INCH-POUND
GL-PD-08-78D
26 September 2019
SUPERSEDING
GL-PD-08-78C
8 December 2015

PURCHASE DESCRIPTION

HOOD, PROTECTIVE, LIGHT-WEIGHT, FLAME RESISTANT

This Purchase Description (PD) is approved for use by all Department and Agencies of the Department of Defense (DoD).

1. SCOPE

1.1 Scope. This Purchase Description covers the requirements for a Flame Resistant (FR) Light-Weight Protective Hood (LPH) which is intended to be worn by military personnel of the Department of the Defense (DoD).

1.2 Classification. The hood is available in one (1) type, and one (1) size fits all.

1.2.1 Types.

Type I - DELETED
Type II - Improved Design

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

Comments, suggestions, or questions on this document should be addressed to: Department of the Army, Combat Capabilities Command Soldier Center, 10 General Greene Avenue, Natick MA 01760- 5019. ATTN: FCDD-SCP-WC.

AMSC N/A FSC 8415

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

COMMERCIAL ITEM DESCRIPTIONS

A-A-55195 - Thread: Para-Aramid, Spun, Intermediate Modulus
A-A-55217 - Thread, Aramid, Spun Staple

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-DTL-32075 - Label: For Clothing, Equipage, and Tentage, (General Use)

(Copies of these documents are available online at https://quicksearch.dla.mil.)

2.2.2 Other Government documents, drawings, and publications. N/A

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those specified in the solicitation or contract.

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

AATCC Evaluation Procedure 1, Gray Scale for Color Change
AATCC Evaluation Procedure 2, Gray Scale for Staining
AATCC Evaluation Procedure 8, AATCC 9-Step Chromatic Transference Scale
AATCC Evaluation Procedure 9, Visual Assessment of Color Difference of Textiles
AATCC Test Method 8 - Colorfastness to Crocking: Crockmeter Method
AATCC Test Method 15 - Colorfastness to Perspiration
AATCC Test Method 16.3 - Colorfastness to Light: Xenon-Arc
AATCC Test Method 61 - Colorfastness to Laundering: Accelerated
AATCC Test Method 81 - pH of The Water-Extract from Wet Processed Textiles
AATCC Test Method 135 - Dimensional Changes of Fabrics after Home Laundering
AATCC Test Method 143 - Appearance of Apparel and Other Textile End Products after Repeated Home Laundering

(Copies of these documents are available on line at https://www.aatcc.org.)

AMERICAN SOCIETY FOR QUALITY (ASQ)

ASQ/ANSI Z1.4 – Sampling Procedures and Tables for Inspection by Attributes

(Copies of these documents are available online at https://asq.org.)

ASTM INTERNATIONAL

ASTM D737 - Standard Test Method for Air Permeability of Textile Fabrics
ASTM D1777 - Standard Test Method for Thickness of Textile Materials
ASTM D3512/D3512M - Standard Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics: Random Tumble Pilling Tester
ASTM D3776/D3776M - Standard Test Methods for Mass per Unit Area (Weight) of Fabric
ASTM D3787 - Standard Test Method for Bursting Strength of Textiles Constant-Rate-of-Traverse (CRT) Ball Burst Test
ASTM D3990 - Standard Terminology Relating to Fabric Defect
ASTM D6193 - Standard Practice for Stitches and Seams
ASTM D6413/D6413M - Standard Test Method for Flame Resistance of Textiles (Vertical Test)
ASTM F2700 - Standard Test Method for Unsteady-State Heat Transfer Evaluation of Flame Resistant Materials for Clothing with Continuous Heating

(Copies of these documents are available online at https://www.astm.org.)

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 2112 - Standard on Flame-Resistant Garments for Protection of Industrial Personnel Against Short-Duration Thermal Exposure from Fire.

(Copies of this document are available online at https://www.nfpa.org.)

OTHER PUBLICATIONS

INFORMA HEALTHCARE

Repeat Insult Patch Test - Modified Draize Procedure –
Principles and Methods of Toxicology, A Wallace Hayes (editor).

(Copies of this document are available online at https://www.crcpress.com.)

SDL ATLAS

Part Number 402985 – Slub/Knot Replica Set

(Replica set is available for purchase from SDL Atlas Customer Service, 1-803-329-2110.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Unless a specific exemption has been obtained, nothing in this document, supersedes applicable laws and regulations.

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.2.

3.2 Conformance inspection. When specified (see 6.2), a sample shall be subjected to conformance inspection in accordance with 4.3.

3.3 Standard sample. Unless otherwise indicated, the finished hood shall match the standard sample for shade and appearance, and shall, be equal to or better than the standard sample with respect to all characteristics for which the standard sample is referenced (see 6.4).

3.4 Recycled, recovered, environmentally preferable, or biobased materials. Recycled, recovered, environmentally preferable, or biobased materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.5 Design. The hood shall be made out of three (3) separate fabrics. Each layer shall be made out of a different fabric; the outside layer, inside layer and the dome. Each fabric shall be flame resistant. The top (dome) of the hood shall be made out of knit mesh fabric to let heat escape. There shall be a face shield panel across the face to go over the nose but not the eyes. This panel shall be used to prevent thermal exposure. The panel shall be connected with flatlock stitches on the left and right side. Also the panel shall be connected to the inside layer with overedge stitching down to the hem. The dome shall be connected to the outer layer and the inner layer using a flatlock stitch. The hemming of the face opening, top and bottom of the face panel, and the bottom shall be constructed using a serge stitch and two (2) needle cover stitch seam.

3.5.1 Figure. Figure 3 is furnished for information only. If there are any inconsistencies between the written document and the figures, the written document shall take precedence.

3.6 Materials.

3.6.1 Basic materials. The basic materials for the hood shall consist of three (3) knit fabrics unless otherwise noted in the contract or solicitation (see 6.2). The color shall match Tan 499, or other color as specified and shall meet the requirements of Table I and Table II when tested in accordance with tests methods specified in 4.6.

3.6.1.1 Outside layer. The outside layer of the hood shall be a 1x1 rib knit fabric.

3.6.1.2 Inside layer. The inside layer of the hood shall be a jersey knit fabric.

3.6.1.3 Dome. The top of the hood shall be made out of a knit mesh fabric.

3.6.2 Material requirements. The finished cloths shall conform to the physical requirements listed below, in Table I when tested in accordance with the test methods as specified in 4.6.

TABLE I. Material requirements.

Characteristics	Outside Layer	Inside Layer	Dome
Weight (oz/yd^2)			
(min.)	4.6	4.0	5.0
(max.)	5.4	5.0	6.0
Thickness (inches) (min.)	0.025	0.018	---
Dimensional Stability (%) (max.)			
Length:	6.0	7.0	7.0
Width:	6.0	7.0	7.0
Bursting Strength (lb/in^2) (min.)	50.0	45.0	35.0
Air Permeability ($ft^3/min./ft^2$) (min.)	325	325	240
Wicking (inches/hour) (min.)	3	3	3
Pilling, rating (min.)			
Initial	3-4	3	3-4
After five(5) launderings	3	3	3
Afterflame, (seconds) (max.) 1/ (Initial and after 25 laundering cycles)	2	2	2
Afterglow, (seconds) (max.) 1/ (Initial and after 25 laundering cycles)	15	5	5
Char length, (inches) (max.) 1/ (Initial and after 25 laundering cycles)	5	6	5
Heat Transfer Performance (HTP) (formerly Thermal Protective Performance) (cal/cm^2) (With Spacer) (min.)	10.0	7.0	Not Required

1/ Values are maximum average values allowed for each direction (wales and courses). Flame melt/drip on any sample constitutes a failure.

3.7 pH. The pH of all the cloths shall be a minimum of 5.0 and a maximum of 8.5 when tested as specified in 4.6.

3.8 Visual shade matching. The color and appearance of the cloths specified in 3.6.1 and the thread specified in 3.9 shall match the standard sample when tested as specified in 4.6.

3.8.1 Colorfastness. The finished cloths and thread shall conform to the colorfastness requirements listed below in Table II when tested as specified in 4.6.

TABLE II. Colorfastness requirements (all components).

	Laundering (color change and staining) Three (3) cycles (min.)	Light (40 AFU or 170 kJ/(m^2nm) @ 420 nm) (min) 1/	Crocking dry/wet (min)	Perspiration (acid & alkaline) (color change and staining) (min)
Outside Layer	3-4	2	4 / 3	3-4
Inside Layer	3-4	3	4 / 3	--
Dome	4	3-4	4 / 3	3-4
Thread	3-4	--	--	--

1/ AFU - AATCC Fading Units

3.8.2 Labile sulfur. Dyes and compounds containing elementary sulfur capable of oxidation to sulfuric acid shall not be used. The dyed cloth shall be "Free" of labile sulfur when tested as specified in 4.6.

3.9 Thread. The thread for the needle and bobbin shall be flame resistant and shall conform to the requirements of A-A-55217, Tex Size 40 or A-A-55195, Tex 39. The color shall match Tan 499 cloths as specified for all seam and stitch types and shall conform to the colorfastness requirements specified in the Table II, when tested as specified in 4.6.

3.10 End item requirement. The hood shall be evaluated for overall appearance and seam smoothness and shall have a minimum seam smoothness requirement rating of SS-3.5 and qualitative comments shall be made on overall appearance when tested as specified in 4.6.

3.11 Label and bar code (if applicable). The label and bar coding requirements shall be specified in the solicitation or contract (see 6.2).

3.11.1 Combination size, identification and care instruction label. Combination size, identification and care instruction label shall be either heat transfers or screen prints and shall conform to MIL- DTL-32075, Type III or IV, Class 14. Label shall be placed inside the hood at the center back with the bottom edge 1-inch above the hem stitching. Heat transfer labels, if used, shall be applied using application process recommended by the manufacturer. The label shall be able to stretch with the fabric without excessive cracking and/or peeling and the print shall be legible after 25 launderings when tested as specified in Table VII. The dimensions of the label (applied) shall be a maximum of 1-1/2-inches wide and 2- 1/2-inches in height. The basic design in Figure 1 shall be followed for the label.

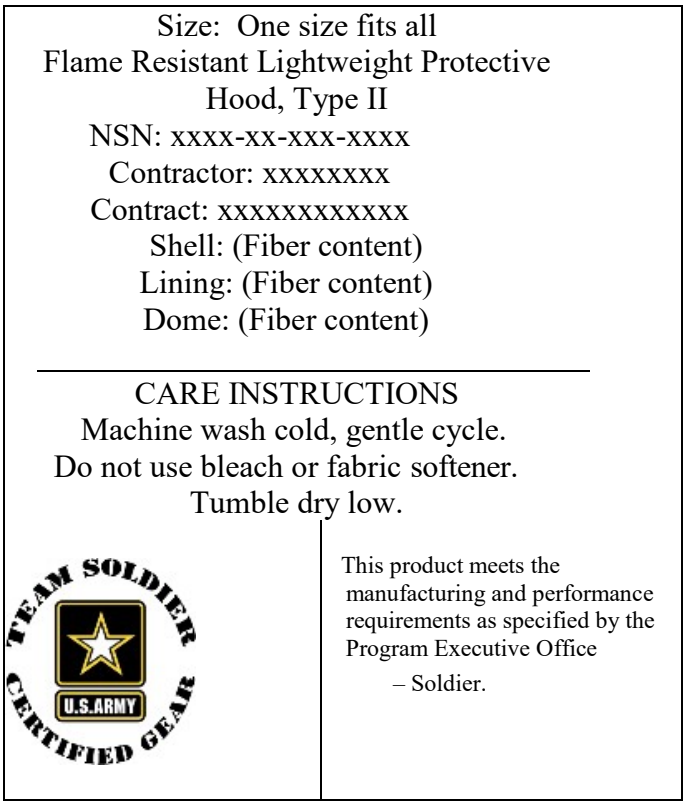


FIGURE 1. Basic label design.

3.11.1.1 Lot numbers. Lot numbers shall be stamped inside the hood just below the label.

3.11.2 Bar code labels. Bar coding requirements shall be specified in the solicitation or contract (see 6.2).

3.12 Construction.

3.12.1 Patterns. The Government shall furnish a complete set of patterns or a master pattern with grade rules to maintain uniformity and consistency in manufacturing. The Government patterns shall be used to create the contractor's patterns. Minor pattern modifications are permitted to accommodate manufacture's processes; however, the design and finished measurements must be obtained. Pattern guidelines shall not be modified. Adhesive patterns are prohibited. Pattern parts shall be as listed in Table III.

TABLE III. Pattern parts Type II only.

Nomenclature	Pattern Abbreviations	# of Cut Parts
Outer Layer: Back Top front Bottom front	 LPH2 BK LPH2 TP FT LPH2 BF	 1 1 1
Inner Layer: Back Top front Bottom front	 LPH2 BK LPH2 TP FT LPH2 BF	 1 1 1
Dome	LPH2 VD	2
Total number of pattern pieces		8

3.12.2 Configuration. Each hood shall conform to the dimensional requirements in Table IV when measured in accordance with Figure 2.

TABLE IV. Finished measurements Type II only.

Designation on Figures	Location of measurement	Measurement (inches)	Tolerance (inches)
A	Body Length - Fold Garment in 1/2 - Measure along seam on Side Panel from Finished Bottom to Crown	17-1/4	±1/2
B	Crown Length - From Seam on Body to Top –Fold Garment in 1/2 to Measure	3-1/4	±3/8
C	Front Length - From Bottom of Face Guard to Finished Bottom	12-1/2	±3/8
D	Distance from Crown Seam to Finished Top Edge of Face Opening	3	±1/4
E	Top Edge of Facing Opening 1/2 Flat From Seam on Side to Fold on Center Front	7-1/4	±3/8
F	Bottom Edge of Facing Opening 1/2 Flat From Seam on Side to Center Front	6-1/4	±3/8
G	Crown Seam Following Seam Curve	13	±3/8
H	Bottom Opening 1/2 Flat Point to Point	12-1/4	±1/2

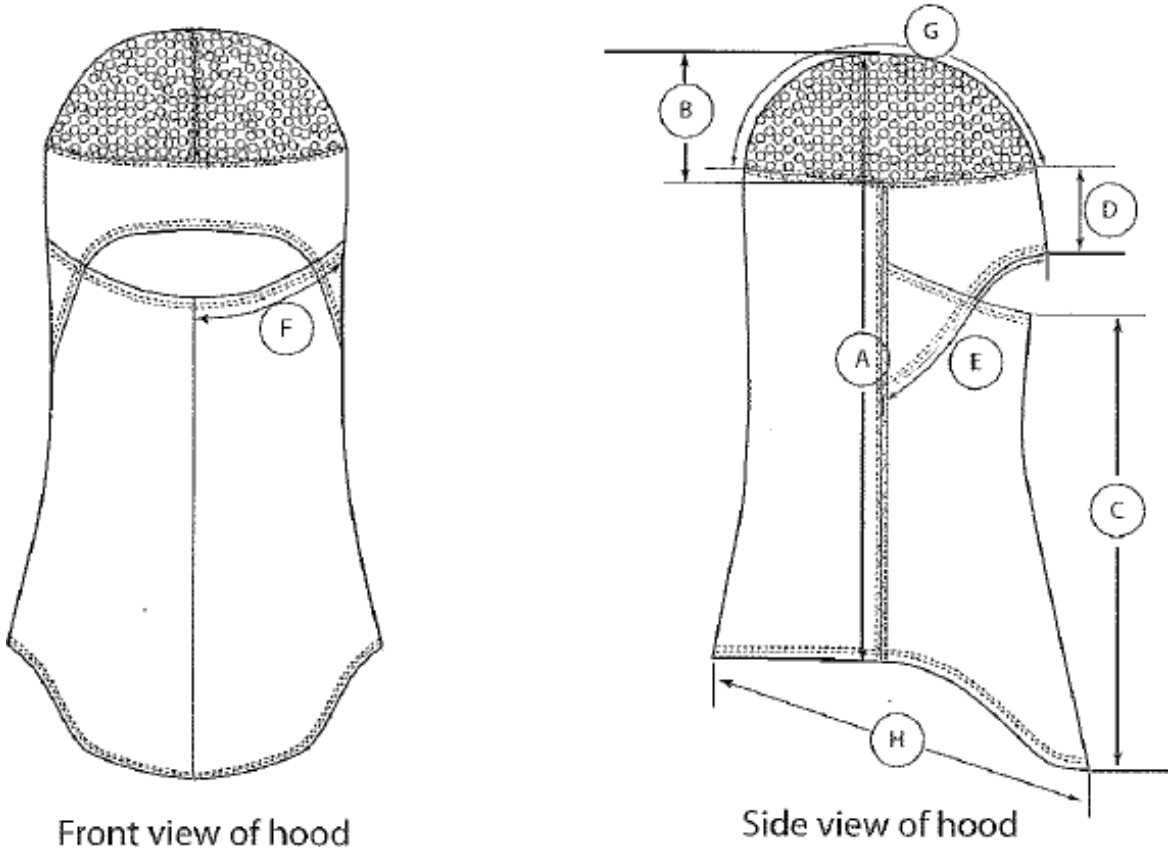


FIGURE 2. Hood, lightweight protective, flame resistant, location of measurements, Type II.

3.12.3 Construction detail. All seams shall be consistent and exhibit a uniform appearance. Stitches, seam types and stitch placement specified in Table V shall conform to ASTM D6193. Seams shall be sewn so that no raw fabric edges, open seams, run-offs, twists, pleats or puckers will result and shall be sewn in accordance with Table V with a seam allowance that shall result in conforming to the to the finished measurements in Table IV .

THIS SPACE IS LEFT INTENTIONALLY BLANK

TABLE V. Construction detail.

Operation Sequence	Operation	Sewing Instructions	Seam Type	Stitch Type
1	Close crown	Position left and right crown component face up at front edges. Join seam complete to end of back edges.	Lsa-2	Flatlock 307
2	Serge crown	Position crown at center back seam face up to the machine. Serge around completely to stabilize edge of crown.	Ssa-1	Serge 504
3	Serge upper front panel	Position upper front liner panel face down to base of machine and align upper front shell face up component to liner edge. Serge upper front panels stabilizing edge of fabric.	Ssa-1	Serge 504
4	Serge lower front panel	Position upper front liner panel face down at bottom left edge to base of machine and align upper front shell face up to liner edge. Serge upper front panels at bottom edge stabilizing fabric edged.	Ssa-1	Serge 504
5	Serge back panel	Position back liner panel face down at bottom left edge to base of machine and align back shell component face up to liner edge. Serge back panels left & right side stabilizing fabric edges.	Ssa-1	Serge 504
6	Hem upper front panel	Place upper front panel at bottom left corner to base of machine, fold to approximate 3/8 inch and join hem bottom edge.	Efa-1	Cover Stitch 509,1/8-inch gauge
7	Hem lower front panel	Place lower front panel at upper right corner to base of machine, fold to approximate 3/8 inch and join hem top edge.	Efa-1	Cover Stitch 509,1/8-inch gauge
8	Serge & stay upper & lower front panel	Lay right side front upper panel face up to base of machine and position lower front panel edge face up to notch, align both component edges evenly. Serge edges together stabilizing and staying front panels and liner. Repeat operation to the left side of components.	Ssa-1	Serge 504

TABLE V. Construction detail. – Continued

Operation Sequence	Operation	Sewing Instructions	Seam Type	Stitch Type
9	Set back panel to front panel	Place back panel with back up to base of machine, align front joined panels face up to back panel and join panel together. Repeat operation to left front panels	Lsa-2	Flatlock 307
10	Baste top & bottom edges	Position front and back joined panels at top right flatlock seam and serge around complete. Repeat operation to bottom edge of panels.	Ssa-1	Serge 504
11	Set crown	Position crown at notch to center back at top edge of joined panels and join crown to bottom panels lapping seam 1/2-inch.	Lsa-2	Flatlock 307
12	Hem bottom hood	Place bottom of serged panels at left seam corner, fold to approximately 3/8-inch and join hem bottom edge lapping seam 1/2-inch.	Efa-1	Cover Stitch 509,1/8 inch gauge
13	Heat seal label	Position back of fabric edge under label transfer machine approximately 1-inch from hem centered on back panel and set label transfer.	NA	NA
14	Inspect, fold & package	Inspect product to specification, lay flat face up and fold in half, place LPH in bag, label bag and seal.	NA	NA

3.12.3.1 Stitches per inch. The stitches per inch shall 13 (± 1).

3.12.3.2 Repairs. Repairs such as mends, darns, patches, or splices shall not be permitted on hoods.

3.12.4 Use of automated apparel equipment. Automated apparel equipment may be used to manufacture hoods to this purchase description, provided that the stitch and seam types are as specified and the finished component conforms to the required configuration. When a Government furnished shaper pattern is provided, the component shall conform to that pattern.

3.13 Toxicity. The finished cloths shall not present a health hazard and shall show compatibility with prolonged, direct skin contact when tested as specified in 4.6.2. Chemicals recognized by the Environmental Protection Agency (EPA) as human carcinogens shall not be used.

3.13.1 Toxicity documents. All finishing treatments used to process the cloths shall be identified and accompanied by the appropriate Safety Data Sheet (SDS) information.

3.14 Fiber identification. Each roll of the finished cloths shall be labeled or ticketed for fiber content in accordance with the Rules and Regulations under the Textile Fiber Products Identification Act.

3.14 Workmanship. The finished hood shall be uniform in quality and shall conform to the quality of product established by this specification. The occurrence of defects, as specified in 4.5, shall not exceed the criteria specified in the contract or purchase order.

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. First article inspection (see 4.2).
b. Conformance inspection (see 4.3)

4.2 First article inspection. A first article, submitted in accordance with 3.1 shall be inspected, examined for appearance, color and finished defects as specified in 4.5 and tested for the characteristics as specified in 4.6.

4.3 Conformance inspection. Conformance inspection shall include the visual examination of 4.5 and the tests of 4.6 through 4.6.3 as applicable. Sampling for inspection shall be performed in accordance with ANSI/ASQ Z1.4 and with acceptance quality limits as specified in the contract and/or order, except where otherwise indicated (see 6.2).

4.4. Inspection conditions. Unless otherwise specified, excluded, amended, modified or qualified in this specification or applicable procurement documents, all inspections shall be performed in accordance with all the requirements of referenced documents (see 6.2).

4.5 End item visual examination. Each hood shall be subjected to visual examination. All defects shall be scored in accordance with Table VI which are clearly noticeable at normal inspection distance (3 feet) and affect serviceability and appearance of the hood. Material defects are defined in ASTM D3990. If needed, closer inspection will be performed to verify compliance to specification requirements. Shade shall be evaluated in accordance with 4.6.1. The finished examination sample size, acceptance quality limits and acceptance criteria shall be specified in the solicitation or contract (see 6.2).

TABLE VI. End item visual defects.

Examine	Defect Description	Classification	
		Major	Minor
Material defects	Hole, cut, tear, smash, burn, exposed drill hole, run, thin place, needle chew, visible mends.	101	201
	Color not as specified, dye streaks		
	Knots greater than fabric defect scale Level D (see 2.3)	102	
	Slubs greater than fabric defect scale Level F (see 2.3)	103	

TABLE VI. End item visual defects. Continued

Examine	Defect Description	Classification	
		Major	Minor
Appearance	Hood not symmetrical; bottom hem twisted		
	Affecting appearance		202
	Affecting function	104	
Cleanliness	Any spot or stain on outside.		
	Removable		203
	Not removable	105	
	Excessive thread ends no more than 1/4-inch (more than 3) not trimmed or removed.		
	Affecting appearance		204
	Affecting serviceability	106	
	Odor	107	
	Indelible ink shade stamping exposed on outside.	108	
Component and assembly	Any component part misplaced or required operation omitted, not as specified, distorted, full, tight or twisted.	109	
	Any part of hood caught in unrelated stitching (unless otherwise specified herein)	110	
	Any component not color specified		205
	Any defective components	111	
Cutting	Any component part not cut in strict accordance with directional lines indicated on pattern or not cut in accordance with document requirements	112	
Stitching and seams	Seam twisted, puckered.	113	
	Ends of stitching not secured as specified.		206
	Thread break (all stitch types) stitched less than 1/2-inch beyond end of break.	114	
	Skipped stitches or open seams with puckering, waviness or raw fabric edges showing through stitch lines.	115	
	Seams that have uneven tensions that restrict stretch or cause cracking or breaking of threads.	116	
	Edges not hemmed or with raw fabric edges:		
	1/2-inch or less		207
	More than 1/2-inch	117	
Gauge of stitching and seam allowances	Irregular, unevenly gauged or corresponding stitching not uniformly gauged.	118	
	Edge or raised stitching sewn too close to edge resulting in damage to cloth.	119	

TABLE VI. End item visual defects. - Continued

Examine	Defect Description	Classification	
		Major	Minor
Open seams	Any seam open on outside of hood: 1/2-inch or less More than 1/2-inch NOTE: An open seam is defined as one (1) or more broken or two (2) or more consecutive skipped or runoff stitches.	 120	 208
Stitch and seam types	Not as specified.	121	
Stitch tension	Loose tension resulting in a loose seam, or tight tension (stitches break when strain is applied to the direction of seam).	122	
Stitches per inch (If these are specified)	Less than minimum specified. More than maximum specified. NOTE: This defect is to be scored only when the condition exists on one half or more of the stitching or seam	123 124	
Shaded parts	Badly shaded parts. Shade variation within part or between parts.		209 210
Packaging	Any hood not packaged in accordance with contract or purchase order.	125	
Sizing	Any measurement on the hood that is out of tolerance: Affecting appearance Affecting serviceability	 126	 211
Label heat transfer	Missing, incorrect, or illegible or not placed where specified.	127	
Barcode (if applicable)	Omitted or not readable by scanner. Human readable interpretation (HRI) omitted. Not visible on folded, packaged item. Attachment causes damage to the end item.	128 129 130 131	

4.6 End item testing. Material, components and end items shall be tested for the characteristics listed in Table VII wherever applicable, the methods of testing as listed in Table VII shall be followed. All test reports shall contain the individual values utilized in expressing the final results. Unless otherwise noted, each lot of component material or end item must be tested, and the lot shall be unacceptable if one (1) or more sample units fail to meet any requirements specified. The sample size shall be in accordance with the following:

Lot Size (yards)	Sample Size (sample units)
800 or below	2
801-10,000	3
10,000 and over	4

TABLE VII. End item tests.

Characteristics	Requirement Reference	Test Method
COMPONENT (Material)		
Weight	Table I	ASTM D3776/D3776M
Thickness	Table I	ASTM D1777, Opt 1
Dimensional Stability After Three (3) cycles)	Table I	AATCC 135, (1)(II)(Aii)
Bursting Strength	Table I	ASTM D3787
Air Permeability	Table I	ASTM D737
Pilling	Table I	ASTM D3512/D3512M
Flame Resistance (initial and after 25 launderings) After flame Afterglow Char Length	Table I	ASTM D6413/D6413M 1/, 2/
Heat Transfer Performance (formerly Thermal Protective Performance)	Table I	ASTM F2700, Spaced, relaxed single layer 3/
Wicking	Table I	4.6.1
pH	3.7	AATCC 81
Visual shade matching	3.8	4.6.2
Colorfastness (all components): Laundering After Three (3) cycles Light (after 40 AFU or 170 kJ/m^2nm @ 420 nm) Crocking Perspiration (acid & alkaline)	Table II	 AATCC 61 Test 2A 4/ AATCC 16.3 Option 3 5/ AATCC 8 6/ AATCC 15 4/
Labile sulfur	3.8.2	4.6.3 (see 6.5) 3/
Toxicity	3.13	4.6.4
END ITEM		
Appearance after home laundering Three (3) cycles (cloth and seams)	3.7	AATCC 143, (1)(II)(Aii), 7/, 3/
Care label print durability After 25 launderings	3.11.1	AATCC 135 (1)(II)(Aii) 8/

1/ Home laundering shall be conducted with AATCC 135, (1)(II)(Aii)
2/ Flammability testing after 25 launderings is required for all materials at First Article inspection and at the start of any new contract. Flammability testing after 25 launderings is required for lot testing on any materials that have a flame retardant finish.
3/ Testing during product demonstration model (PDM) testing or first article inspection only.
4/ Rated using AATCC Evaluation Procedure 1, Gray Scale for Color Change and AATCC Evaluation Procedure 2, Gray Scale for Staining.
5/ Rated using AATCC Evaluation Procedure 1, Gray Scale for Color Change
6/ Rated using AATCC Evaluation Procedure 8, AATCC 9-Step Chromatic Transference Scale
7/ Cloth rated using AATCC 3-D smoothness appearance replicas and seams rated using the AATCC photographic seam smoothness replicas.
8/ The label shall be visually checked for readability after laundering.

4.6.1 Wicking. A sample size of 6-inches by 1-inch will be cut with the 6-inch cut measured in the wale direction. A 500 milliliter Erlenmeyer flask shall be filled with 200 milliliters of colored water (food coloring used shall be a contrasting color to the cloth material to make the water level visible on the sample). The top edge of the sample will be pierced with a long straight pin and the sample then suspended from the top of the flask. After 1-minute remove the sample from the flask and measure water level on sample in inches and record. Return sample to the flask. Repeat the following measurement at 3-minutes, 5-minutes and each 5-minute interval until the water level reaches 6-inches or 1-hour has elapsed. Values are reported as inches per hour. A minimum of three (3) samples shall be tested with the average value reported along with each individual measurement.

4.6.2 Visual shade matching. The color and appearance of the cloths as specified in 3.6.1 shall match the standard sample when viewed using the AATCC Evaluation Procedure 9, Option A, with sources simulating artificial daylight D75 illuminant with a color temperature of 7500K (± 200) illumination of 100 (±20) foot candles, and shall be a good match to the standard sample under incandescent A illuminant with a color temperature of 2856K (± 200).

4.6.3 Presence of labile sulfur test. In the determination of presence of labile sulfur in textile materials with lead acetate, two 1.50 (± 0.01) gram samples from each material submitted for evaluation shall be tested. Each of the two samples shall be cut into very small pieces and placed into separate test tubes. The samples shall be submersed in a stannous chloride solution that contains 100 grams of stannous chloride crystals ACS in 100 milliliters of hydrochloric acid ACS (35 percent concentration) and 50 milliliters of distilled water. A filter paper wet out with a 5.0 percent lead acetate solution shall be placed over the top of the test tube. The lead acetate solution contains 5.0 grams of lead acetate CP reagent grade and enough distilled water to make up a 100 milliliter solution; if the solution is not clear add a few drops (one at a time) of glacial acetic acid until the solution is clear. The test tube containing the textile sample, stannous chloride and wet filter paper shall be heated over a low flame until the solution is boiling. The solution should not be heated for more than 15 seconds. A brown to black stain on the filter paper should be evaluated as follows:

Free - The filter paper shows no discoloration or staining of any kind.
Slight - The filter paper shows a light tan to light brown discoloration stain.
Moderate - The filter paper shows a dark brown discoloration stain.
Severe - The filter paper shows a black color stain.

4.6.4 Toxicity test. When required, (see 6.2), an acute dermal irritation study and a skin sensitization study shall be conducted. When the results of these studies indicate the light weight protective hood FR, is not a sensitizer of irritant, a Repeat Insult Patch Test shall be performed in accordance with the Modified Draize Procedure (See 2.3). If the toxicity requirement (see 3.9) can be demonstrated with historical use data, toxicity testing may not be required (see 6.2).

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of material is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Department or Defense Agency,

or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD- ROM products, or by contacting the responsible packaging activity.

6. NOTES

6.1 Intended use. The use of the light weight protective hood is to be worn by military personnel in the United States Army and Air Force.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this Purchase Description.
b. Type and color required (see 1.2 and 3.6.1)
c. The specific issue of individual documents referenced (see 2.2)
d. When first article is required (see 3.1 and 4.2)
e. Conformance inspection acceptance quality limit (see 4.3)
f. Label and barcoding requirements if applicable (see 3.11)
g. Inspection Conditions (see 4.4)
h. When toxicity testing is required (see 3.13)
i Packaging (see 5.1)

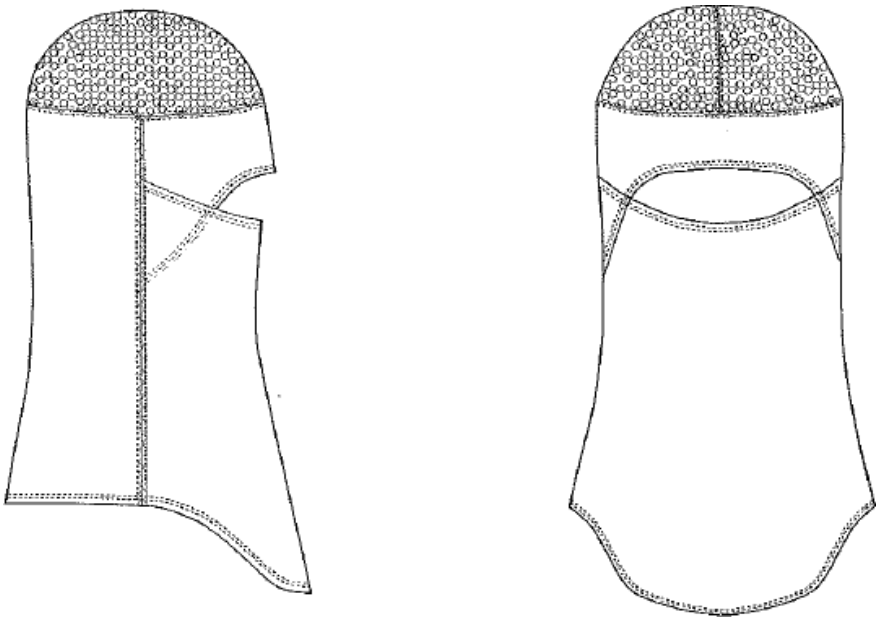
6.3 First article. When a first article inspection is required (see 3.1), it will be inspected and approved under the appropriate provisions of FAR 52.209-4. The first article should be a preproduction sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.4 Standard sample. For access to standard samples, address the contracting activity issuing the invitation for bids or request for approval.

6.5 Replica set. The SDL Atlas Slub/Knot Replica Set is not available from their website at this time. Recommend calling customer service, 1-803-329-2110.

6.6 Certificate of compliance. The contracting activity may select to accept a certificate of compliance for stated requirement.

6.7 Subject term (keyword) listing.
Balaclava
Head wear



Side View **Front View**

FIGURE 3. Front and side views of the hood, protective, lightweight, flame resistant, Type II.

Custodian:
Army - GL

Preparing Activity:
Army – GL