

NAVY ENVIRONMENTAL AND PREVENTIVE
MEDICINE UNIT SIX

STANDARD OPERATING PROCEDURE FOR MASS
PERMETHRIN TREATMENT OF UNIFORMS

Ref: (a) DOD Inst 4150.7
(b) AFPMB IM No. 36

Encl: (1) Permethrin Arthropod Repellent
(2) Sample after action report
(3) Permethrin label
(4) Permethrin MSDS

INTRODUCTION

Reference (a) directs heads of DoD components to ensure that Commanders of deployed forces enforce the use of arthropod repellents including Permethrin Clothing-applied Repellent. The NEPMU-6 Deployment Preparation Team (DPT) provides technical assistance on the use of repellants and mass treatment of uniforms to deploying units within it's area of responsibility (AOR).

PURPOSE

To provide procedure for the mass treatment of field utility uniforms with permethrin arthropod repellent for deploying units

BACKGROUND

Reference (b) provides technical information regarding permethrin and other personal protective measures against arthropods. Enclosure (1) is an information sheet on permethrin. Permethrin is available in two formulations, a 6-oz aerosol and a 40% liquid concentrate. The concentrate can only be applied by PMTs or entomologists who are currently certified as DoD Category 8 pesticide applicators. There are several advantages to using the concentrate rather than the aerosol:

- it is a longer-lasting formulation (it is reported to be effective for the life of the uniform).
- it enables the PMT to ensure that the uniforms are actually treated.
- it is more cost-effective (aerosol: \$3.19/uniform vs. concentrate: \$0.78/uniform).
- it eliminates the need to embark and dispose of aerosol cans.

Mass treatment of uniforms with the concentrate is the preferred method of application.

RESPONSIBILITIES

Unit PMT or medical department representative (MDR):

- advise unit commander on the use of arthropod repellents and recommending application methods so that the commander can ensure unit compliance.

- ensuring that the supply officer procures sufficient quantities of permethrin for use during mass treatment
- coordinate a schedule and an appropriate site for treatment of uniforms
- coordinate any working parties involved in the lay out and post-treatment retrieval of uniforms
- ensure appropriate PPE (for pesticide exposure) is provided and worn by working party members
- request and coordinate with PMS for technical support.

Deployment Preparation Team

- provide technical assistance to the requesting unit
- provide additional certified applicators
- maintain and provide pesticide application equipment if requested
- provide PPE for applicators

REQUESTING ASSISTANCE AND COORDINATION

Written requests for assistance must be sent from the unit commander or senior medical department representative (SMDR) to the NEPMU-6 Deployment Preparation Team Leader (via e-mail, message or letter). Once the request has been received and approved, the unit PMT or MDR will coordinate the operation with the DPT. The DPT will ensure that the unit PMT or MDR is aware of their responsibilities and provide them with time, site, and working party requirements for the spray operations. The site requirements include:

- a flat paved area (covered and with generous ventilation, if possible) large enough to hold all the uniforms and other items to be treated
 - a water source and mixing site close to the treatment site
 - a shaded area rest area for applicators and working party
 - a site that is far enough from open bodies of water and buildings to prevent accidental contamination due to pesticide drift.
 - a start time that would ensure enough daylight hours to spray and allow uniforms to dry and to prevent heat injury among working party and applicators
 - a working party large enough to handle the uniforms to be treated
- Enclosure (2) is an example of a letter stating those requirements.

PERSONNEL

Whenever possible, PMTs will apply the repellent. If it is necessary to have additional applicators, non-PMTs may be used. They should be instructed on pesticide application and PPE use and fitted for a respirator. During the operation they must be under the direct visual supervision of a certified pesticide applicator. The unit must provide a working party to lay out, turnover, and retrieve uniforms during the operation.

EQUIPMENT AND SUPPLY PREPARATION

The following equipment and supplies are needed for the operation:

- Permethrin with MSDS

- Pesticide application equipment (2 gal hand can sprayers, hand-compressed backpack sprayers, powered hydraulic sprayer, etc.) and accessories
- Five-gallon water cans (if there is no on-site water supply)
- PPE for each applicator (gloves, respirator with organic vapor cartridges, goggles)
- Tools

All applicators must be respirator certified and fitted for a respirator. All pesticide application equipment and PPE should be LTID before each spray job.

TRAINING AND INFORMATION BRIEFS

PMTs should be prepared to provide training and/or information briefs regarding the operation. These briefs may be provided to unit commanders, working party personnel, non-PMT corpsmen, treatment site personnel, area S-4s, safety officers, etc. Review and be prepared to provide the following information:

- concept of operation
- purpose of spraying uniforms with permethrin
- potential hazards to humans
- potential hazards to the environment
- MSDS information
- efficacy of permethrin treatment

When giving these briefs, have a copy of the label (enclosure (4)), an MSDS (enclosure (5)), and an information sheet (enclosure (1)) on hand.

SPRAY OPERATIONS

Operations will not take place under the following conditions:

- Rain or other precipitation
- High wind (>10 mph)
- High temperature (operations should not be conducted when WBGT is at or above 89.9)

The operation should be conducted as follows:

1. Permethrin should be transported to the treatment site in a government vehicle. A copy of the MSDS must accompany the permethrin supply.
- 2 Working party lays out uniforms at site ensuring adequate space between uniforms to allow applicators ample room to walk between. A suggested layout is shown in figure A. This should be done prior to the arrival of the spray team.
3. The senior PMT on-site is designated as the operation supervisor. They will supervise the layout of uniforms, identify which uniforms are to be sprayed, monitor repellent use, ensure safety, keep track of number of uniforms treated, ensure that uniforms are marked as "treated", and monitor environmental conditions.
4. Spray team mixes concentrate with water (read label for directions) in sprayers.
5. Supervisor directs applicators to treatment area.

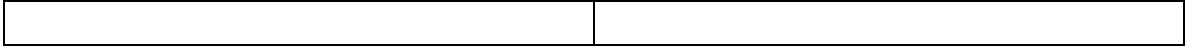
6. Applicators apply repellent according to label directions and minimizing pesticide drift and exposure of other persons in the area.
7. Supervisor directs working party to turnover treated uniforms.
8. Applicators treat other side of uniforms.
9. Upon completion of spraying, applicators will clean sprayers (triple rinse tanks and clean nozzles) and PPE.
10. Uniforms are left to dry after which the working party will retrieve the uniforms.
11. Record number of uniforms treated, duration of operation, personnel involved, and pesticide amount used.

POST-TREATMENT

Clean all spray equipment thoroughly and allow to dry before storing. Clean and store all PPE. An after-action report will be completed by the senior PMT. The report will be in the format provided in enclosure (3).

PERMETHRIN ARTHROPOD REPELLENT

<p>What is permethrin?</p> <p>Permethrin arthropod repellent is a safe and effective insecticide registered by the EPA for use on clothing. When used with skin -applied Deet repellent, it provides the user with the most effective personal insect repellent system available.</p> <p>How does permethrin work?</p> <p>Permethrin is an insecticide that kills insects and other arthropods upon contact. Most biting arthropods that come into contact with clothing treated with permethrin die within seconds. It is effective against mosquitoes, ticks, fleas, mites and lice. It does not provide protection against stinging arthropods such as bees and wasps.</p> <p>How is permethrin used?</p> <p>Permethrin is applied to field utility uniforms, both hot weather and temperate, to kill, and thus prevent from biting, arthropods. It can also be applied to NOMEX flight suits without any damage to the fire repellent fabric. Application of permethrin to bed nets and canvas tents will provide additional protection from biting arthropods.</p> <p>How is Permethrin applied?</p> <p>Permethrin is available in an aerosol can or as a liquid concentrate. Aerosol cans can be distributed to and applied by military personnel to treat their personal uniforms. The liquid concentrate must normally only be applied by a certified pesticide applicator. Preventive medicine Technicians (PMTs) and Entomologists are certified applicators. Uniforms are sprayed with permethrin and allowed to dry.</p> <p>Is there an advantage to using the liquid concentrate over the aerosol?</p> <p>The concentrate when applied properly, will be effective for the lifetime of the uniform; The aerosol becomes ineffective after 5 washings. Using the concentrate reduces the amount of waste (cans) that must be disposed. There is also a cost saving of over \$2 per uniform when using the concentrate.</p>	<p>How is permethrin removed from the material?</p> <p>Normal washing with water and detergent will not remove permethrin. Some dry cleaning solvents will remove it. Therefore, do not dry clean treated uniforms before a deployment.</p> <p>Is permethrin safe?</p> <p>Permethrin is a very safe insecticide. It's commercial equivalent has been sold in stores and used widely over the past several years without serious poisoning incidents. The repellent when applied to clothing contains only 0.5% of the insecticide and because it has a low vapor pressure, very little of the pesticide is absorbed through the skin from the treated clothing. When absorbed into the body, the insecticide is readily broken down and rendered harmless. Material safety data sheets and additional information is available from your supplier or from your preventive medicine unit.</p> <p>What precautions should I take when using permethrin?</p> <ul style="list-style-type: none">• Do not spray underwear or hats• Avoid inhaling vapors when applying• Do not apply to skin• Do not wear treated uniforms until they are completely dry• Do not eat, drink or smoke when treating uniforms <p>Ordering information</p> <ul style="list-style-type: none">• Insect repellent, Clothing Application, aerosol (Permethrin Arthropod Repellent); NSN 6840-01-278-1336; Twelve 6-oz cans/box; UI: BX• Insect repellent, Clothing Application, Permethrin, 40% liquid; NSN 6840-01-334-2666; Twelve 151 in) bottles/box; UI: BX <p>For more information call NEPMU-6 at Comm: (808) 473-0555 or DSN 473-0555</p> <p style="text-align: right;">Encl: (1)</p>
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AFTER ACTION REPORT FORM

MASS PERMETHRIN UNIFORM TREATMENT

Pesticide applied: Insect Arthropod Repellent Fabric Treatment, Permethrin 40% EC, NSN 6840-01-334-2666, EPA Reg. No. EST. 62828-SC-001

DATE(S) AND NO. HOURS REQUIRED FOR TREATMENT	
UNIT REQUESTING TREATMENT	
NAME, PHONE NO., ADDRESS, E-MAIL OF UNIT POINT OF CONTACT	
NAME, DURATION AND COUNTRY OF DEPLOYMENT	
NO. AND NAMES OF PESTICIDE APPLICATORS	
NO. OF UNIFORMS (TROUSERS AND BLOUSE) TREATED	
NO. OF BEDNETS TREATED	

COMMENTS AND LESSONS LEARNED

ENCL: (2)

INSECT/ARTHROPOD REPELLENT FABRIC TREATMENT

FOR USE BY CERTIFIED OR TRAINED PERSONNEL ONLY OUTER CLOTHING AND BED NETTING
TREATMENT ONLY
EPA Reg. No. 63120-1
EPA Est. 62828-SC-001

ACTIVE INGREDIENT:

Permethrin.....40%

INERT INGREDIENTS.....60%

TOTAL 100%

* (3-phenoxyphenyl) methyl (±) cis-trans-3-(2,2 dichloroethenyl)-2,2-dimethyl-cyclopropanecarboxylate
cis/trans isomers ratio: min 35% (±) cis and max 65% (±)

trans

NET CONTENTS 5.1 fluid oz (151 ml)

WARNING KEEP OUT OF REACH OF CHILDREN

SEE BACK PANEL FOR ADDITIONAL PRECAUTIONS

NSN 6840-01-334-2666
Military Specification: MIL-I-44411
Produced and packaged for:
DEPARTMENT OF DEFENSE
DEFENSE GENERAL SUPPLY CENTER
RICHMOND, VIRGINIA 23297-5000

PRECAUTIONARY STATEMENT HAZARD TO HUMANS AND DOMESTIC ANIMALS
WARNING HARMFUL IF SWALLOWED OR INHALED CAUSES EYE IRRITATION DO NOT APPLY TO
SKIN. Keep away from food, mess gear and water supplies. Thoroughly wash mess gear if contaminated with this
product. Avoid breathing vapors or contact with face, eye, or skin. Wash thoroughly after handling fluid, container or
wet treated uniform and before eating and smoking. Wear protective gloves when mixing and applying.
STATEMENT OF PRACTICAL TREATMENT FOR EXPOSURE TO PERMETHRIN FLUID IN SMALL
BOTTLES:

If on skin: Wash affected areas with soap and water.

If in eyes: Flush eyes with plenty of water. Contact physician if irritation persists.

If swallowed: Contact a physician or poison control center immediately. Do not induce vomiting unless directed by a
physician. Vomiting may cause aspiration pneumonia.

If inhaled: Remove person to a well-ventilated area. Apply artificial respiration if indicated.

ENVIRONMENTAL HAZARD This pesticide is extremely toxic to fish and other aquatic organisms. Do not apply
directly to any body of water. Do not contaminate water by cleaning of equipment and disposal of equipment
wastewater.

DIRECTIONS FOR USE It is a violation of federal law to use this product in a manner inconsistent with it's
labeling. Treated uniform, netting and tentage provide protection to covered areas of body from bites of mosquitoes,
ticks, chiggers and body lice.

Application procedure: **TO AVOID INHALATION, APLICATOR MUST WEAR RESPIRATOR.** Thoroughly
clean 2-gallon field sprayer by triple rinsing with clean water. Add entire contents of permethrin container to two
gallons of clean water in a 2-gallon field sprayer. Agitate and bring to a pressure of 55 psi. For clothing: Place each
article of Battle Dress Uniform (jackets and trousers) on the ground and spray for 50 seconds at 55 psi. Hang the
uniform for 3 hours or until dry. When dry, garment is ready to wear. Mark uniform with date of treatment. **DO NOT**
RE-TREAT UNIFORM; one treatment is effective for the life of the uniform. **DO NOT TREAT UNDERWEAR**
OR CAP. For bednet: Spread netting on ground and spray at a distance of 12-18 inches using a fan nozzle at 55 psi.
Spray with a slow sweeping motion to completely cover the netting fabric without runoff.

STORAGE AND DISPOSAL: Do not store below 32 F. Do not contaminate water, food or mess gear by storage or
disposal. Recap empty permethrin container, place in a plastic bag and put in trash.

Encl: (3)

