

MIL-STD-168B

26 May 1969

SUPERSEDING

MIL-STD-168A

31 December 1957

MILITARY STANDARD

VISUAL INSPECTION GUIDE

FOR

ALL-RUBBER GLOVES

EXCEPT SURGICAL



MIL-STD-168B
26 May 1969

DEPARTMENT OF DEFENSE
WASHINGTON, D. C. 20301

VISUAL INSPECTION GUIDE FOR ALL-RUBBER GLOVES EXCEPT SURGICAL
MIL-STD-168B

1. This Military Standard is mandatory for use by all Departments and Agencies of the Department of Defense.
2. Recommended corrections, additions, or deletions should be addressed to the Naval Ship Engineering Center, SEC 6124, Center Building, Prince George's Center, Hyattsville, Maryland 20782.

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FOREWORD

Government material procurement specifications primarily concern themselves with detailing composition, construction and necessary physical requirements. In such a diverse industry as that of rubber manufacturing, individual plants vary considerably in their production and quality control techniques. This document has been prepared to define the limits of acceptable quality for certain rubber gloves, regarding manufacturing defects other than such generalizations as "the workmanship shall be first class". Defects are likely to occur from many causes such as variation in the quality of the basic materials and variations in manufacturing processes and finishing operations. Therefore, the quality generalizations used in this document must of necessity cover a considerable range which represents the best available judgement. This document is issued as a practical yardstick which inspectors will use to appraise visually the quality of all-rubber gloves except surgical.

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1. SCOPE

1.1 Purpose. The primary objective of this document is to present word descriptions and photographs of possible defects in rubber gloves that may be presented for inspection. In addition, it provides a training aid for inspectors.

1.2 Scope. This document covers only visual defects for all-rubber gloves (except surgical) ascertained during visual inspection. It is not applicable to coated fabric gloves. Specifically covered are surface defects and out of tolerance dimensions.

1.2.1 In general, this document is not intended to take the place of a particular inspection procedure aid which may be provided for inspectors to verify conformance with a particular specification. The quality requirements specified in the basic specification are governing.

2. REFERENCED DOCUMENTS

2.1 The issues of the following documents in effect on the date of invitation for bids form a part of this standard to the extent specified herein.

STANDARDS

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-177 - Rubber Products, Terms for Visible Defects of.

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following document forms a part of this standard to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

AMERICAN SOCIETY FOR TESTING AND MATERIALS STANDARDS (ASTM)

D-120-Standard Specifications for Rubber Insulating Gloves

(Copies may be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pa. 19103.)

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

3. DEFINITIONS

3.1 General. The categories, major and minor defects, are as defined in MIL-STD-105.

3.2 Word descriptions. Word descriptions of visible defects used in this standard are in accordance with MIL-STD-177, except as noted herein.

3.3 Specific definitions. For the purpose of this standard, the following definitions apply:

3.3.1 Hand area of glove. The hand area includes the fingers, thumb, crotch, back of the hand and palm; that is, all the area forward of the break of the wrist.

3.3.2 Wrist area of glove. The wrist area includes all the area backward of the break of the wrist.

3.3.3 Below minimum dimension. Below minimum dimension refers to the lower dimension limit in the contract, order, or specification under which the glove is purchased. The dimensions specifically covered are: length, size, and thickness.

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3.3.4 Above maximum dimension. Above maximum dimension refers to the upper dimension limit in the contract, order, or specification under which the glove is purchased. The dimensions specifically covered are: length, size, and thickness.

3.3.5 Allowable dimension of the defect. In determining "over" or "under" for the type of defect, the largest dimension in any direction governs.

3.3.6 Misidentification. Misidentification is incorrect, missing, or illegible identification.

4. GENERAL REQUIREMENTS

4.1 Enlarged photographs of representative major and minor defects are included to aid the inspectors. All photographs are listed in order in LIST OF FIGURES and indexed in table I according to figure number, type of defect, area of defect and classification of defect. (Major or minor)

4.2 It should be borne in mind that this standard has included photographs of only the most common surface defects that might occur during the fabrication of all-rubber gloves. It is not feasible to obtain examples of all possible defects; further, the defects mentioned in this standard do not abrogate requirements of a particular specification, contract or order.

5. DETAIL REQUIREMENTS

5.1 Sampling. All gloves shall be subjected to one or more MIL-STD-105 sampling procedures, as specified by the purchaser, except where the material specification includes a sampling plan. Acceptance or rejection of the lot, sub-lot, or batch shall be on the same basis.

5.2 Inspection procedure. The following order of procedure is suggested.

5.2.1 Surface inspection. The primary purpose of this test is to check the general quality of the vulcanizate by visual inspection. Each of the sample pairs of gloves taken in accordance with 5.1 shall be subjected to thorough surface examination, inside and out, for construction, identification marking, visual defects and workmanship.

5.2.2 Measurement of length, size, and thickness. Length, size and thickness of the gloves shall be measured as specified by the contract, order, or specification under which the glove is purchased. If no method is specified, use ASTM-D-120.

5.3 Classification. The gloves covered by this standard are divided into four main classes as to usage; that is, electrical, acid, solvent, and general purpose, as shown in tables I and II and on figures 1 to 29, inclusive. The degree of seriousness of a defect depends upon the protection required in service. Acid and solvent classes are combined under one heading as their service protection requirements are similar.

Table I - Classification of visual defects

Figure	Description of defects	Area	Electrical		Acid and solvent		General purpose	
			Major	Minor	Major	Minor	Major	Minor
1 and 2	Abrasion bruise below minimum thickness	Hand	x		x		x	
3	Abrasion bruise below minimum thickness	Wrist	x			x		x
4	Acid cut below minimum thickness	Hand	x		x		x	

Table I- Classification of visual defects (Cont'd)

Figure	Description of defects	Area	Electrical		Acid and solvent		General purpose	
			Major	Minor	Major	Minor	Major	Minor
...	Acid cut below minimum thickness	Wrist	x					
...	Blister, under 1/64 inch.	Anywhere	x					
...	Blister, more than 1, under 1/64 inch	Anywhere	x					
5	Blister, over 1/64 inch.	Hand	x		x		x	
...	Blister, over 1/64 inch to 1/8 inch	Wrist	x					
6	Blister, over 1/8 inch.	Wrist	x		x		x	
7	Bloom	Anywhere	x					
7	Buckshot	Hand	x		x		x	
...	Buckshot	Wrist	x					
8 and 9	Contact scar, any size	Hand	x		x		x	
...	Contact scar, over 1 inch	Wrist	x		x		x	
...	Contact scar, under 1 inch	Wrist	x					
10	Crease	Anywhere	x					
...	Cuff missing	Wrist	x		x		x	
...	Cuts	Anywhere	x		x		x	
11	Dirt, over 1/4 inch.	Anywhere	x		x		x	
13	Dirt, over 1/64 inch.	Hand	x		x		x	
12 and 13	Dirt, 1/64 to 1/4 inch.	Wrist	x			x		x
...	Dirt, under 1/64 inch	Anywhere	x					
...	Exudation	Anywhere	x			x		x
...	Hole	Anywhere	x		x		x	
15	Lump, over 1/4 inch.	Anywhere	x		x		x	
14 and 15	Lump, over 1/16 inch.	Hand	x		x		x	
...	Lumps, 1/64 to 1/16 inch, more than 2 lumps	Hand	x		x		x	
...	Lumps, under 1/16 inch, 1 or 2 lumps	Hand	x			x		x
...	Lumps, under 1/16 inch	Wrist	x					
14	Lump, 1/16 to 1/4 inch	Wrist	x			x		x
...	Misidentification	...	x			x		x
...	Pairing, faulty	...	x			x		x
...	Patches	Anywhere	x		x		x	
16	Pinch	Hand	x		x		x	
17 and 18	Pinch	Wrist	x			x		x
19	Pit, under 1/64 inch below minimum thickness or more than 1 pit	Anywhere	x		x			x
19	Pit, over 1/64 inch.	Anywhere	x		x		x	
7	Pockmark	Hand	x		x		x	
...	Pockmark	Wrist	x			x		x
20 and 21	Rings below minimum thickness	Anywhere	x		x		x	
...	Roll (cuff edge) missing (where roll is specified) or loose, no adhesion	Wrist	x		x		x	
22	Roll (cuff edge) Blister under 1/4 inch	Wrist	x					
23	Roll (cuff edge) Blister 1/4 to 1 inch	Wrist	x			x		x
...	Roll (cuff edge) over 1 inch	Wrist	x		x		x	
24 and 25	Run or ridge, no large beads	Anywhere	x			x		x

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<u>Figure</u>	<u>Description of defects</u>	<u>Area</u>	<u>Electrical</u>		<u>Acid and solvent</u>	<u>General purpose</u>	
			<u>Major</u>	<u>Minor</u>		<u>Major</u>	<u>Minor</u>
...	Runs with large beads (see lumps.						
26	Snapback, one.	Anywhere	x				
26	Snapback, more than 1	Anywhere	x			x	x
27	Stain.	Anywhere	x			x	x
...	Tackiness	Anywhere	x		x	x	
...	Tear	Anywhere	x		x	x	
28 and 29	Wash-off, weak spot, below minimum thickness.	Hand	x		x	x	
1 89	Wash-off, weak spot, below minimum thickness.	Wrist	x			x	x

Table II - Classification of dimensional defects (see 5.2.3)

<u>Dimension</u>	<u>Description of defect</u>	<u>Electrical</u>		<u>Acid and solvent</u>	<u>General purpose</u>	
		<u>Major</u>	<u>Minor</u>		<u>Major</u>	<u>Minor</u>
Length	Over 1/4 inch above maximum	x		x	x	
	Under 1/4 inch above maximum		x			x
	Over 1/4 inch below minimum	x		x	x	
	Under 1/4 inch below minimum		x		x	x
Size	Over 1/8 inch above maximum	x		x	x	
	Under 1/8 inch above maximum		x			x
	Over 1/8 inch below minimum	x		x	x	
	Under 1/8 inch below minimum		x		x	x
Thickness	Over 1/32 inch above maximum	x		x	x	
	Under 1/32 inch above maximum		x			x
	Over 1/64 inch below minimum	x		x	x	
	Under 1/64 inch below minimum	x		x		x

custodians:

Army - GL
 Navy - SH
 Air Force -82

Preparing activity:

Navy-SH
 (Project 8415-0316)

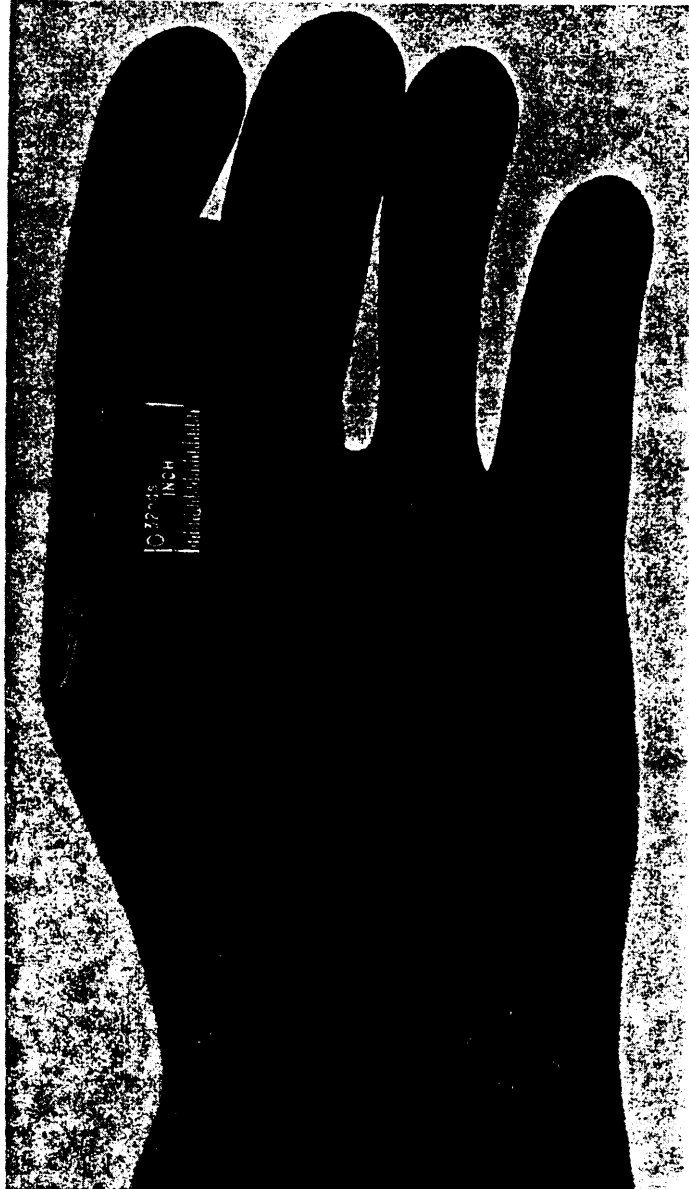
Review activities:

Army - GL
 Navy - SH, SA
 Air Force - 82, 85

User activities:

Navy - MS, MC, YD
 Air Force - 11

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**Figure 1. Abrasion bruise below minimum thickness.
Hand area-major, all classes.**

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**Figure 2. Abrasion bruise below minimum thickness.
Hand area-Major, all classes.**

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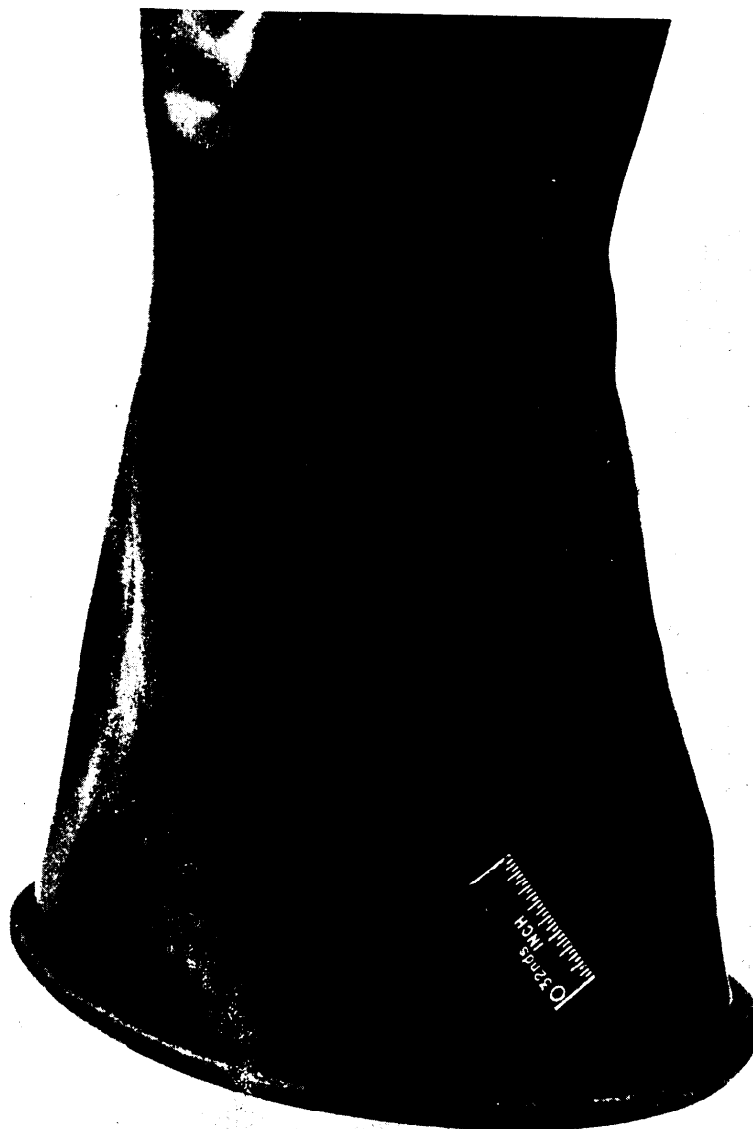


Figure 3. Abrasion bruise below minimum thickness wrist area.
Major-Electrical.
Minor-Other classes.

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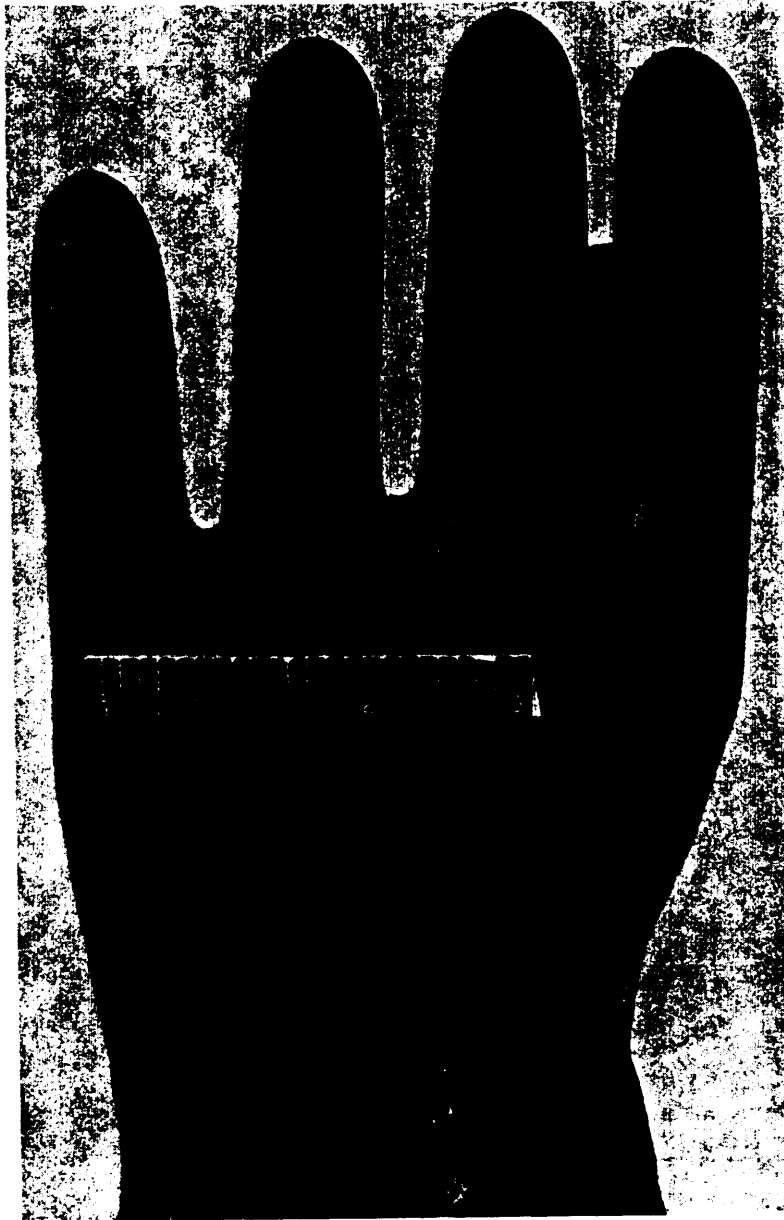


Figure 4. Acid cut below minimum thickness.
Hand area-Major, all classes.

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**Figure 5. Blister over 1/64 inch (whether open, as shown, or closed).
Hand area-Major, all classes.**

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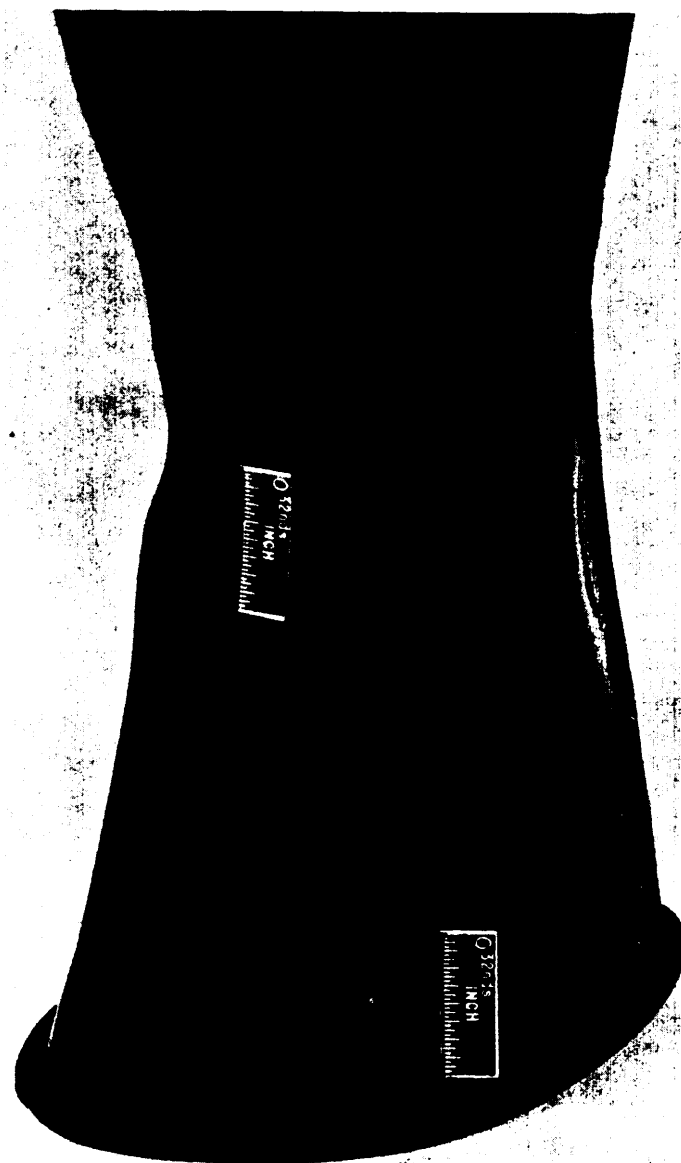


Figure 6. Blister over 1/8 inch.
Wrist area-Major, all classes.

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Figure 7. Buckshot or pockmarks.
Hand area-Major, all classes.

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Figure 8. Contact scar.
Hand area-Major, all classes.

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Figure 9. Contact scar.
Hand area-Major, all classes.

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Figure 10. Crease.
Hand area-Major, electrical.
Minor, other classes.
Wrist area-Major, electrical.
Minor, other classes.

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**Figure 11. Dirt, over 1/4 inch.
Major-all classes.**

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Figure 12. Dirt.
Major-Electrical.
Minor-Other classes.

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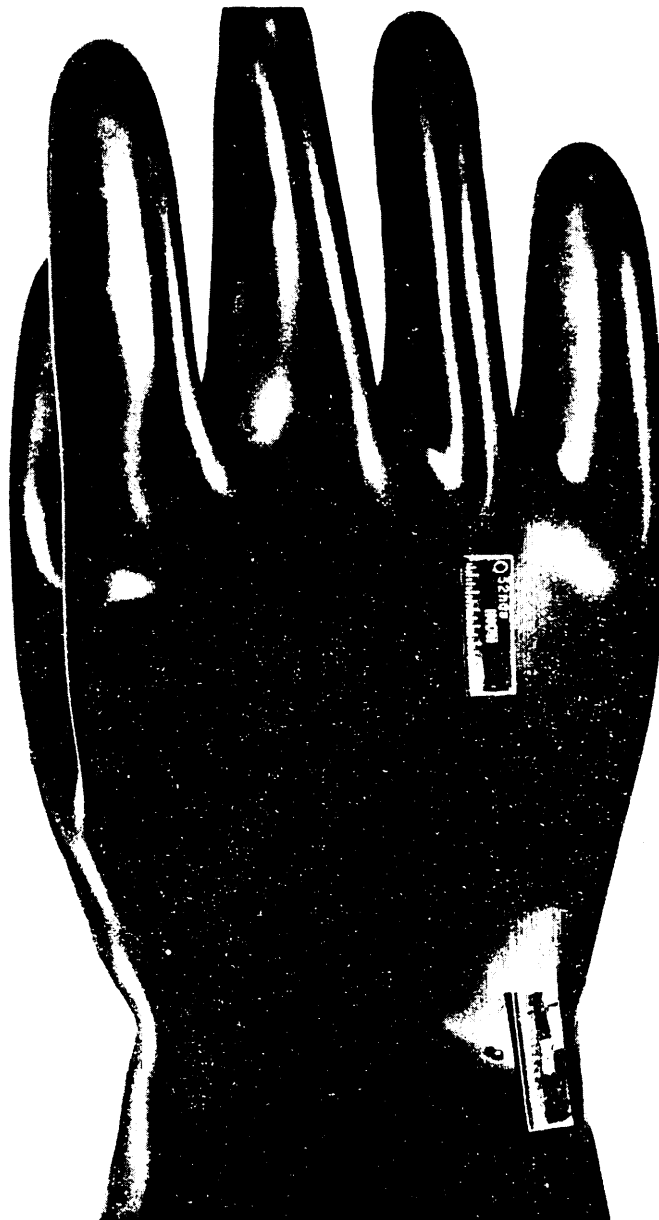
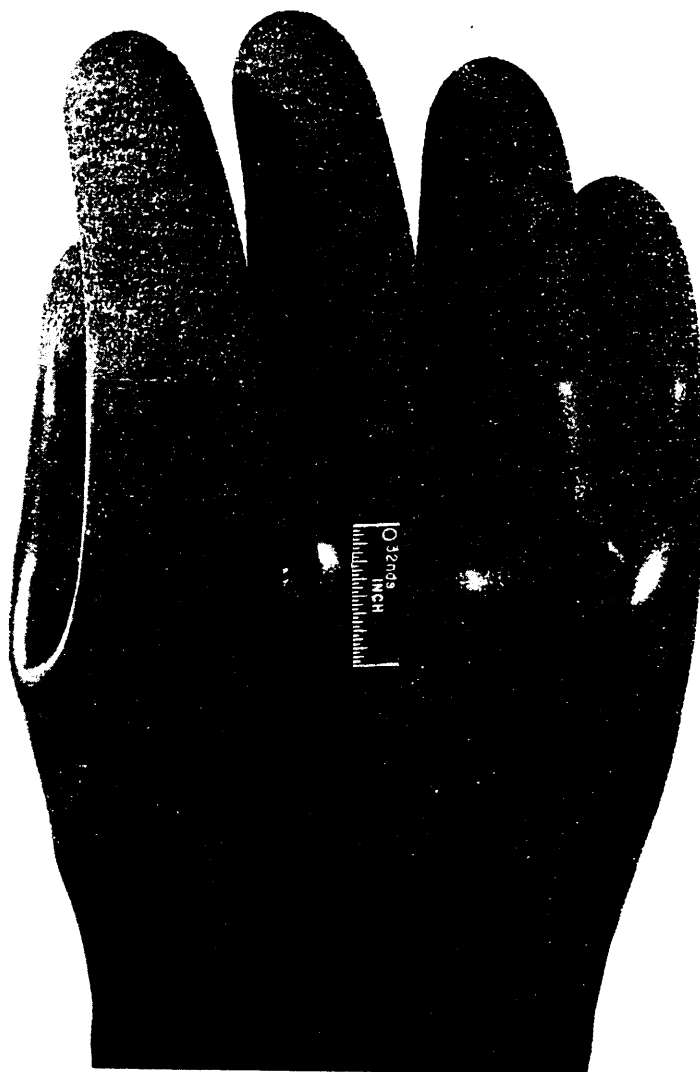


Figure 13. Dirt.
Top example-Major, all classes.
Bottom example-Major, electrical.
Minor, Other classes.

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Figure 14. Lump, over 1/16 inch.
Hand area-Major, all classes.
(Size lump shown, if in wrist area, would be major for electrical and
minor for other classes.)



**Figure 15. Lump, over 1/4 inch.
Anywhere-Major, all classes.**

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Figure 16. Pinch.
Hand area-Major, all classes.

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Figure 17. Finch.
Wrist area. -Major, electrical.
Minor, other classes.

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Figure 18. Pinch.
Wrist area-Major, electrical.
Minor, other classes.

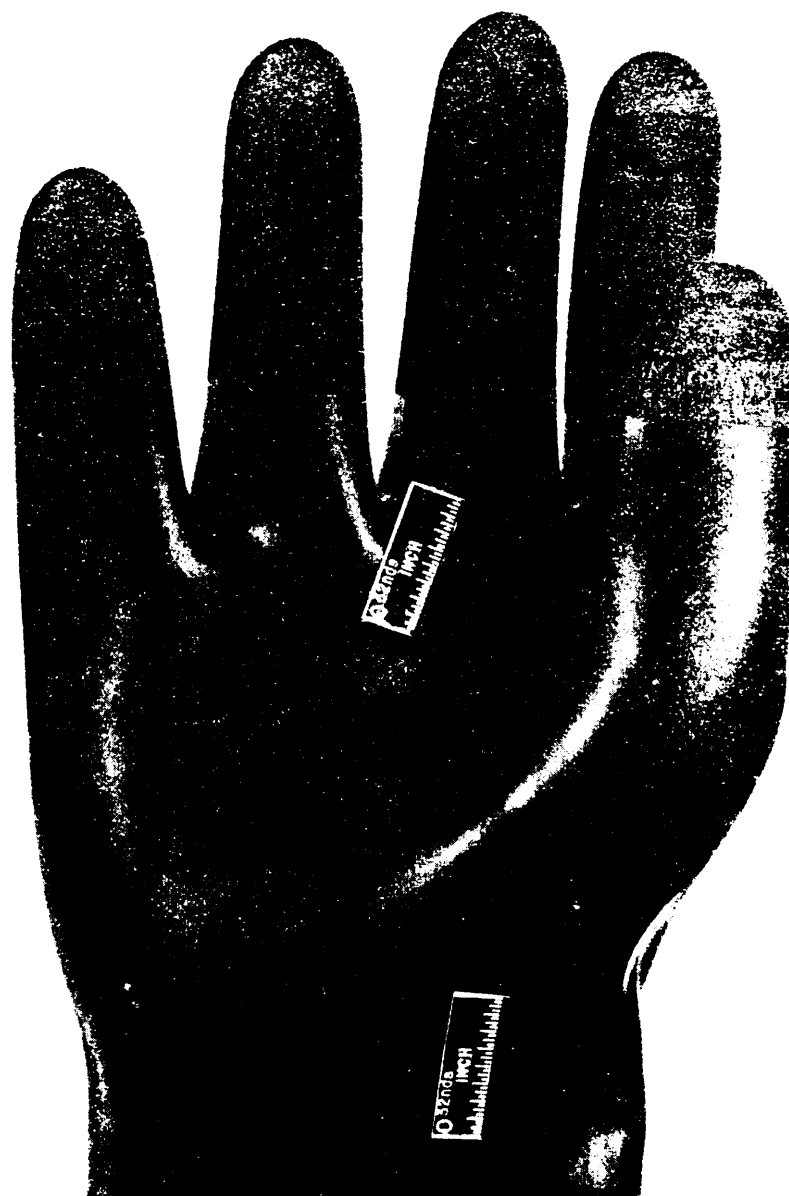


Figure 19. Pit.
Under 1/64 inch below minimum thickness or more than one pit, anywhere:
Major-Electrical, acid and solvent.
Minor-All-purpose.
Over 1/64 inch, anywhere-Major, all classes.

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Figure 20. Rings, below minimum thickness.
Major-All classes.



Figure 21. Rings, below minimum thickness.
Major-All classes.

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Figure 22. Roll blister under 1/4 inch.
Major-Electrical.
Not a defect - Other classes.

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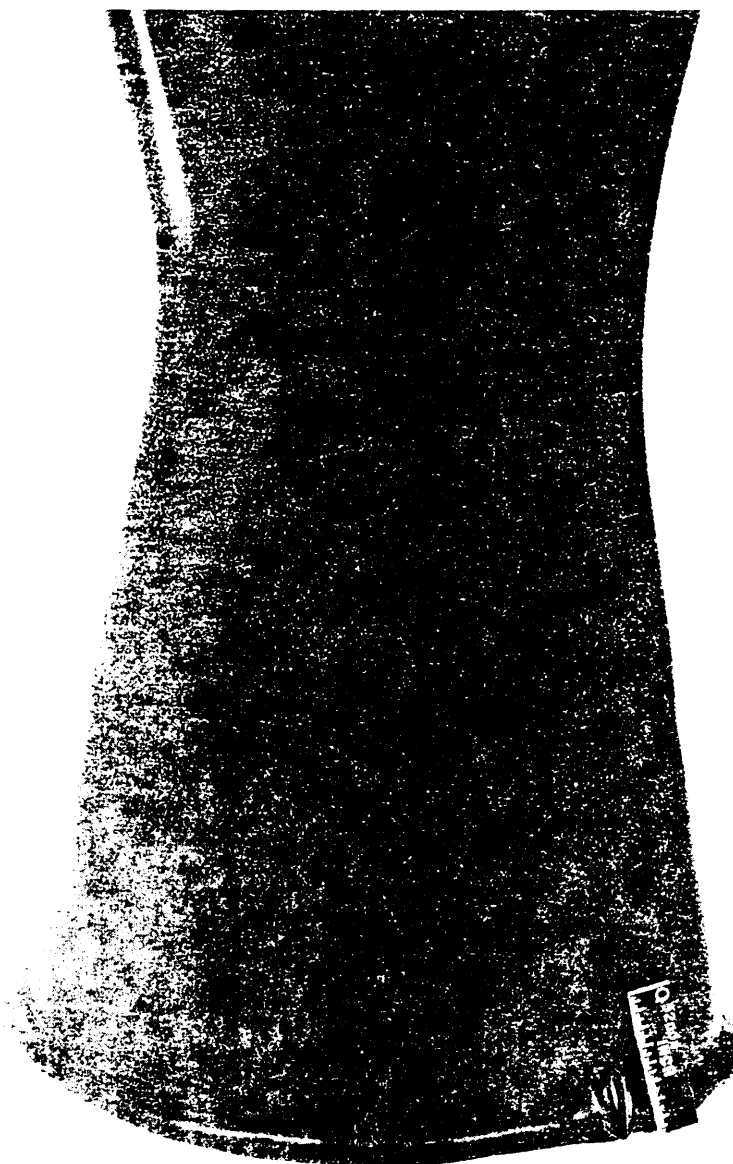


Figure 23. Roll blister 1/4 to 1 inch.
Major-Electrical.
Minor-Other classes.

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**Figure 24. Run; no large bead.
Major-Electrical.
Minor-Other classes.**

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Figure 25. Run; no large bead.
Major-Electrical.
Minor-Other classes.

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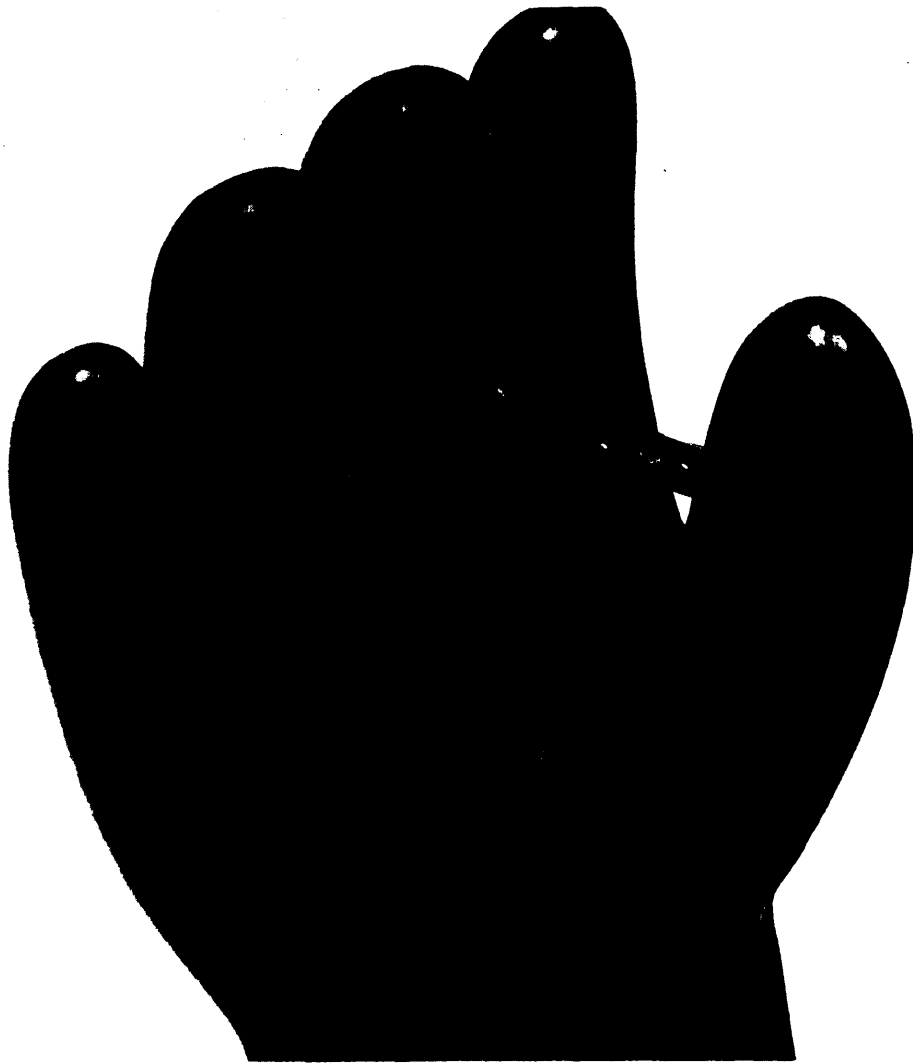


Figure 26. Snapback.
One-Major, electrical.
More than one-Minor, other classes.

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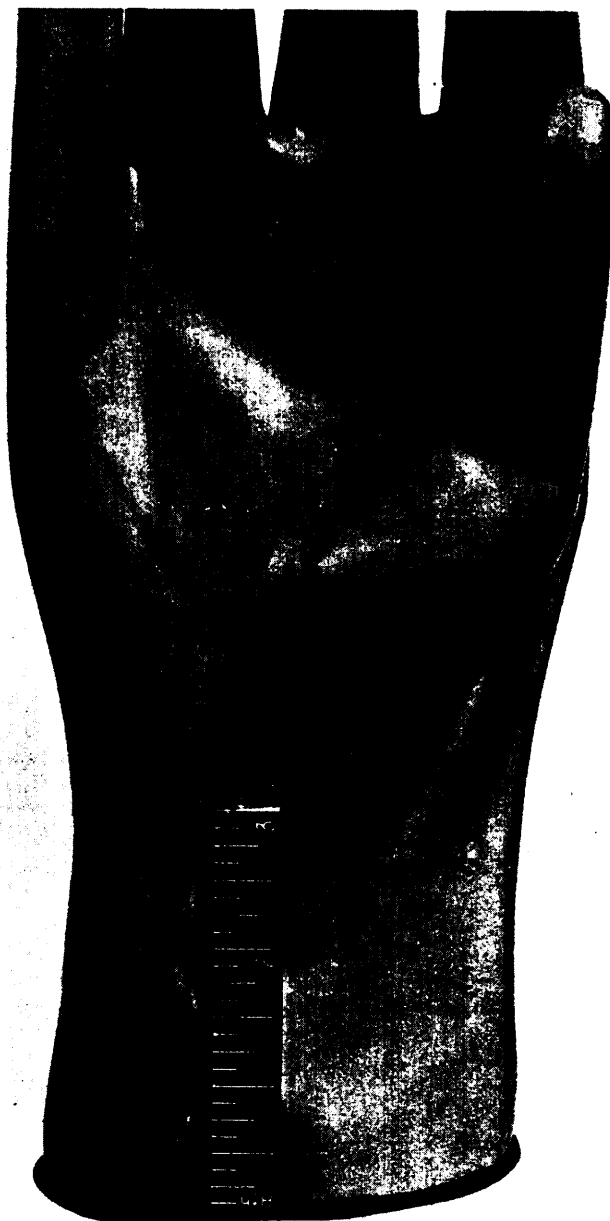


Figure 27. Stain.
Major-Electrical.
Minor-Other classes.

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Figure 28. Wash-off or weak spot.
Hand area-Major, all classes.

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Figure 29. Wash-off or weak spot.
Hand area-Major, all classes.

