INCH-POUND

GL-PD-08-12B
22 March 2011
SUPERSEDING
GL-PD-08-12A
October 5, 2010

PURCHASE DESCRIPTION

GLOVES, MEN'S AND WOMAN'S, LEATHER, LIGHT DUTY, UTILITY

This purchase description is approved for use by the Defense Supply Center, Philadelphia and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE.

1.1 Scope. This Purchase Description covers requirements for light duty work Gloves used by DoD personnel. Gloves may be worn alone, or for additional warmth under cold conditions, may be worn with the wool inserts covered by A-A-55119, or they may be used as wear over chemical protective handwear as covered by MIL-DTL-43976.

1.2 Classification. The Gloves will be available in one type in the following sizes:

1.2.1 Schedule of sizes: Small, Medium, Large, X-Large, XX-Large, XXX-Large

Note: The above sizes may be abbreviated as S, M, L, XL, XXL and 3XL.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 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, 4, or 5 of this specification, whether or not they are listed.

2.2 Government documents.

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- 55119 Glove Inserts, Cold Weather
A-A- 55126 Fastener Tape, Hook and Loop, Synthetic
A-A- 59826 Thread, Nylon

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-DTL-32075 - Label: For Clothing, Equipage, and Tentage, (General Use)
MIL-DTL-43976 - Gloves and Glove Set, Chemical Protective
MIL-PRF-5038 - Tape, Textile and Webbing, Textile, Reinforcing, Nylon

(Copies of these documents are available online at http://assist.daps.dla.mil/quicksearch/ or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

PURCHASE DESCRIPTIONS

GL/PD-10-16 - Modular Lightweight Load Carrying Equipment

(Copies of this document should be obtained from the contracting activity or as directed from the contracting activity.)

2.2.2 Other Government documents, drawings and publications. The following other Government documents, drawings, and publications 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.

(Copies of drawings are available from the Natick Soldier Center, ATTN: RDNS-WPW-C, Natick, MA 01760-5019.)

ENVIRONMENTAL PROTECTION AGENCY

Regulations for the Enforcement of the Federal Insecticide, Fungicide and Rodenticide Act (40 CFR Part 162)

(Copies are available online @ www.epa.gov/pesticides or from the Environmental Protection Agency, 1200 Pennsylvania Avenue, N.W., Washington, DC 20460.)

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 cited in the solicitation or contract.

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

AATCC Test Method 8 - Colorfastness to Crocking: AATCC Crockmeter Method
AATCC Test Method 61 - Colorfastness to Laundering, Accelerated
AATCC Evaluation Procedure 8 - AATCC 9-Step Chromatic Transference Scale
AATCC Evaluation Procedure 9 - Visual Assessment of Color Difference in Textiles Option A

(Copies of documents are available on line at www.aatcc.org or from the American Association of Textile Chemists and Colorists, P.O. Box 122215, Research Triangle Park, NC 27709-2215.)

AMERICAN SOCIETY FOR QUALITY (ASQ)

ANSI/ASQ Z1.4 - Sampling Procedures and Tables for Inspection of Attributes

(Copies are available online at http://www.asq.org or from the American Society for Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203.)

ASTM INTERNATIONAL

ASTM D 1610 - Practice for Conditioning Leather and Leather Products for Testing
ASTM D 1814 - Test Method for Measuring Thickness of Leather Units
ASTM D 2209 - Test Method for Tensile Strength of Leather
ASTM D 2617 - Test Method for Total Ash in Leather
ASTM D 2807 - Test Method for Chromic Oxide in Leather (Perchloric Acid Oxidation)
ASTM D 2810 - Test Method for pH of Leather
ASTM D 2821 - Test Method for Measuring the relative Stiffness of Leather by Means of a Torsional Wire Apparatus
ASTM D 3495 - Test Method for Hexane Extraction of Leather
ASTM D 4705 - Test Method for Stitch Tear Strength of Leather, Double Hole
ASTM D 5052 - Test Method for Permeability of Leather to Water Vapor
ASTM D 6076 - Test Method for Shrinkage Temperature of Leather
ASTM D 6193 - Practice for Stitches and Seams

(Copies of documents are available online at www.astm.org or from the ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959.)

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. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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

3.3 Recycled, recovered, or environmentally preferable materials**.** Recycled recovered or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the requirements of this document and promotes economically advantageous life cycle costs.

3.4 Material.

3.4.1 Leather. The leather shall be full grain, chrome tanned cattlehide.

3.4.1.1 Thickness. The thickness of the cattlehide leather for the glove, palm patch and binding shall be 2.25 (± 0.50) ounces when tested as specified in 4.4. (Note: 1 ounce = 1/64 inch)

3.4.1.2 Color. The color of the finished leather shall be Foliage Green 504, and shall be drum dyed, struck through from grain to flesh and tested as specified in 4.4.

3.4.1.3 Colorfastness to crocking. The leather shall show fastness to dry and wet crocking equal to or better than the standard sample. When no standard sample is available the leather shall show a minimum rating of 4.0 for dry crocking and minimum of 3.0 for wet crocking using AATCC Evaluation Procedure 8, AATCC 9 Step Chromatic Transference Scale. The leather shall be tested for resistance to dry and wet crocking as specified in 4.4.

3.4.1.4 Finish. The leather shall be soft and pliable. Application of a finish to the grain surface is prohibited. If necessary, the flesh side of the leather shall be dry buffed and shaved to obtain a smooth, clean surface and uniform thickness in all areas. Variations in color on the flesh side resulting from buffing or shaving are permissible.

3.4.1.5 Water resistant. The leather shall be treated with a water resistant compound. After the water resistant compound has been applied, the leather shall not be exposed to soaps, detergents, wetting agents, or surfactants.

3.4.1.6 Stitch tearing strength. At least 80 percent of the specimens tested shall have a stitch tearing strength of not less than 17 pounds for the leather when tested as specified in 4.4.

3.4.1.7 Elongation. At least 80 percent of the specimens tested shall have an elongation of not less than 25 percent at a load of 25 pounds. Any specimen which ruptures or exhibits grain crack below 25 pounds shall be reported as a failing specimen. Testing shall be tested as specified in 4.4.

3.4.1.8 Shrinkage. The leather shall not shrink before the temperature reaches 98°C (± 0.5°C), nor shall the leather shrink when subjected to a temperature of 98°C (± 0.5 °C) for a period of 30 seconds when tested as specified in 4.4.

3.4.1.9 Stiffness. At least 80 percent of the specimens tested shall have maximum stiffness value (torsional modulus) of 120 degrees before soaking and 135 degrees after soaking when tested as specified in 4.4.

3.4.1.10 Water absorption resistance. At least 80 percent of the specimens tested shall gain not more than 20 percent of their weight by water absorption when tested as specified in 4.4.

3.4.1.11 Oil absorption resistance. The leather shall show no evidence of oil absorption when tested as specified in 4.4.

3.4.1.12 Moisture vapor transmission rate. The leather must meet component requirements for Moisture Vapor Transmission Rate (MVTR). At least 80 percent of the specimens tested shall have a MVTR value of not less than 500 grams/square meter/24 hours when tested as specified in 4.4.

3.4.1.13 Chemical requirements. The leather shall conform to the chemical requirements in Table I when tested as specified in 4.4.

TABLE I. Chemical requirements

Characteristics	Minimum	Maximum
Hexane soluble material, percent 1/		25.0
Chromic oxide, percent 1/	3.0	
pH value	3.3	
Total ash, percent 1/		9.0

1/ Calculated on moisture-free basis.

3.4.2 Hook and loop. The closure at the second finger, back of hand side, of the glove shall have hook attachment and the thumb side of the glove shall have the loop to allow for adjustment for a tighter fit. The hook and loop shall conform to provided pattern and Type II, Class 1 or Class 4 of A-A-55126. The color of the hook and loop shall be Foliage Green 504 (see 6.6).

3.4.3 Webbing loop/ pull tab. The webbing for the loop shall be MIL-PRF-5038 3/8 inch Type III webbing. The webbing shall be a shuttleless construction and shall be Class 1A or Class 2. The webbing loop shall be approximately 3 1/4 inch in length and the ends shall be stitched approximately 2 inches apart to the glove cuff edge to form a loop at wrist for means of attachment to the MOLLE (Modular Lightweight, Load Carrying Equipment). The webbing loop is sewn lengthwise in half to be 3/16 inch for approximately 1 1/8 inches at center. The unfolded raw edges shall be stitched into the glove, under the glove edge, at the palm pattern piece, leaving a gap of approximately 1 inch to form loop. The webbing color shall be Foliage Green 504 (see Figure 1).

3.4.4 Thread. The thread for stitching and hemming shall be nylon conforming to A-A-59826, Type II, Class B (Type I and II), with approved non-wicking finish, Tex size 51, 2 or 3 ply (size B), and shall be Foliage Green 504 in color.

3.5 Label. Each Glove shall have a combination size and identification label conforming to Type VI, Class 4 of MIL-DTL-32075, and the label shall show colorfastness to laundering when tested in accordance with AATCC 61. The label shall be attached at the wrist hem and shall include the following information:

Gloves, Men's and Women's, Light Duty, Utility
Contract No.
Contractor's Name
Size

3.6 Instruction form. A printed paper "Instruction Form" containing the information listed below shall be inserted in each right-hand Glove:

INSTRUCTION FORM

Gloves shall be worn alone or with wool inserts
Fit gloves snugly but not tightly over the wool inserts
Adjust strap for fit
Gloves are available in six sizes: S, M, L, XL, XXL, 3XL.
Dry gloves and glove inserts separately away from extreme heat or flame
Use gloves for light work and mosquito protection
Gloves are also to be worn over chemical protective field handwear
For heavy work (construction, stevedoring, etc.), use Gloves, Men's and Women's, Heavy Duty
Gloves are water resistant treated, but are not waterproof

3.6.1 Bar code label/tag. If applicable, each item shall be individually barcoded with a Type VIII, Class 17 label/tag in accordance with MIL-DTL-32075. The label/tag shall be located so that it is completely visible on the item when it is folded and/or packaged as specified and shall cause no damage to the item (see 6.2).

3.7 Design. The gloves shall be unlined, all leather, slip on Gunn Cut style with wing thumb. The glove shall be inseam sewn and the glove edge shall be inseam sewn with leather binding and then shall be turned over and hemmed. The glove shall have a slit opening which shall be turned over and hemmed with a hook and loop tab for adjustability on the back of the wrist. The glove shall be made from full grain cowhide leather with a thickness of 2.25 (± 0.5) ounces with low water retention. It shall be Foliage Green 504 in color with a reverse full grain cowhide palm patch. Palm patch shall provide seam reinforcement for thumb and index finger. The thickness of the leather binding shall be 2.25 (± 0.5) ounces and the width shall be 11/16 inches wide (± 1/16) inches and shall be Foliage Green 504 in color. The glove shall also have a 3/8 inch nylon webbing loop at wrist for means of attachment to the MOLLE, etc.

3.8 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 working pattern. Minor modifications are permitted to accommodate manufacturing procedures, however, the design and finished measurements must be maintained.

3.8.1 List of pattern parts. The components of the glove shall be cut from materials specified in accordance with the parts specified in Table II.

TABLE II. List of pattern parts

Material	Pattern nomenclature	Cut parts
Leather	Back	2
	Thumb	2
	Fingers	2
	Palm	2
	Palm Patch A	2
	Palm Patch B	2
	Leather Strap	2
Hook and Loop	Hook and Loop	2 of each

3.9 Construction.

3.9.1 Stitches, seams, and stitching. Stitches, seams, and stitching types shall conform to ASTM D 6193. Seam allowances as specified shall be maintained with seams sewn so that raw edges, twists, pleats, or puckers will not result. All seams shall start and finish evenly. Ends of a continuous line of stitching shall be overlapped not less than 1/2 inch. The seam allowance shall be no less than 1/8 inch with a tolerance of +1/16 inch (see 6.2).

3.9.1.1 Type 301 stitching. Ends of all external seams and stitching, when not caught in other seams or stitching, shall be backtacked not less than 1/4 inch. Thread tension shall be maintained so that there will be no loose stitching resulting in loose bobbin or top thread, or excessively tight stitching resulting in puckering of the materials sewn. If not backstitched, then separate 1/4 inch bartacking can be used to prevent unraveling.

3.9.1.1.1 Repairs of Type 301 stitch. Repairs of Type 301 stitching shall be as follows:

a. When thread breaks or bobbin run-outs occur during sewing, the stitching shall be repaired by restarting the stitching a minimum of 1/2 inch back of the end of the stitching. When making these repairs, the ends of the stitching are not required to be backstitched.

b. Thread breaks or two or more consecutive skipped or run-off stitches noted during inspection of the item shall be repaired by overstitching. The stitching shall start a minimum of 1/4 inch back of the defective area, continue over the defective area, and continue a minimum of 1/2 inch beyond the defective area onto the existing stitching. Loose or excessively tight

stitching shall be repaired by removing the defective stitching without damaging the material and re-stitching in the required manner.

3.9.2 Topstitching. Topstitching is a minimum distance of 1/32 inch and a maximum distance of 3/32 inch from the finished edge of the seams.

3.9.3 Stitches per inch. The stitches per inch shall be between 9 – 12 stitches and shall be type 301.

3.9.4 Sewing instructions. The glove shall be inseam sewn for all stitching except for the stitching at the cuffs after the leather binding has been attached and at the attachment of the fingers. Stitching of the palm patches and at the fingers shall be two rows spaced approximately 1/8 inch apart. All other stitching shall be a single row. The leather strap shall be attached to the glove by stitching the strap under the binding and then folding it over and top stitching it for extra strength. The glove edge at the cuff shall have a leather binding attached to the edge that shall be turned and top stitched.

3.10 Use of automated apparel equipment. Automated apparel equipment may be used to perform any of the operations provided that the seam and stitch type are as specified and the finished item meets the Government requirements, except that trimmer attachments, other than thread undertrimmer, are not allowed.

3.11 Manufacturing operations requirements. The gloves shall be manufactured in accordance with good commercial practices. Contractor shall conform to the Government furnished patterns.

3.12 Figures. Figure 1 is furnished for information purposes only. If there are any inconsistencies between the specification and the figures, the specification shall govern.

3.13 Toxicity. Chemicals recognized by the Environmental Protection Agency (EPA) as human carcinogens shall not be used (see.4.6).

3.14 Workmanship. After completion of the final assembly, the glove shall be thoroughly cleaned and all thread scraps, lint and foreign matter shall be removed. The gloves shall not contain any fabric defects. The gloves shall be uniform in quality and shall be free from irregularities or defects which could adversely affect performance, reliability or durability. The gloves shall conform to the quality established by this specification.

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 inspection in accordance with 3.1 shall be inspected, examined for appearance, color and for the defects listed in Table III, glove dimensions in Table IV and tested for the characteristics in Table V.

4.3 Conformance inspection. Conformance inspection shall include examination for shade and appearance, inspection of components in 4.3.2.1 that cannot be inspected in the component testing specified in 4.4. Sampling for inspection shall be performed in accordance with ANSI/ASQ Z1.4, except where otherwise indicated (see 6.2).

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

4.3.2 End item examination. The finished examination sample size, acceptance quality limit (AQL) and acceptance criteria shall be as specified in the solicitation or contract (see 6.2).

4.3.2.1 In-process inspection. Inspection shall be made at any point or during any phase of manufacturing to determine whether the components are as specified or operations and/or assemblies are accomplished as specified. The Government reserves the right to exclude from consideration for acceptance any material or service for which in-process inspection has indicated non-conformance.

4.3.3 End item visual examination. The finished gloves shall be examined for the defects listed in Table III and for the dimensional measurements listed in Table IV. The lot size shall be expressed in units of gloves. The sample unit shall be one pair of gloves and selection shall be by pairs. Defects for pairing shall be classified as a single defect.

TABLE III. End item visual defects

Defect Description	Major	Minor
Leather:		
Color:		
Not specified color;		201
Color not uniform on grain side;		202
Color does not completely penetrate leather from grain side through flesh side.		203
Finish:		
Not full grain flesh side, not smooth or contains areas of coarse loose fiber.	101	
Grain surface has application of finish.	102	
Embossing other than a fine hair cell pattern.	103	
Printed design on leather does not match standard sample for fine hair cell pattern.		204

TABLE III End item visual defects- Continued

Defect Description	Major	Minor
Leather - continued:		
Cleanness:		
Spots or stains clearly noticeable affecting appearance	104	
Quality of leather:		
Not clean; stain or foreign matter 1/.	105	
Hard, boney, loose, spongy leather, hard scar, cut, hole (except a pinhole or needle hole), brittle, thin spot, brand, scratch, deep fat wrinkle, or grain damage which causes more than a 12 percent in total area of a side or more than a 6 percent loss in total area of a skin. 1/	106	
Hook and Loop:		
Not type or color specified.		205
Hole, cut, tear or rip, float, smash or other defects		
Affecting appearance		206
Affecting function	107	
Glove Hook not properly oriented. Having any cracks splits or splices	108	
Webbing Loop/ Pull tab:		
Not secure, not center cinched,	109	
Not type or color specified.		207
Cut, tear or rip, or other defects		
Affecting appearance		208
Affecting function	110	
Thread:		
Incorrect thread used	111	
Incorrect thread color		209
Construction: (applicable to all components unless otherwise indicated herein):		
Component misplaced, operation omitted, or component missing or not securely affixed.	112	
Mend in leather (i.e., patch- not applicable to restitched seam repair).	113	
Needle chews likely to develop into a hole.	114	
Seams and stitching:		
Open seams, needle cuts or holes, or row of stitching omitted.	115	
Open seam in single stitched seam - in any row of a double stitched seam not repaired as specified (when applicable).	116	
Not specified seam type.	117	
Not specified stitch type.	118	

TABLE III End item visual defects- Continued

Defect Description	Major	Minor
Seams and stitching - continued:		
Row of stitching omitted.	119	
Broken, skipped or missing thread or stitch, or conspicuous seam repair	120	
Loose stitch tension resulting in a loosely secured seam.	121	
Tight stitch tension resulting in cutting of leather or breaking of stitches when normal pull is applied.	122	
Ends of stitching not secured as specified.	123	
Gage of stitching irregular or not as specified,		
Affecting appearance.		210
Affecting function	124	
Any part caught in unrelated row of stitching	125	
One or two stitches per inch less than specified.		211
Three or more stitches per inch less than specified.	126	
Not backstitched where required.	127	
More than the specified maximum number of stitches per inch: damaging materials	128	
not damaging materials.		212
Any seam puckered, distorted, pleated, irregular, damaged, open, Uneven or crooked stitching	129	
Incorrect seam allowance	130	
Patch stitching sewn too far from the edge of the patch or missed the patch.	131	
NOTE: A seam shall be classified as open when one or more stitches joining a seam are broken or when two or more consecutive skipped or run-off stitches occur.		
Assembly detail:		
Incorrect trim	132	
Folds in seams	133	
Twisted seams of hems	134	
Glove not neatly laid off: wrinkles in shell fingers not completely opened.	135	
No inseam construction where specified.	136	
Seam at fingertip, poorly assembled seriously affecting serviceability (finger distorted or twisted affecting comfort of wearer or seam of finger may come in contact with object, etc.)	137	
Poorly assembled:		
Serviceable.		213
Not serviceable	138	
Thread ends not trimmed throughout glove.		214
Not constructed with specific number of pieces.	139	

TABLE III End item visual defects- Continued

Defect Description	Major	Minor
Assembly detail – continued:		
Difference in overall length between front and back of glove is more than 1/2 inch.	140	
Any construction defect that results in a malformed glove such as a twisted finger or thumb resulting in any seam lying in the palm area of the finger or thumb.	141	
When a finger or thumb is twisted and the seam is rotated to less than 45 degrees from the vertical and does not lie in the palm area.		215
Uneven cuffs		216
Difference in overall length between front and back of glove is less than 1/2 inch.		217
Shaded markings which shows on the outside		218
Workmanship:		
Gloves not matching, sewing or design not consistent. Any component part omitted, twisted, not specified size, missing, misplaced, or poorly shaped, incorrect seam allowance or measurements out of tolerance.	142	
Pairing:		
Right and left glove not of the same size or wide variation in appearance.	143	
Not tacked or joined together if specified.(see 6.2)		219
Two left/right hands in a pair	144	
Color or leather grain not matching.		220
Label, Instruction Slip and Label/tag:		
Omitted, incorrect, illegible, or misplaced.	145	
Size and identification label not securely sewn in wrist hem.	146	
Bar-codes omitted, not readable by scanner; human-readable interpretation (HRI) omitted or illegible.	147	
Bar code not visible on folded, packaged item.		221
Bar code attachment causes damage to the item.	148	
Marking: Omitted, illegible, or not in area specified	149	
Incorrect size labels	150	
Incorrect NSN number	151	

1/ Light well healed scratches or grub holes, light fat wrinkles, or slight stains shall not be classified as defects.

4.3.4 Dimensional examination. The finished glove shall conform to the dimensional measurements specified in Table IV. The measurements shall be taken on the palm side of the glove.

TABLE IV. Measurement of gloves (inches)

Size	Overall length 1/	Overall width 2/
Small	8	4-1/8
Medium	8-3/4	4-1/2
Large	9	4-7/8
X-Large	9-1/4	5
XX-Large	9-3/4	5-1/4
3XL	10	6-1/4
Tolerance	± 3/8	+1/4, -1/8

1/ Glove length shall be measured from tip of middle finger to edge of cuff, with hand back side facing down.
2/ The glove width shall be gently stretched out and measured 1/2 inch below the second and third digit finger crotch, with the palm patch side facing down.

4.4 Component testing. The methods of testing specified in ASTM wherever applicable and as listed in Table V, shall be followed. All test reports shall contain the individual values utilized in expressing the final result. The lot shall be rejected if any one of the following conditions exists:

a. More than three test specimens fail to meet stiffness requirements.

b. More than three specimens fail to meet stitch tearing strength requirements or more than three specimens fail to meet elongation requirements.

c. One or more specimens fail to meet any of the remaining requirements applicable to the sample unit.

d. Any composite test result fails to meet the specified requirement.

4.4.1 Sampling Plan. The sampling plan for the required tests shall be as follows

Lot Size (sq.ft.)	Sample size
Up to 25,000 sq. ft.	15

TABLE V. End item and component testing

Material	Characteristic	Requirement Paragraph	Test Method
Leather Cattlehide	Material identification	3.4.1	Visual
	Thickness	3.4.1.1	ASTM D 1814
	Color	3.4.1.2	AATCC Evaluation Procedure 9, Option A 1/
	Colorfastness to crocking	3.4.1.3	AATCC-8
	Stitch tear strength	3.4.1.6	ASTM D 4705
	Elongation	3.4.1.7	ASTM D 2209
	Shrinkage temperature	3.4.1.8	ASTM D 6076
	Stiffness	3.4.1.9	4.5.1
	Water absorption resistance	3.4.1.10	4.5.2
	Oil absorption resistance	3.4.1.11	4.5.3
	MVTR	3.4.1.12	ASTM D 5052
	Hexane soluble material	3.4.1.13	ASTM D 3495
	Chromic oxide	3.4.1.13	ASTM D 2807
	pH value	3.4.1.13	ASTM D 2810
	Total ash	3.4.1.13	ASTM D 2617

1/ For visual shade matching. The color and appearance of the gloves shall match the standard sample when viewed using AATCC Evaluation Procedure 9, Option A, with sources simulating artificial daylight D75 illuminant with a color temperature of 7500 (± 200) °K illumination of 100 (± 20) foot candles, and shall be a good match to the standard sample under incandescent lamplight at 2856 (± 200) °K (see 6.4).

4.5 Methods of inspection.

4.5.1 Stiffness test.

a) Degree of Stiffness before soaking. Tested according to ASTM D 2821 except the specimens shall be pre-flexed as follows:

1. Loosen knob (G). Using knob (H) slowly rotate the top dial (K) in a counterclockwise direction until the specimen clamp indicator (I) shows that the specimen has been twisted 90°. Use a uniform rate of rotation that will take 4 to 5 seconds to twist the specimen through 90°.

2. Reverse rotation to the clockwise direction and continue rotating slowly until the specimen clamp indicator (I) has passed the original reference line indicated on the lower dial (J) by approximately 45°. Again reverse the direction of rotation and slowly realign the specimen clamp indicator (I) with the original reference line indicated on the lower dial (J).

3. Lock top dial (K) by turning knob (G) until tight, then reset dial (K) to read 270°.

4. Repeat the flexing operation by following steps 1, 2, and 3. When the second flexing cycle is completed, loosen knob (G), turn upper dial (K) slowly (4 to 5 seconds for 90° rotation) in a counterclockwise direction, using knob (H) until the specimen clamp indicator (I) shows 90° twist. Read the angle of torsion from the upper dial (K) and record the value to the nearest 5 degrees. The angle of torsion of each specimen shall be reported to the nearest 5 degrees.

b) Degree of stiffness after soaking. If the stiffness requirements specified for before soaking are not met, then do not test for stiffness after soaking. Any individual specimen exceeding the maximum stiffness values specified for before soaking shall not be tested for stiffness after soaking. The specimens shall be immersed in 1,000 mL of distilled water at 140 °F (± 5) °F for 20 hours (± 2) hours. Complete immersion of the specimens shall be accomplished by placing a floating cover on the vessel used for the immersion of the specimens. After the required immersion period, the specimens shall be removed from the water and reconditioned in accordance with standard atmospheric conditions as specified in ASTM D 1610. The reconditioned specimens shall be placed flesh side down on a rule graduated in decimal inches and the distance between the bench marks shall be measured to the nearest 0.05-inch. If the distance is 3.4 to 3.6 inches, test the specimen in accordance with ASTM D 2821 and the following exceptions.

If the distance is 3.2 inches or less, the specimen shall be reported as a test failure. If the distance between benchmarks is 3.25 to 3.35 inches, the specimen shall be stretched before testing. To stretch the specimen, place the specimen on the rule and align one of the benchmarks with a division line on the rule. Hold the specimen against the rule by placing the fingertip of one hand on the aligned benchmark. With the thumb and index finger of the other hand, lightly grip the specimen near the aligned bench mark, then slide the finger and thumb along the specimen to the other bench mark while exerting pressure on the specimen that is sufficient to obtain the required distance between the bench marks. If the required distance between the benchmarks has been obtained (3.4 inches to 3.6 inches), test the specimen in accordance with ASTM D 2821 and the exceptions starting at 4.6.1 a) section 3. If the distance between the benchmarks is greater than 3.6 inches discard the specimen and test a new specimen selected from the same 12 by 12 inch test sample of leather from which the discarded specimen was obtained. The new specimen shall be tested for stiffness before and after soaking. The test results obtained when the discarded specimen was tested for stiffness before soaking shall not be reported.

4.5.2 Water absorption resistance test. One 3-inch diameter specimen shall be tested from each 12 by 12 inch test area. Prior to testing, the specimen shall be allowed to reach moisture equilibrium in accordance with ASTM D 1610. A stainless steel 500 mL, 3-inch diameter, 5-inch long container with a rubber gasket and cover shall be used to test the specimen (See 6.5). The specimen shall first be weighed (to the nearest 0.01 gram) and then shall be placed inside the cover with the flesh side of the specimen next to the inside of the cover. Place the rubber gasket

inside the cover and against the grain surface of the leather specimen. Add 100 mL of distilled or de-ionized water at 23 °C to the container. Secure the cover with the specimen and gasket to the container. Invert the container so the water is against the grain surface of the specimen. Place the inverted container on a flat surface and allow it to remain in the inverted position for 30 minutes. At the end of 30 minutes place the container upright, remove the cover, and place it on a flat surface. The inside of the cover shall face the flat surface. Tilt the cover so the outer edge of the bottom is raised 1-1.5 inches from the flat surface, and allow it to drain for 5 minutes. After 5 minutes immediately remove the specimen from the cover, hold the specimen by its edge and shake briskly once to remove any free moisture from the surface of the specimen. Immediately re-weigh the specimen to the nearest 0.01 grams, and calculate the percent water absorption as follows:

$$\text{Percent water absorption} = \frac{(W\,2 - W\,1) \times 100}{W\,1}$$

Where:

W1 = Original weight of conditioned specimen
W2 = Weight of specimen after being subject to water

4.5.3 Oil absorption resistance test. One 4 by 4 inch test specimen shall be tested from each 12 by 12 inch test area. Place the specimen on a horizontal flat surface flesh side up. With a dropping bottle pipette, carefully place (do not drop) three small (approximately 3/16 inch diameter or 0.05 mL volume per drop) of Nujol (see 6.12) mineral oil on the flesh surface of the specimen. Each drop shall be in a different location. After 5 minutes immediately observe the drops from an angle of approximately 45° for evidence of penetration of the oil into the leather at the oil-leather interface or wicking of the oil into the leather at the edges of the drops. The mineral oil shall have a say bolt viscosity of 360-390 at 100°F specific gravity of 0.880/0.900 at 60°F.

4.6 Toxicity documents. All finishes/chemicals used to process the gloves shall be identified and accompanied by the appropriate Material Safety Data Sheet (MSDS) information. The use of chemicals recognized by the Environmental Protection Agency (EPA) as human carcinogens is prohibited.

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

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. These gloves are intended for light work duty and mosquito protection. They may be worn alone, or for additional warmth under cold conditions, may be worn with inserts covered by A-A-55119. The gloves are also intended for wear over chemical protective handwear covered by MIL-DTL-43976.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this purchase description.
b. Type and size required (see 1.2).
c. The specific issue of individual documents referenced (see 2.2 and 2.3).
d. When a first article is required (see 3.1, 4.2 and 6.3).
e. Bar coding requirements if applicable(see 3.6.1).
f.. Conformance inspection acceptance quality limits (see 4.3).
g. Inspection conditions if applicable (see 4.3.1)
h. When toxicity testing is required (see 4.6)
i. Packaging (see 5.1).

6.3 First article. When a first article is required, it shall be inspected and approved under the appropriate provision of Federal Acquisition Regulation (FAR) 52.209. 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 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 Samples. For access to samples and patterns address the contracting activity issuing the invitation for bids or request for proposal.

6.5 Container. The Type I, 500 mL, stainless steel lever lock container used with the Atlas Launder-Ometer (referenced in AATCC Test Method 61: Colorfastness to Laundering, Accelerated) is suitable for testing the leather for water absorption. The container can be purchased from the SDL Atlas L.L.C., 1813A Associate Lane, Charlotte NC 28217. Tel: 704-329-0911, email: info@sdlatlas.com.

6.6 Subject term (key word) listing.

Cattlehide
Handwear
Hand protection

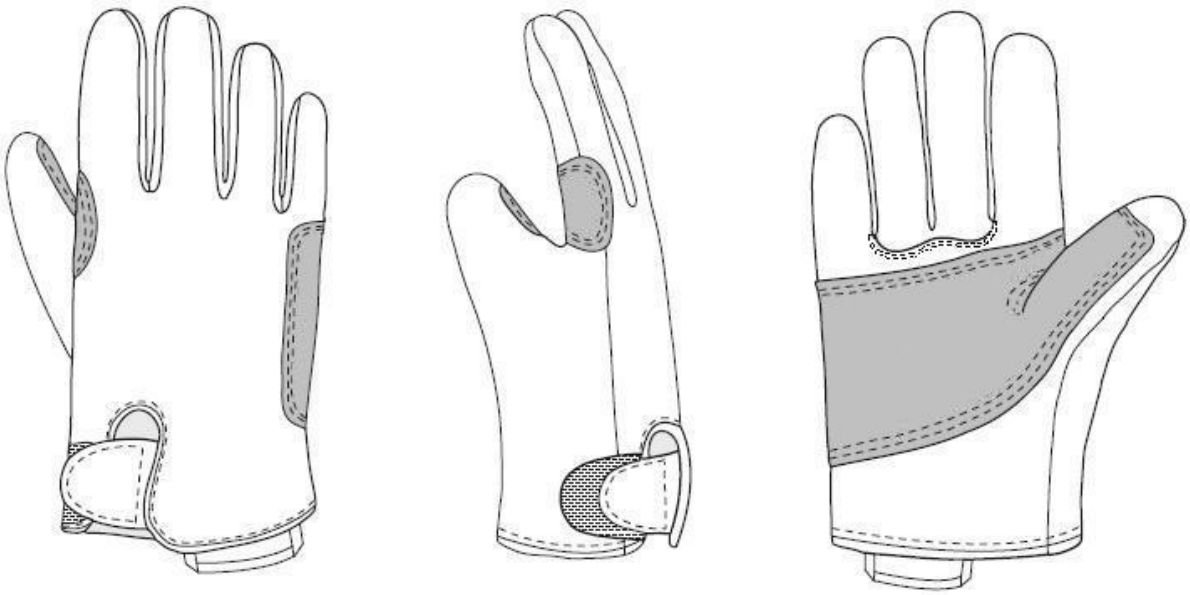

FIGURE 1. Gloves, Men's and Women's, Leather, Light duty, Utility

Custodian:
Army - GL

PREPARING ACTIVITY:
Army - GL