pub/5010-8.pdf>
15. OPNAVINST 6250.4B (USN), Pest Management Programs, 27 August 1998, Pages 4-7, Page 6 of Enclosure (2).
16. TA 016 (USAF), Special Purpose Clothing and Personal Equipment, 15 February 1991, Part B.
17. DA PAM 40-501 (USA), Hearing Conservation, 31 October 1980.
18. USAPHC (PROV). Just the Facts Fact Sheet #55 008-0304. Recent OSHA Respiratory Protection Standard Changes Regarding the Use of Respirators Against Tuberculosis.

Other References:

1. Title 29, Code of Federal Regulations (CFR), e-CFR, 12 January 2011, Labor, PART 1910, Occupational Safety and Health Standards, Subpart I--Personal Protective Equipment, Parts 1910.132, 1910.133 and 1910.134. <http://ecfr.gpoaccess.gov>.
2. Title 40, Code of Federal Regulations (CFR), e-CFR, 12 January 2011, Protection of Environment, Chapter I--Environmental Protection Agency, Subchapter E, Pesticides Program, PART 170, Worker Protection Standard, Subpart Chapter C, Standard for Pesticide Handlers, <http://ecfr.gpoaccess.gov>.
3. **ANSI Z88.2** Practices for Respiratory Protection. (This publication is available from the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.)
4. **US DHHS (NIOSH) Publication No. 87-108** NIOSH Respirator Decision Logic. (NIOSH publications are available from Publications Dissemination, DTS, NIOSH, 4676 Columbia Parkway, Cincinnati, OH 45226.)
5. **US DHHS (NIOSH) Publication No. 87-116** NIOSH Guide to Industrial Respiratory Protection. (NIOSH publications are available from Publications Dissemination, DTS, NIOSH, 4676 Columbia Parkway, Cincinnati, OH 45226.)

Appendix: Personal Protective Equipment Requirements

For Pesticide Applicators

The personal protective equipment (PPE) listed in this appendix is for pesticide applicators under normal conditions with adequate ventilation. PPE for mixers, loaders, pilots, flaggers, persons entering treated areas and those involved with industrial formulation or emergency spills is often different and more stringent. Where ventilation is inadequate, respirators are required. In some cases where exposure is reduced, PPE requirements can be lessened. This determination must be made by a workplace supervisor who is knowledgeable about the pesticide in question. Consult the material safety data sheet (MSDS) and label for requirements other than normal application or where ventilation is inadequate. Above all, evaluate the situation, use common sense, and use adequate PPE under the given circumstances.

For many pesticides, use of a long-sleeved shirt and long pants are required. One can substitute coveralls for this requirement.

Two key safety items not listed in the tables below are a shower and an eye wash. Both will be present in the pesticide shop or workplace. At a minimum, an eye wash (mobile) will be available where pesticides are being applied for any pesticide requiring eye protection.

PPE for firefighters is more stringent than any of the above, and is discussed in TG 16, Pesticide Fires, Control, Prevention, and Cleanup.

The information for PPE is most commonly listed in section 8 of the MSDS, but is sometimes found in section 3, 7, 9, or 10. Occasionally PPE requirements are not in the MSDS, or the MSDS refers one to the label for PPE requirements. On the label, PPE requirements are found under precautionary statements, hazards to humans and domestic animals. Sometimes PPE requirements are only listed in the MSDS and are not listed on the label.

NOTE: Check the current listing for DoD approved pesticide listings on the AFPMB website.

Algaecides	Personal Protective Equipment
Copper Sulfate, 80.16% pentahydrate, crystal (Cuprose)	Neoprene, PVC or Butyl gloves; chemical-resistant apron; face shield with chemical splash goggles; impervious gloves and boots.

Fungicides	Personal Protective Equipment
Wood Preservative, copper naphthenate mixture (COP-R-NAP)	Nitrile rubber gloves; safety glasses or goggles – chemical splash goggles recommended; chemical-resistant apron.
Fungicide, Wood Preservative, copper naphthenate mixture (COP-R-NAP RTU)	Petroleum-resistant neoprene gloves; safety glasses or goggles – chemical splash goggles recommended; chemical-resistant apron.
Methylisothiocyanate (MITC-FUME)	Petroleum-resistant neoprene gloves; safety glasses or goggles – chemical splash goggles recommended; acid-resistant non-porous overalls or aprons.
Methyl Azoxystrobin, 50% (Heritage)	Dust-proof chemical goggles; chemical-resistant gloves; coveralls, socks and chemical-resistant footwear.

Herbicides	Personal Protective Equipment
Aminopyralid, 40.6% (Milestone VM)	Safety glasses. Chemical protective clothing; face shield, boots, apron or full body suit will depend on task.
Bromacil, 21.9% lithium salt of bromacil, liquid (Hyvar X-L)	Safety glasses or goggles – chemical splash goggles recommended; long-sleeved shirt and long pants; shoes plus socks; chemical-resistant gloves, category C.
Bromacil, 80%, wettable powder (Hyvar X)	Mixers and loaders must wear a non-powered air purifying respirator equipped with a N, R, or P series filter. Pesticide applicators must wear long sleeved shirt and long pants; chemical-resistant gloves made of any waterproof material; shoes plus socks. PPE required for early entry to treated areas includes coveralls; chemical-resistant gloves made of any waterproof material; shoes plus socks.
Diquat, 35.3%, water soluble liquid (Reward)	Chemical splash goggles; chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyvinyl chloride or viton; coveralls; socks; chemical-resistant footwear.
Diuron, minimum 80% diuron, granular	Waterproof gloves; chemical goggles; long-sleeved shirt and long pants; shoes plus socks.
Diuron-Bromacil mixture, 40% bromacil, 40% diuron, granular (Krovar I DF)	Chemical-resistant gloves made of any waterproof material; long sleeved shirt and long pants; shoes plus socks.
Fluridone, 5%, pellets (Sonar SRP)	Safety glasses; lab coat; disposable vinyl gloves.
Fluridone 41.7% liquid (Sonar A.S.)	Safety glasses; lab coat; nitrile gloves.
Imazapic 23.6% liquid (Plateau)	NIOSH-certified TC23C chemical/mechanical type filter system to remove a combination of particles, gas and vapors where ventilation is inadequate. Chemical-resistant gloves; safety glasses with side-shields or tightly fitting safety goggles; face shield if splashing hazard exists; long sleeved shirt; long pants; apron or chemical-protection suit; protective boots.
Isopropylamine salt of glyphosate	Chemical goggles; chemical-resistant gloves.
Ammonium salt of glyphosate, 73.3% and 2.9% Diquat dibromide, water soluble liquid (Quik Pro)	Dust goggles; chemical-resistant gloves.
Isopropylamine salt of imazapyr	NIOSH-certified TC23C chemical/mechanical type filter system to remove a combination of particles, gas and vapors where ventilation is inadequate. Chemical-resistant gloves; safety glasses with side-shields or tightly fitting safety goggles; face shield if splashing hazard exists; long sleeved shirt; long pants; apron or chemical-protection suit; protective boots.
Oryzalin, 40.4% (Surflan A.S.)	NIOSH-approved respiratory protection equipment; full facepiece recommended and replaces need for face shield or chemical goggles where airborne exposure is likely. Otherwise use face shield or goggles; protective gloves and clothing.
Prometon, 25% prometon, emulsifiable concentrate (Pramitol 25E)	Goggles or face shield; rubber gloves
Methyl Sulfometuron, 75% (Oust XP)	Long sleeved shirt; long pants; shoes plus socks.
Tebuthiuron (Spike 80 DF)	In dusty atmospheres, use a NIOSH-approved respirator for dust Eye protection; long-sleeved shirt; long pants; shoes and socks; chemical-resistant gloves made of any waterproof material.

Herbicides	Personal Protective Equipment
Tebuthiuron-Diuron, 1% Tebuthiuron, 3% Diuron (Spraykil SK-13)	Protective dust mask; chemical dust goggles; long-sleeve shirt; long pants, waterproof gloves.
Triclopyr, 60.45% (Garlon 4 Ultra)	Long sleeved shirt; long pants; shoes plus socks; chemical-resistant gloves.
2,4-Dichlorophenoxy-acetic acid (2,4-D), oil miscible/water emulsifiable liquid (low volatile ester form)	Chemical goggles or shielded safety glasses; long pants; long-sleeved shirt, socks and shoes; chemical-resistant gloves.
2,4-Dichlorophenoxy-acetic acid (2,4-D), water soluble liquid (amine salt form)	Face shield, goggles or safety glasses with front brow and temple protection; long pants; long-sleeved shirt, socks and shoes; chemical-resistant gloves.
2,4-Dichlorophenoxy-acetic acid (2,4-D), 0.128%, 0.22% MCPP and 0.05% Dicamba water soluble liquid (Weed-B-Gon MAX)	Long pants; long-sleeved shirt, socks and shoes; chemical-resistant gloves.

Repellents	Personal Protective Equipment
Clothing application, 40% permethrin, liquid (2-Gal sprayer)	Safety glasses, goggles or face shield; chemical-resistant gloves.
Personal application, Ultrathon (3M/EPA 58007-1)	Avoid eye contact.
Clothing application, aerosol (Permethrin Arthropod Repellent)	Safety glasses, goggles or face shield.
Personal application, 3% benzocaine, 10% precipitated sulfur (Chigg-Away)	Avoid eye contact.
Personal application & sunscreen, 20% DEET/SPF15 (Sunsect)	None required.
Personal application & camouflage face paint (New CFP w/ DEET)	None required.
Clothing application, permethrin (IDA)	Safety glasses, goggles or face shield; neoprene gloves; long-sleeved shirt; long pants.
Personal application, 30% DEET (Cutter Repellent Stick)	Avoid eye contact.
Personal application, 30% DEET 9SP532-Ultra30/LipoDEET)	Avoid eye contact.
personal application, 23% DEET , pump spray bottles(Cutter Backwoods DEET Insect	Avoid eye contact.

Insecticides	Personal Protective Equipment
Abamectin, 0.011%, (Advance 360A Dual Choice Ant Bait Stations)	Safety glasses.
Abamectin, 0.05% (Avert Dry Flowable Cockroach Bait Formula 1)	Safety glasses; chemical-resistant gloves.
Abamectin, 0.05% (Avert Cockroach Bait Stations Formula 1)	None required.
Aluminum phosphide	Gloves required. NIOSH/MSHA approved full-face mask with approved canister for phosphine (hydrogen phosphide, PH ₃) may be worn at concentrations up to 15 ppm. At levels above this or when the hydrogen phosphide concentration is unknown, NIOSH/MSHA approved SCBA or equivalent must be worn.
<i>Bacillus thuringiensis</i> , 10% (Summit <i>B.t.i.</i> Briquets)	None required.
Boric Acid, aerosol (Perma-Dust)	Safety glasses; chemical-resistant gloves.
Bifenthrin, 7.9% liquid (Talstar P Professional)	Long-sleeved shirt and long pants; socks and shoes; chemical-resistant gloves.
Carbaryl, 80%, water dispersible powder (Sevin 80S/AllPro Carbaryl 80S)	Air-purifying (half-mask/full-face) respirator with cartridges/canister approved for use against pesticides. Chemical safety glasses with side shields or splash proof goggles; long-sleeved shirt; long pants; waterproof gloves; shoes plus socks.
Carbaryl, 43.4%, liquid (Carbaryl 4L)	Coveralls over long-sleeve shirt and long pants; chemical-resistant gloves; chemical-resistant shoes; socks, protective eyewear; chemical-resistant headgear for overhead exposure; chemical-resistant apron (mixing or loading).
Chlorfenapyr, 21.45% liquid (Phantom)	Long-sleeve shirt and long pants; chemical-resistant gloves; shoes plus socks. Dust/mist filtering respirator (MSHA/NIOSH-approved number prefix TC-21C) or a NIOSH-approved respirator with any N, R, P or HE filter and protective eyewear when working in a non-ventilated space.
beta-cyfluthrin	Safety goggles; chemical-resistant nitrile rubber gloves; long-sleeved shirt; long pants; shoes plus socks.
Cyfluthrin, 0.1%, aerosol (PT Crack & Crevice I C Cyfluthrin)	Safety glasses; chemical-resistant gloves.
Lambda-Cyhalothrin, 0.05% aerosol (PT 221L Residual)	Safety glasses; chemical-resistant gloves.
Cypermethrin, 0.10% aerosol (Air-Devil HPX)	Not required.
Cypermethrin, 40% (Demon WP)	Chemical splash goggles; chemical-resistant gloves; coveralls; socks; chemical-resistant footwear.
Deltamethrin	Safety glasses or goggles; chemical-resistant gloves.
Dichlorvos, 20% (plastic strips)	None required.
D-Phenothrin, 2%, aerosol	None required when used according to label instructions.
Allethrin-Permethrin Mixture 0.25% and 0.15% , aerosol (Rid-a-Bug House & Garden)	None required when used according to label instructions.

Insecticides	Personal Protective Equipment
D-trans Allethrin and Resmethrin, 0.125% and 0.2% , aerosol (Kill Zone House & Garden)	Conventional eyeglasses; rubber gloves.
Etofenprox, 20% (Zenivex E20)	Splash goggles or safety glasses; chemical-resistant gloves.
Methomyl 1.1% Fly Bait (Golden Malrin/Stimukil)	Impervious gloves; apron.
Hydramethylnon (Amdro Fire Ant Bait)	Long-sleeved shirt; long pants; socks and shoes; chemical-resistant gloves.
Hydroprene, 90.6% (Gentrol Point Source)	None required.
Hydroprene, 0.36%(Gentrol Aerosol)	Goggles; impervious gloves.
Hydroprene, 9.0%, emulsifiable concentrate (Gentrol IGR)	Goggles; impervious gloves.
Fenoxycarb (Award Brand of Logic)	Dust-proof chemical goggles; chemical-resistant gloves.
Fipronil	Safety glasses with side-shields; waterproof gloves; long-sleeved shirt; long pants; shoes plus socks.
Imidacloprid	Safety goggles; chemical-resistant nitrile or PVC rubber gloves; long-sleeved shirt; long pants; shoes plus socks.
Lambda-cyhalothrin	Chemical splash goggles; chemical-resistant gloves; coveralls; socks; chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.
Malathion (57% and 96.5%)	Pesticide respirator jointly approved by the MSHA and NIOSH protecting against organophosphorus vapors; chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber or viton; safety glasses with side shields or chemical splash goggles; long-sleeved shirt; long pants; shoes and socks.
Methoprene	None required under ordinary use.
Naled	NIOSH/MSHA-approved air-purifying respirator equipped with organic vapor cartridges or canisters –maximum use of 8 hours. Chemical-resistant gloves (preferably nitrile) – maximum use 8 hours; body covering clothing with long sleeves and long pants; chemical-resistant shoes or boots; chemical-resistant apron; goggles or faceshield.
Naphthalene, ball form	Safety glasses; impervious gloves.
Nithiazine, Fly Strips (Quikstrike)	Not required for normal use.
P-Dichlorobenzene, crystal/flake	Chemical goggles or face shield; chemical-resistant gloves; protective clothing (long-sleeved shirt; long pants).
Permethrin-Piperonyl Butoxide (4.6+4.6%), (Kontrol 4-4)	Chemical protective goggles or a face shield; coveralls or long-sleeved shirt and long pants; chemical protective gloves (nitrile, neoprene, or viton); head covering; shoes plus socks.
Propetamphos, 18.9% (Catalyst)	NIOSH/MSHA-approved organic vapor/pesticide respirator; chemical-resistant gloves, such as barrier laminate, butyl rubber, neoprene rubber, polyvinyl chloride, or viton; goggles; long-sleeved shirt; long pants; shoes and socks.
Propoxur (PT 250 Propoxur)	Safety glasses; chemical-resistant gloves.

Insecticides	Personal Protective Equipment
Pyrethrins, 3% pyrethrins with synergists, liquid (ULV fog concentrate)	NIOSH-approved respirator with an organic vapor (OV) cartridge or canister with any R, P or HE pre-filter; chemical-resistant gloves; splash proof goggles; rubber boots; long pants; long-sleeved shirt.
Phenothrin 0.120% and Allethrin 0.129%, Aerosol (Wasp-Freeze Wasp & Hornet Killer)	Safety glasses; chemical-resistant gloves.
Pyrethrin, aerosol (PT 565 Plus XLO)	Safety glasses; chemical-resistant gloves.
Resmethrin (Scourge)	NIOSH-approved respirator; safety goggles; chemical-resistant nitrile rubber gloves; long-sleeved shirt; long pants; shoes plus socks.
Spinosad, 11.6% (Conserve SC)	Safety glasses; long-sleeved shirt; long pants; shoes plus socks.
Sumthrin-Piperonyl Butoxide, 10%-10%, (Anvil 10+10 ULV)	Avoid contact with eyes; avoid contact with skin and clothing.
Temephos (Abate 4E)	Face shield or eye protection with splash guard; long-sleeved shirt, long pants; shoes with socks; chemical-resistant gloves; chemical-resistant apron.
Temephos (5% Skeeter Abate)	Goggles or safety glasses; long-sleeved shirt; long pants; shoes and socks; chemical-resistant gloves.
Mosquito Larvicide and Pupicide (Agnique MMF)	Safety glasses with side shields; rubber gloves.

Rodenticides	Personal Protective Equipment
Anticoagulant, 0.005% Diphacinone	Rubber gloves.
Anticoagulant, (Kaput Combo Bait Pellets), 0.020% Imidacloprid and 0.025% Warfarin	Rubber gloves.
Anticoagulant, 0.005% Bromadiolone (Maki), pellets	None required.
Anticoagulant, 0.005% Brodifacoum (Talon-G), pellets	None required.
Anticoagulant, (Contrac Blox), 1 oz bait blocks	Rubber gloves.
Anticoagulant, (Final Blox), 20 gram bait blocks	Rubber gloves.
Anticoagulant, concentrate 0.106% sodium salt of diphacinone (LIQUA-TOXII)	Rubber gloves.
10% zinc phosphide (ZP Tracking Powder)	Dust mask or NIOSH-approved respirator with dust pre-filter to prevent product inhalation; safety glasses; rubber gloves.

Surfactants	Personal Protective Equipment
Spray Adjuvant (Cygnet Plus)	Full-face shield or goggles; impervious gloves; protective clothing.
Spray Adjuvant (Cide-Kick II)	Full-face shield or goggles; impervious gloves; protective clothing.
Spray Adjuvant (Cide-Kick)	Full-face shield or goggles; impervious gloves; protective clothing.

Safety Equipment Requirement Worksheet by Pesticide Type

Instructions

1. Gather copies of labels for each pesticide in stock and any other information sources 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 Material Safety Data Sheet (MSDS), and other information to determine:
 - a. The safety items required and check the box.
 - b. The phase of the 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:</i>	Equipment Items Required When Mixing (Mix), Applying (App), Aerial Application (Air), Training, etc.							Other
Pesticides Requirements:								
PPE and other Safety Items								
1. Apron								
2a. Boots, Knee 2b. Shoes, non-spark								
3. Coveralls (Type)								
4. Hearing Protection								
5. Faceshield								
6. Gloves (Type)								
7. Goggles / Glasses								
8. Hat, Insect Net								
9. Helmet								
10. Respirator (Type)								
Notes:								