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MILITARY SPECIFICATION

GOGGLES, SUN, WIND AND DUST: 1974

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

- * 1.1 Scope. This document covers two types of goggles for wear with and without glasses.
- * 1.2 Classification. The goggles shall be of two types with the following classes of lenses.

- Type I - For wear without face mask.
 - Class 1 - Clear (non-ballistic)
 - Class 2 - Neutral gray (non-ballistic)
 - Class 3 - Clear (ballistic)
 - Class 4 - Neutral gray (ballistic)

- Type II - For wear with face mask.
 - Class 3 - Clear (ballistic)
 - Class 4 - Neutral gray (ballistic)

2. APPLICABLE DOCUMENTS

2.1 Government documents. Unless otherwise specified, the following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this document to the extent specified herein.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Natick Research and Development Center, Natick, MA 01760-5014 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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SPECIFICATIONS

FEDERAL

- L-P-393 - Plastic Molding Material, Polycarbonate, Injection and Extrusion
- L-P-504 - Plastic Sheet and Film, Cellulose Acetate
- JJ-W-155 - Webbing, Textile, (Cotton, Elastic)
- QQ-B-613 - Brass, Leaded and Nonleaded: Flat Products (Plate, Bar, Sheet and Strip)
- CCC-D-950 - Dyeing and Aftertreating Processes for Cotton Cloths
- PPP-B-636 - Boxes, Shipping, Fiberboard
- PPP-B-665 - Boxes: Paperboard, Metal Edged and Components
- PPP-B-676 - Boxes, Setup
- PPP-T-45 - Tape, Gummed, Paper, Reinforced and Plain, for Sealing and Securing

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- MIL-F-495 - Finish, Chemical, Black, for Copper Alloys
- MIL-R-3065 - Rubber, Fabricated Parts
- MIL-F-21840 - Fastener Tapes, Hook and Pile Synthetic
- MIL-V-43511 - Visors, Flyer's Helmet, Polycarbonate

STANDARDS

FEDERAL

- FED-STD-191 - Textile Test Methods
- FED-STD-406 - Plastic, Methods of Testing

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-130 - Identification Marking of US Military Property
- MIL-STD-147 - Palletized Unit Loads

DRAWINGS

US ARMY NATICK RESEARCH AND DEVELOPMENT CENTER

- 8-2-635 - Goggles, Sun, Wind and Dust: 1974 (Type I)
- 8-2-636 - Head Band Assy. (Type I and II Goggles)
- 8-2-637 - Frame (Type I Goggles)
- 8-2-638 - Lens (non-ballistic), Class 1 and Class 2
- 8-2-639 - Foam Pad (Type I and II Goggles)
- 8-2-640 - Flannelette Cloth, Top (Type I and II Goggles)
- 8-2-641 - Flannelette Cloth, Bottom (Type I and II Goggles)

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8-2-664	- Lens (ballistic), Class 3 and Class 4
8-2-827	- Goggles, Sun, Wind and Dust: 1974 (Type II)
8-2-828	- Frame (Type II Goggles)
8-2-829	- Fastener, (Hook), Upper and Lower

(Copies of documents required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

- * 2.2 Other publications. Unless otherwise specified, the following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this document to the extent specified herein.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- D 2000 - Rubber Products in Automobile Applications
- D 3951 - Standard Practice for Commercial Packaging

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

(Technical society and technical association documents are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

- * 2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document shall take precedence.

3. REQUIREMENTS

3.1 First article. When specified, a sample shall be subjected to first article inspection (see 4.3, 6.2 and 6.4).

3.2 Materials (see 6.5) and components.

3.2.1 Rubber. The frame for the goggles shall be molded of a rubber compound having polychloroprene as a base material and shall meet the requirements of type, class, grade and suffix letters, M3BC 710 A14 G21 of ASTM 2000.

3.2.2 Plastic

3.2.2.1 Non-ballistic (classes 1 and 2). The plastic sheet used for the lenses (see 3.4), shall be clear or neutral gray cellulose acetate or cellulose acetate butyrate. The cellulose acetate or the cellulose acetate butyrate shall be of optical quality, uniform and of a construction necessary to produce lenses meeting the requirements of this document. The cellulose acetate and the cellulose acetate butyrate shall meet the optical requirements

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for the type III nominal 0.060 inch thick material specified in L-P-504, except that the luminous transmittance for class 2 lens shall be 15 to 30 percent.

3.2.2.2 Ballistic (classes 3 and 4). The material for the ballistic lenses shall be fabricated from clear or neutral gray bisphenol type polycarbonate plastic molding material conforming to L-P-393.

3.2.3 Webbing. The elastic webbing for the headband shall conform to type I, class 3 of JJ-W-155, except that the webbing shall be mildew resistant treated and the fungicide content shall be 0.5 percent to 1 percent based on the cotton component of the webbing only. The color of the webbing shall be Olive Drab 7.

* 3.2.3.1 Dipping compound. The ends of elastic webbing for the headband shall be dipped in a cellulose acetate or cellulose acetate butyrate in suitable organic solvent having a concentration of 25 to 28 percent solids to a depth of $5/8 \pm 1/8$ inch and allowed to dry (see 6.8).

3.2.4 Cloth. The cloth for the filtering screen shall be a commercial cotton flannelette dyed black with direct colors and napped on one side only. The cloth shall have a minimum weight of 4.0 ounces per square yard and a minimum texture of 42 ends per inch and 40 picks per inch when tested as specified in 4.4.1.1.

3.2.4.1 Mildew resistance. The mildew resistant treatment of the cotton flannelette shall conform to CCC-D-950, except that the inhibitor "a" fungicide content shall be 0.5 percent to 1.0 percent and shall meet the requirements applied to inhibitor "a", and that the soil burial test shall not apply.

3.2.4.2 Adhesive for attaching flannelette. The adhesive used in attaching the flannelette to the rubber frame of the goggles shall be 3M's Adhesive EC 1300L or equal. The adhesive shall be applied in such a manner that the flannelette will not peel when tested for peel strength as specified in 4.4.4.4.

* 3.2.5 Foam pad. The foam padding on the goggles shall be a $3/8$ inch thick polyether polyurethane foam, open cell, having a density of 1.40 ± 0.20 pounds per cubic foot. The foam shall be gray in color, and possess nominal 55 pores per inch with a minimum of 35 pores per inch and a maximum of 75 pores per inch. A black polyurethane skin, 2 mils thick, shall be adhered to one side of the foam only. The skin shall not be capable of being peeled without tearing the foam when tested as specified in 4.4.1.1. (see 6.6).

3.2.5.1 Adhesive for attaching foam. The adhesive used in attaching the foam to the goggles shall be 3M's Adhesive EC 1300L or equal. The adhesive shall be applied in such a manner that the foam cannot be separated from the goggles without tearing the foam when tested as specified in 4.4.4.4.

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3.2.6 Metal components.

3.2.6.1 Snap fasteners. The snap fasteners shall be brass, any composition conforming to QQ-B-613. The following components of the snap fastener shall be United-Carr, Inc., number or equal: Button No. 21154, 16 line size; Socket No. 22201; Stud No. 22303; Eyelet No. 22402.

3.2.6.2 Slide, 3/4 inch. The slides shall be hard brass conforming to QQ-B-613, any composition and shall conform to Waterbury Buckle Company No. 164, or equal.

3.2.7 Finish. All metal parts shall be given a black chemical finish conforming to MIL-F-495.

3.2.8 Fastener hook tape (for type II goggles). The fastener hook tape for the type II goggle shall conform to type I, class 2, color green 3421 of MIL-F-21840 and shall conform to Drawing 8-2-829. Two strips of the hook tape shall be stitched together lengthwise to form a sufficiently wide hook strip from which to cut the piece to be adhered to the lower goggle.

3.2.8.1 Adhesive for attaching the fastener hook tape. The adhesive to be used in attaching the fastener hook tape pieces to the goggle frame shall be 3M's adhesive EC 1300 L or equal. The adhesive shall be applied in such a manner so that there is no delamination of more than 1/8 inch when tested as specified in 4.4.4.4 (see 6.6).

3.3 Design and construction.

* 3.3.1 Design. The goggles shall be designed to provide binocular vision, to hold the interior of the lens a sufficient distance from the eyes to allow adequate clearance for eyeglasses and to provide circulation of air to the interior of the goggles. The goggles shall be fitted with a urethane foam pad in the area of contact with the face and cloth filtering screens over ventilating holes. The type II goggle frame shall have extensions in the nose, cheek and forehead areas to which fastener tape pieces have been adhered as shown on Drawing 8-2-827.

* 3.3.2 Construction. The goggles shall be constructed as shown on drawings referenced in 2.1. The napped side of the filtering screen cloth conforming to 3.2.4 shall be cemented to the frame with the adhesive specified in 3.2.4.2. The foam pad conforming to 3.2.5 shall be cemented to the frame using the adhesive specified in 3.2.5.1. The foam pad shall be cemented on the non-skin side to the inside (see section A-A in Drawing 8-2-635 and Drawing 8-2-827) of the rubber frame. The width of the urethane foam shall correspond within $\pm 1/8$ inch to the width of the rubber facing. The open area required for the temple when spectacles are worn with the goggles shall be fully covered with the urethane foam as shown on Drawings 8-2-635 and 8-2-827. The urethane foam shall not extend into the area of vision. The ends of the webbing for the headband (see 3.2.3), shall be dipped in resin conforming to 3.2.3.1 to prevent unraveling. The fastener hook tape pieces for the type II

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goggles shall be adhered as shown on Drawing 8-2-827 with the cement specified in 3.2.8.1.

3.3.3 Goggles complete.

3.3.3.1 Type I. The type I goggles shall be furnished with class 1 and 2 lenses or class 3 and 4 lenses as specified (see 6.2). A clear lens shall be inserted in the frame.

3.3.3.2 Type II. The type II goggles shall be furnished with class 3 and 4 lenses (see 6.2). The goggles shall be furnished without a lens inserted in the frame.

3.4 Lenses (see 3.2.2).

3.4.1 Class 1 and 2 lenses. The class 1 and 2 lenses shall be blanked or cut to shape and size shown in Drawing 8-2-638. The thickness shall be not less than 0.026 or more than 0.038 inches. The shape of each lens shall be such that when inserted in the frame, the lens shall conform to the curvature of the frame and fit snugly therein.

3.4.1.1 Color (class 2 only). The color of the lens shall be essentially neutral gray having the following trichromatic characteristics when tested as specified in 4.4.2.3 (see 6.3):

Percent Y_T = 15 percent to 30 percent

x = 0.270 to 0.350

y = 0.300 to 0.380

3.4.1.2 Optical qualities. The class 1 and 2 lenses shall show no distortion and shall be optically clear when visually examined as specified in 4.4.2.1.

* 3.4.2 Class 3 and 4 lenses. The class 3 and 4 ballistic lenses shall have a thickness of 0.080 ± 0.001 (see Drawing 8-2-664), shall have an abrasion resistant coating, and shall conform to class 1 and 2 of MIL-V-43511 with the following exceptions:

a. Design and dimensions. The design and dimensions of the lenses shall be in accordance with Drawing 8-2-664.

b. Areas of vision. All vision areas of the lenses shall be considered critical except the outer periphery of the lens 1/4 inch in from the edge (see Drawing 8-2-635). The center point for the left and right optics shall be identified as point "C". The location of point "C" shall be as shown in Drawing 8-2-664. The numbered circles within the critical areas are designated as points of choice for prismatic and distortion tests. Points

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bearing the same number, for example 5R and 5L, shall be compared with each other, except points 2R and 2L shall be compared with point 3 when measuring refractive power or prismatic deviations.

3.5 Marking. Each frame shall be permanently and distinctly marked with the information shown in Drawing 8-2-637, in the location shown, and in accordance with MIL-STD-130.

3.6 Workmanship. The frame, lenses and the respective components shall conform to the quality of product established by the document. The occurrence of defects shall not exceed the applicable acceptable quality levels.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the document where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Certificate of compliance. Where certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.

4.2 Classification of inspection.

- a. First article inspection (see 4.3)
- b. Quality conformance inspection (see 4.4).

4.3 First article inspection. When a first article is required (see 6.2), it shall be inspected for the applicable defects and test characteristics specified in 4.4.2 through 4.4.4.4. The presence of any defect or failure to pass any test shall be cause for rejection of the first article.

4.4 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

4.4.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this document or applicable purchase document.

4.4.1.1 Component testing. In addition to any testing required by 4.4.1, the components shall be tested for the applicable characteristics in table I. For the flannelette, the lot size shall be expressed in yards, the sample unit

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shall be 1 yard, and the inspection level shall be S-1. For the foam skin, the sample shall consist of one specimen selected at random from the lot. Any test failure shall be cause for rejection of the lot. All test reports shall contain the individual values utilized in expressing the final results.

TABLE I. Component tests

<u>Characteristic</u>	<u>Requirement paragraph</u>	<u>Test method</u>
Flannelette weight	3.2.4	5041 of FED-STD-191
Flannelette texture	3.2.4	5050 of FED-STD-191
Foam skin peel strength	3.2.5	<u>1/</u>

1/ Peel the skin from the foam by hand. If the skin separates without tearing the foam, it shall be considered a test failure.

* 4.4.1.2 Certification. Components and materials listed below may be accepted on the basis of a contractor's certificate of compliance that the material conforms to the specified requirements.

<u>Component</u>	<u>Characteristic</u>	<u>Requirement</u>
Rubber	Composition	3.2.1
Plastic	Composition	3.2.2
Dipping compound	Composition	3.2.3.1
Cloth, cotton flannelette	Dyed with direct colors	3.2.4
	Napped one side only	3.2.4
Adhesive for flannelette	Composition	3.2.4.2
Foam pad	Composition, density	3.2.5
Adhesive for foam pad	Composition	3.2.5.1
Snap fastener	Material and finish	3.2.6.1 and 3.2.7
Slide	Material and finish	3.2.6.2 and 3.2.7
Adhesive for fastener hook tape	Composition	3.2.8.1

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4.4.2 Lens inspection (classes 1 and 2).

4.4.2.1 Lens visual examination (classes 1 and 2). The lenses shall be examined for the defects listed below. The lot size shall be expressed in units of lenses of one class only. The sample unit shall be one lens. The inspection level shall be I and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 4.0 for major defects and 6.5 for total (major and minor combined) defects.

Defect	Classification	
	Major	Minor
Not specified class	X	
Not optically clear	X	
Distortion in lenses	X	
Cracks or objectionable roughness	X	
Stain or discoloration not readily removed by washing with water or steaming with breath and then wipe dry with soft cloth or toilet paper	X	
Scratch, seed, bubble, opaque particles, or other imperfection seriously affecting serviceability or appearance	X	
Scratch, seed, bubble, opaque particles, or other imperfection affecting serviceability or appearance but not seriously		X
Undulation, lenticulation or striae which impairs vision	X	
Not clean; presence of any imbedded particle, dirt, grit, or other foreign matter	X	

4.4.2.2 Lens dimensional examination (classes 1 and 2). The lenses shall be examined for conformance to all specified dimensions including thickness. Thickness shall be measured using a micrometer accurate to 0.001 inch. Any dimension not within the specified tolerance shall be classified as a defect. The lot size shall be expressed in units of lenses of one class only. The sample unit shall be one lens. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

4.4.2.3 Lens testing (class 2). The lenses shall be tested for the applicable characteristics specified in table II. The lot size shall be expressed in units of lenses. The sample unit shall be one lens. The inspection level shall be S-1. Any test failure shall be cause for rejection of the lot.

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TABLE II. Lens tests (class 2)

Characteristic	Requirement paragraph	Test method	No. determs. per sample unit	Results reported as
Luminous transmittance	3.2.2.1	3022 of FED-STD-406	3	To nearest 1 percent
Color	3.4.1.1	4.5.1	1	Pass or fail

4.4.3 Lens inspection (classes 3 and 4). The lenses shall be inspected for conformance to the requirements in 3.4.2 in accordance with the end item examination and testing provisions of MIL-V-43511 except that the unit inspected shall be a lens.

4.4.4 Goggles inspection.

4.4.4.1 Goggles visual examination. The goggles shall be examined for the applicable defects listed below. The lot size shall be expressed in units of goggles of one type only. The sample unit shall be one pair of goggles with applicable lenses. The inspection level shall be II and the AQL, expressed in terms of defects per hundred units, shall be 2.5 for major defects and 10.0 for total (major and minor combined) defects.

NOTE: Defects designated by a 1/ in the classification column shall be classified as major when seriously affecting serviceability or appearance and minor when affecting serviceability or appearance but not seriously.

Examine	Defect	Classification	
		Major	Minor
Rubber face mask	Crack extending through body	X	
	Surface crack not extending through body		X
	Blister or contact scar 1/4 inch or over in largest dimension	X	
	Blister or contact scar over 1/64 inch but less than 1/4 inch in largest dimension		X
	Rough surface, e.g., multiple small lumps or blisters		<u>1/</u>

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Examine	Defect	Classification		
		Major	Minor	
Rubber face mask (cont'd)	Rubber not solid, i.e., any undesirable sponginess or porosity		<u>1/</u>	
	Excessive flash or poor trim		X	
	Not molded in one piece	X		
	Lump, void, or abrasion		<u>1/</u>	
	Any cut, puncture, sharp crease, wrinkle, or tear	X		
	Any hole (except vents) more than 1/16 inch in largest dimension	X		
	More than two pinholes, 1/16 inch or less in largest dimension, in any one square inch of surface area		X	
	Objectionable odor (other than typical rubber odor)		X	
	Fastener hook tape (type II only)	Any delaminations	X	
		Crushed hooks, area 1/4 inch or less in diameter: One area		X
More than one area		X		
Crushed hooks, area more than 1/4 inch in diameter, one or more areas		X		
Improperly located on frame: 1/16 to 1/8 inch			X	
More than 1/8 inch		X		
Excessive adhesive affecting appearance			X	
Excessive adhesive on hooks		X		
Webbing	Color not as specified		X	
	Color offshade, mottled, or streaky		X	
	Clearly noticeable crystallization of mildew inhibitor		<u>1/</u>	
	Cut, hole, or tear	X		
	Frayed or scalloped edge; not tightly or firmly woven		<u>1/</u>	
	Cut ends of webbing not dipped in resin (dipping compound)	X		
Metal components (snap fasteners and slides)	Not specified type, size, or design	X		
	Broken, cracked, fractured, damaged, malformed, bent out of shape, or otherwise impaired		<u>1/</u>	
	Evidence of corrosion	X		
	Finish flakes or rubs off		<u>1/</u>	

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Examine	Defect	Classification	
		Major	Minor
Design and construction	Varies from design or construction shown on specified drawing	X	
	Any characteristic not in accordance with specified design, e.g. not designed to accommodate plastic lens or provide binocular vision, adequate eyeglass clearance or circulation of air to interior of goggles	X	
	Any component missing	X	
Workmanship and assembly	Frame malformed, bent out of shape or otherwise impaired		<u>1/</u>
	Size or shape of ventilation holes not as specified		X
	Ventilator hole missing		X
	Row of ventilator holes missing	X	
	Ventilator holes not spaced as shown on drawing		<u>1/</u>
	One to three ventilator holes not covered (nor adhered by flannelette)		X
	Four or more ventilator holes not covered (nor adhered by flannelette)	X	
	One to three ventilator holes filled with adhesive		X
	Four or more ventilator holes filled with adhesive	X	
	Snap fastener not properly located on tab as shown on drawing	X	
	Snap fastener loose or not properly clinched to tab	X	
	Urethane foam cemented on skin side	X	
	Urethane foam extending beyond outer periphery of rubber facing more than 1/8 up to 1/4 inch		X
	Urethane foam extending beyond outer periphery of rubber facing by more than 1/4 inch	X	
	Urethane foam extending beyond inner periphery of rubber facing by more than 1/8 inch	X	
Urethane foam recessed from inner or outer periphery of rubber facing by more than 1/8 inch		X	

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Examine	Defect	Classification	
		Major	Minor
Workmanship and assembly (cont'd)	Any one area of non-adherence of foam pad 1/4 square inch up to but not including 1/2 square inch		X
	Any one area of non-adherence of foam pad 1/2 square inch or greater	X	
Marking	Missing, incomplete, illegible, misspelled, not specified type, not in specified location, or not applied in the specified manner		X

4.4.4.2 Goggles dimensional examination. The goggles shall be examined for conformance to all specified dimensions. Any dimension not within the specified tolerance shall be classified as a defect. The lot size shall be expressed in units of goggles of one type only. The sample unit shall be one pair of goggles. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

4.4.4.3 Goggles lens fit and assembly examination. The goggles and lenses shall be examined for the defects listed below. The lot size shall be expressed in units of goggles. The sample unit shall be one pair of goggles with applicable lenses. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

<u>Examine</u>	<u>Defect</u>
Lens fit	Rough edge on lens from a worn die or from excess flash Shape of lens when inserted in frame does not conform to curvature of frame Lens does not fit snugly in frame
Lens assembly	Snap fastener does not function properly, i.e., fails to effect a secure closure or exceptionally difficult to open Snap fastener stud or socket too tightly affixed resulting in damage to rubber Snap fastener tears plastic lens upon insertion of lens into frame Stud not long enough to hold thickness of one lens and frame

* 4.4.4.4 Goggles testing. The end item shall be tested for the characteristics indicated in table III. The sample unit shall be one pair of

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goggles. The sample size shall be five goggles selected at random from the lot. Any test failure shall be cause for rejection of the lot.

TABLE III. Goggles tests

<u>Characteristic</u>	<u>Requirement paragraph</u>	<u>Test method</u>	<u>No. of determ. per sample unit</u>	<u>Results reported as</u>
Peel strength of flannelette to goggles	3.2.4.2	4.5.2	4	Pass or fail
Peel strength of foam to goggles	3.2.5.1	4.5.3	4	Pass or fail
Peel strength of fastener hook tape to goggles (type II only)	3.2.8.1	4.5.4	2	Pass or fail

4.4.5 Packaging inspection. An examination shall be made to determine that preservation, packing, and marking comply with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully packaged. The lot size shall be the number of shipping containers in the inspection lot. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

<u>Examine</u>	<u>Defect</u>
Marking (exterior and interior)	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application
Materials	Any component missing, damaged, or not as specified
Workmanship	Inadequate application of components, such as: incomplete closure of container flaps, loose strapping, improper taping, or inadequate stapling Open and non-continuous heat sealed seams and closure of polyethylene bag Incorrectly fabricated plastic or cotton flannel bag Mechanical tie for plastic bag not as specified or not applied correctly Bulged or distorted container
Contents	Number of goggles per shipping container is more or less than required

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4.4.5.1 Intermediate pack of separately procured lens examination (classes 1,2,3,4). The lenses packaged for shipment shall be examined to determine conformance with unit and intermediate pack markings and specified quantity. The sample unit shall be one intermediate pack. The lot size shall be the number of intermediate packs in the inspection lot. Any intermediate pack containing less than the specified or marked quantity of lenses shall be classified as a defect. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

- * 4.4.6 Palletization inspection. An examination shall be made to determine that the palletization complies with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one palletized unit load fully packaged. The lot size shall be the number of palletized unit loads in the inspection lot. The inspection level shall be S-1 and the AQL, expressed in terms of defects per hundred units, shall be 6.5.

<u>Examine</u>	<u>Defect</u>
Finished dimensions	Length, width, or height exceeds specified maximum requirement.
Palletization	Pallet pattern not as specified. Interlocking of loads not as specified. Load not bonded with required straps as specified.
Weight	Exceeds maximum load limits.
Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.

4.5 Methods of inspection.

4.5.1 Color (class 2 only) test. The lens shall be inspected for color by use of a spectrophotometer measuring against standard source "C" with magnesium oxide as 100 percent reference.

4.5.2 Peel strength of flannelette to goggles. None of the four strips flannelette shall be capable of being peeled in one piece (from the rubber) when an edge of the flannelette is pulled by hand. The attempt to peel the flannelette should result in the flannelette shredding and leaving some threads still bonded.

4.5.3 Peel strength of the foam to goggles. The foam shall not be capable of being pulled in four separate areas (away from the rubber) by hand without tearing the foam.

- * 4.5.4 Peel strength of fastener hook tape to type II goggles. Two 1/2-inch wide by 2-inches long test specimens shall be cut from a goggle. Peel a 1-inch section of each test specimen, attach the fastener hook tape material to a suitable fixed holder and the rubber strip to a 1-pound weight, distributed over the full width of the specimen. Allow the weight to hang free for 1 hour. At the end of the test period, measure the distance of peel for each

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specimen and calculate the average to the nearest 1/16 inch. The test shall be performed at a temperature of $70^{\circ} \pm 2^{\circ}\text{F}$.

* 5. PACKAGING

5.1 Preservation. Preservation shall be level A or Commercial as specified (see 6.2).

5.1.1 Level A.5.1.1.1 Unit pack.

5.1.1.1.1 Type I goggles. Each pair of type I goggles fitted with a class 1 or class 3 lens as specified (see 6.2) shall be unit packed in a close-fitting flat or square style clear polyethylene film bag of 0.0015 inch thickness (± 20 percent tolerance). The polyethylene bag shall be formed with heat sealed seams that are straight, continuous, and parallel to each other and the formed edges of the bag. The bag may be fabricated from polyethylene film tubing or sheeting. The opening of the plastic bag shall be heat sealed or secured with a mechanical tie (paper or plastic covered soft steel wire, aluminum band, etc.). Prior to or during the closure operation, excess air within the bag shall be expelled.

5.1.1.1.2 Lens, class 1 or class 2. Each class 1 or class 2 lens shall be individually inserted in an end-opening envelope made of 16-pound minimum basis weight (17 by 22 inches - 500 sheets) white bond paper. The end flap of the envelope shall be sealed to provide a secure closure.

5.1.1.1.3 Lens, class 3 or class 4. Each class 3 or class 4 lens shall be individually inserted in a flat style cotton flannel bag. The cotton flannel bag shall measure 5-inches in length by 8-inches in depth ($\pm 1/8$ -inch tolerance). The bag shall be closed by folding the excess flannel towards the concave side of lens. A paper label, as described in 5.4.1.3, shall be inserted in each bag along with each lens.

5.1.1.2 Intermediate pack.

5.1.1.2.1 Type I goggles. Each pair of type I goggles fitted with a class 1 or 3 as specified lens and unless otherwise specified (see 6.2), one class 2 or 4 lens, as specified unit packed as specified in 5.1.1.1.2 or 5.1.1.1.3, as applicable, shall be placed together in a carrying container conforming to class 2, style D, of PPP-B-665. Thumb notch requirements may be waived. Inside dimensions of each box shall approximate 8 inches in length, 4-1/4 inches in width, and 3-1/4 inches in depth. Approximate dimensions are furnished as a guide only. The exterior surface of the box shall be Olive Drab 7 in color.

5.1.1.2.2 Type II goggles. Each pair of type II goggles along with a class 3 and a class 4 lens, unit packed as specified in 5.1.1.1.3, shall be placed together in a carrying container (see 6.2.1), conforming to class 2, style D

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of PPP-B-665. Thumb notch requirements may be waived. Inside dimensions of each box shall approximate 3-inches in length 4-1/4 inches in width, and 3-3/4 inches in depth. Approximate dimensions are furnished as a guide only. The exterior surface of the box shall be Olive drab 7 in color.

5.1.1.2.3 Lens, class 1 or class 2, when procured separately (see 6.2). One-hundred lenses of one class only, unit packed as specified in 5.1.1.1.2, shall be placed on edge in a setup paperboard box conforming to type I, variety 1, class A, style 4 of PPP-B-676. Inside dimensions of each paperboard box shall approximate 8-inches in length, 7-1/2 inches in width, and 4-inches in depth. Approximate dimensions are furnished as a guide only. Box closure shall be secured with 2-inch minimum width gummed paper tape conforming to type III, grade B of PPP-T-45, except that prior to closure the inspection shall be in accordance with 4.4.5.

5.1.1.2.4 Lens, class 3 or class 4, when procured separately (see 6.2). Twenty lenses of one class only, unit packed as specified in 5.1.1.1.3, shall be placed on edge in a fiberboard box conforming to style RSC, type CF, variety SW, class domestic, minimum grade 125 of PPP-B-636. Inside dimensions of each fiberboard box shall approximate 7-1/4 inches in length, 4-1/2 inches in width, and 3-1/2 inches in depth. Approximate dimensions are furnished as a guide only. The box closure shall be secured with 2-inch minimum width gummed paper tape conforming to type III, grade B of PPP-T-45, except that prior to closure the inspection shall be in accordance with 4.4.5.

5.1.2 Commercial. Each pair of goggles with spare lens or lens procured separately (see 6.2), shall be preserved in accordance with ASTM D-3951.

5.2 Packing. Packing shall be level A, B, or Commercial as specified (see 6.2).

5.2.1 Level A packing.

5.2.1.1 Goggles. Forty-eight pairs of goggles of one type only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container as specified in 5.2.1.4.

5.2.1.2 Lens (class 1 or class 2) when procured separately (see 6.2). Twelve-hundred lenses of one class only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container as specified in 5.2.1.4.

5.2.1.3 Lens (class 3 or class 4) when procured separately (see 6.2). One-thousand lenses of one class only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container as specified in 5.2.1.4.

5.2.1.4 Fiberboard shipping containers. Each shipping container shall conform to style RSC, grade V2s of PPP-B-636. Item packing arrangement and approximate inside dimensions of the shipping containers shall be as specified in table IV. Each shipping container shall be closed in accordance with method III, waterproofed in accordance with method V, and reinforced as

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specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.5.

TABLE IV. Packing arrangement of intermediate packs and sizes of shipping containers

Item	Packing arrangement	Inside dimension <u>1/</u> (inches)
Goggles - Type I	3L x 4W x 4D	24-3/4L x 17-1/2W x 13-1/4D
- Type II	3L x 4W x 4D	24-3/4L x 17-1/2W x 15-1/4D
Lenses (when procured separately) (class 1 or class 2)	2L x 2W x 3D	16-3/4L x 15-1/2W x 12-1/2D
Lenses (when procured separately) (class 3 or class 4)	5L x 2W x 5D	24L x 15-1/2W x 18-3/4D

1/ Inside dimensions are approximate and are furnished as a guide only.

5.2.2 Level B packing.

5.2.2.1 Goggles, with spare lens (type I or type II). Forty-eight pairs of goggles of one type only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container as specified in 5.2.2.4.

5.2.2.2 Lens (class 1 or class 2) when procured separately (see 6.2). Twelve-hundred lenses of one class only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container as specified in 5.2.2.4.

5.2.2.3 Lens (class 3 or class 4) when procured separately (see 6.2). One-thousand lenses of one class only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container as specified in 5.2.2.4.

5.2.2.4 Fiberboard shipping containers. Each shipping container shall conform to style RSC, type CF (variety SW) or SF class domestic, grade 275 of PPP-B-636. Item packing arrangement and approximate inside dimensions of the shipping containers shall be as specified in table III. Each shipping container shall be closed in accordance with method II as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.5.

5.2.2.4.1 Weather-resistant fiberboard containers. When specified (see 6.2), the shipping container shall be a grade V3c, V3s or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with method III as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.5.

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5.2.3 Commercial packing. Goggles and lenses when procured separately (see 6.2), preserved as specified in 5.1, shall be packed in accordance with ASTM D-3951.

5.3 Palletization.

5.3.1 Goggles. When specified (see 6.2), goggles of one type only, packed as specified in 5.2, shall be palletized on a four way entry pallet in accordance with load type 1a of MIL-STD-147. Each prepared load shall be bonded with primary and secondary straps in accordance with the bonding means K and L or film bonding means O or P. Pallet pattern No. 90 shall be used as specified in the appendix of MIL-STD-147.

5.3.2 Lenses. When specified (see 6.2), lenses of one class only, packed as specified in 5.2, shall be palletized on a four way entry pallet in accordance with load type 1a of MIL-STD-147. Each prepared load shall be bonded with primary and secondary straps in accordance with the bonding means K and L or film bonding means O or P. Pallet pattern No. 9 shall be used for lens classes 1 or 2. Pallet pattern No. 3 shall be used for lens classes 3 or 4. Interlocking of loads for lenses shall be effected by reversing the pattern of each course.

5.4 Marking. In addition to any special marking required by the contract or purchase order, intermediate packs (except for goggles) and shipping containers shall be marked in accordance with MIL-STD-129 or ASTM D-3951, as applicable.

5.4.1 Special marking.

5.4.1.1 Intermediate pack for goggles (carrying container). The intermediate pack for goggles shall have printed on top of the lid with water insoluble black ink the following information:

"STOCK NUMBER
 ITEM DESCRIPTION
 QUANTITY
 LENSES: 1 each clear
 1 each neutral gray
 NAME AND ADDRESS OF MANUFACTURER

PROPER USE OF LENSES. Use the neutral gray lens in bright light, the clear in dull light. DO NOT USE FOR SUN SCANNING. DO NOT SCRATCH THE LENSES. They are of plastic which is safer and lighter but will scratch if abused. When not in use, protect them against dirt or hard objects. Clean by washing off with water when possible or steaming with your breath and then wiping dry with soft cloth or toilet paper. Gasoline or hot water should not be used for cleaning.

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COLD WEATHER PRECAUTIONS: If cold stiffens goggles, do not bend or force them. If they fog, hold away from face to let air in behind the lens until it clears.

WHEN NOT BEING WORN: Goggles should be kept in dry place away from sunlight.

WHEN WORN OVER EYEGLASSES: When the goggles are worn over eyeglasses, the temples of the eyeglasses are inserted into the large channels or grooves at each side of the goggles.

CAUTION: Avoid smearing insect repellent on lens, since it will attack the lens, thereby affecting visibility.

On the front panel of lid:

TO PROVIDE MAXIMUM VISION, WEAR GOGGLES AS LOW ON NOSE AS POSSIBLE."

5.4.1.2 Unit pack for spare class 1 or class 2 lens (paper envelope). The spare lens paper envelope shall have plainly printed on the front with water insoluble black ink the following information:

"STOCK NUMBER

LENS, PLASTIC, GOGGLE.

CLEAR (Class 1)

or

LENS, PLASTIC, GOGGLE.

NEUTRAL GRAY (Class 2)

For Protection Against Excessive Light, Glare.

CARE OF LENS: The plastic lenses for the goggles are flexible, shatter-resistant and lighter than glass. However they are scratched much more easily than glass lenses.

When not in use, protect them against dirt or hard objects. To make them last longer, clean, dust and remove any fingerprints from them by washing with water or by breathing on the lenses, then wipe dry with a soft clean cloth or toilet paper, making absolutely certain that the cloth or paper is free of grit, sand or dirt. Gasoline should not be used for cleaning.

Replace a permanently marred lens by a new lens from your supply officer. Keep any lens, when not inserted in frame, flat in the carrying case to guard against warpage.

CAUTION: Avoid smearing insect repellent on lens, since it will attack the lens, thereby affecting its visibility.

How to Interchange the Lenses in Your Goggle Frame

REMOVAL OF LENS

1. Unsnap the two fasteners

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2. Remove the lens from the goggle

INSERTION OF REPLACEMENT LENS

3. Fasten the lens to the top snap
4. Insert the lens into the channel of the goggle frame and fasten the lens to the bottom snap.

5.4.1.3 Paper label for class 3 or class 4 lens. The class 3 or class 4 lens shall have a paper label insert (see 5.1.1.1.3) printed with water insoluble black ink with the following information:

"STOCK NUMBER

LENS, POLYCARBONATE

CLEAR (Class 3)

or

LENS, POLYCARBONATE

NEUTRAL GRAY (Class 4)

For Protection Against Excessive Light, Glare and
for Ballistic Protection

CARE OF LENS: The polycarbonate lenses for the goggles are shatter-resistant. They are scratched much more easily than glass lenses.

When not in use, protect them against dirt or hard objects. To make them last longer, clean dust and fingerprints from them by washing with water or by breathing on the lenses, then wipe dry with a soft clean cloth or toilet paper, making absolutely certain that the cloth or paper is free of grit, sand or dirt. Gasoline should not be used for cleaning.

Replace a permanently marred lens by a new lens from your supply officer. Keep the lens, when not inserted in frame, in the flannelette bag provided.

CAUTION: Avoid smearing insect repellent on lens, since it will affect its visibility.

How to Interchange the Lenses in Your Goggle Frame

REMOVAL OF LENS

1. Unsnap the two fasteners
2. Remove the lens from the goggle

INSERTION OF REPLACEMENT LENS

3. Fasten the lens to the top snap
4. Insert the lens into the channel of the goggle frame and fasten the lens to the bottom snap.

6. NOTES

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6.1 Intended use. The goggles are intended for use by Military personnel as follows:

- Class 1 - for protection against wind and dust.
- Class 2 - for protection against sun, wind and dust.
- Class 3 - In addition to the class 1 protection, the class 3 lens has ballistic protection.
- Class 4 - In addition to the class 2 protection, the class 4 lens has ballistic protection.

The type II goggles (with class 3 and 4 lenses), intended for combat vehicle crewman, are to be worn as a component of the face mask for flame, dust, wind and fragmentation protection.

6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this document.
- b. When first article samples are required (see 3.1, 4.3 and 6.4).
- c. Type of goggles required (see 3.3.3).
- d. Selection of classes of lenses when type I goggle is to be procured (see 3.3.3.1).
- e. When lenses are to be procured separately (see 5.1.1.1.2, 5.1.1.1.3, 5.1.1.2.3, 5.1.1.2.4, 5.2.1.2, 5.2.1.3, 5.2.2.2 and 5.2.2.3).
- f. When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.4.1).
- g. When palletization is required (see 5.3).

6.2.1 Carrying container. The carrying containers specified in 5.1.1.2.1 and 5.1.1.2.2 are of special design in order to serve a dual function. Initially, they provide physical protection to each pair of goggles as an intermediate package and later furnish safe storage for the goggles when not in use.

6.3 Colorimetric characteristics. The colorimetric characteristics specified in 3.4.1.1 (for class 2 lens only) encompass essentially the range of Munsell values falling between 5B4/1, 5G4/1, and 5Y4/1, as described in the "Munsell Book of Color" published by the Munsell Color Co., 10 East Franklin St., Baltimore, MD.

6.4 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209. The first article should be a preproduction sample. The first article sample required shall be as specified in the contract and should consist of one goggle frame from each cavity along with one lens of each class. One goggle frame shall be completely assembled in accordance with 3.3.1 and 3.3.2. The contracting officer should include specific instructions in all acquisition documents regarding arrangements for examination, test, and approval of the first article.

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6.5 Recycled material. It is encouraged that recycled material be used when practical as long as it meets the requirements of the document (see 3.2).

6.6 Method of adhesion of fastener hook tape to goggle (type II) (see 3.2.8.1). The following method for bonding the fastener hook tape to the rubber goggle frame has been found to be successful in meeting the adhesion requirement for these parts:

a. Thoroughly abrade the areas of the goggle frame to be adhered, with 80 grit abrasive cloth.

b. Lightly abrade the back of the fastener hook tape parts, taking care not to damage the cloth material.

c. Clean the abraded areas of the goggle thoroughly with toluene and a lint-free cloth.

d. Clean the back of the fastener hook tape with a lint-free cloth dampened with toluene.

e. Brush apply one coat of adhesive to each of the surfaces to be bonded and allow to dry 15-20 minutes.

f. Brush apply a second coat of adhesive to each of the surfaces and combine while they are still wet. Apply pressure uniformly over all areas for 24 hours to achieve optimum adhesion.

Note: Cut-out sections of fastener pile tape may be used over the hook material to prevent hook damage under bonding pressure.

6.7 Foam pad source (see 3.2.5). As a matter of information only, a source for the foam pad is:

Merriweather Foam Latex Co.
11 Brown Street
Babertown, OH 44203

6.8 Solution for dipping ends. A suitable solution is available from:

Mehart Bostik Chemical Group
Middletown, MA 01949
Bostik Adhesive No. 7008

6.9 Changes from previous issue. The margins of this document are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content

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Custodians:

Army - GL
Navy - NU
Air Force - 99

Preparing activity:

Army - GL
Project No. 8465-0905

Review activities:

Army - MD
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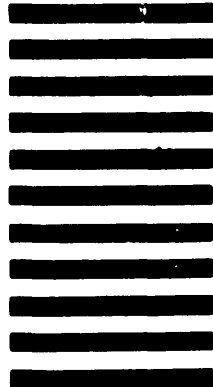


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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MIL-C-43914D		2. DOCUMENT TITLE Goggles, Sun, Wind and Dust: 1974	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION <i>(Mark one)</i> <input type="checkbox"/> VENDOR <input type="checkbox"/> USER <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> OTHER <i>(Specify):</i> _____	
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c. Reason/Rationale for Recommendation:			
6. REMARKS			
7a. NAME OF SUBMITTER <i>(Last, First, MI) - Optional</i>		b. WORK TELEPHONE NUMBER <i>(Include Area Code) - Optional</i>	
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