Designation: D120 – 22

Standard Specification for Rubber Insulating Gloves[1]

This standard is issued under the fixed designation D120; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This specification covers manufacturing and testing of rubber insulating gloves for protection of workers from electrical shock.

1.2 Two types of gloves are provided and are designated as Type I, non-resistant to ozone, and Type II, resistant to ozone.

1.3 Six classes of gloves, differing in electrical characteristics, are provided and are designated as Class 00, Class 0, Class 1, Class 2, Class 3, and Class 4.

1.4 The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered standard. See IEEE/ASTM SI 10.

1.5 The following safety hazards caveat pertains only to the test method portion, Sections 16, 17, 18, and 19, of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* For a specific warning statement, see 18.2.

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D297 Test Methods for Rubber Products—Chemical Analysis

D412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension

D573 Test Method for Rubber—Deterioration in an Air Oven

D624 Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers

D1415 Test Method for Rubber Property—International Hardness

D2240 Test Method for Rubber Property—Durometer Hardness

F819 Terminology Relating to Electrical Protective Equipment for Workers

IEEE/ASTM SI 10 American National Standard for Metric Practice

3. Terminology

3.1 *Definitions:*

3.1.1 *color splash*—a splash, smear, or streak of contrasting color evident on the inside or outside surface of the gloves that was deposited during the dipping operation and is vulcanized into the glove as part of the homogenous compound.

3.1.2 *glove cuff roll*—the roll or reinforced edge of an insulating glove at the cuff.

3.1.3 *halogenation treatment*—exposure of the entire glove surface area to a halogen for the purpose of reducing surface friction.

3.1.4 *ozone*—a very active form of oxygen that may be produced by corona, arcing, or ultraviolet rays.

3.1.5 *user*—the employer or entity purchasing the equipment to be utilized by workers for their protection; in the absence of such an employer or entity, the individual purchasing and utilizing the protective equipment.

3.1.6 *working area*—all finger and thumb crotches, the palm (area between the wrist and the base of the finger and thumb) and the area of the finger and thumb facing the palm not extending beyond the center line of the crotch. See Fig. 1.

3.1.7 For definitions of other terms, refer to Terminology F819.

[1] This specification is under the jurisdiction of ASTM Committee F18 on Electrical Protective Equipment for Workers and is the direct responsibility of Subcommittee F18.15 on Worker Personal Equipment. This standard replaces ANSI Standard J 6.6, which is no longer available.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

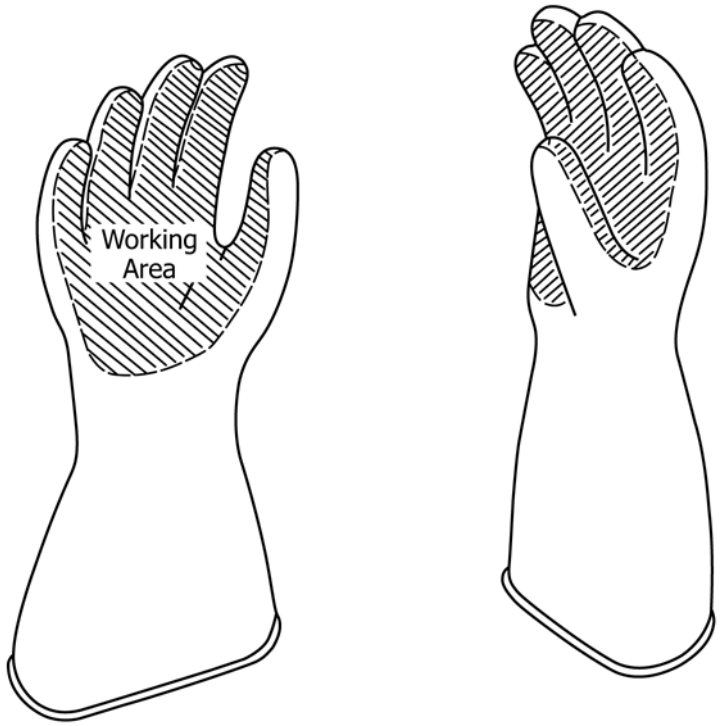

FIG. 1 Working Area of a Rubber Insulating Glove

TABLE 1 Proof-Test/Use Voltage Relationship

Class of Glove	AC Proof-Test Voltage, rms, V	Maximum AC Use Voltage ac rms, V	DC Proof-Test Voltage, avg, V	Maximum DC Use Voltage avg, V
00	2 500	500	10 000	750
0	5 000	1 000	20 000	1 500
1	10 000	7 500	40 000	11 250
2	20 000	17 000	50 000	25 500
3	30 000	26 500	60 000	39 750
4	40 000	36 000	70 000	54 000

4. Significance and Use

4.1 This specification covers the minimum electrical, chemical, and physical properties guaranteed by the manufacturer and the detailed procedures by which such properties are to be determined. The purchaser has the option to perform or have performed any of these tests in order to verify the guarantee. Claims for failure to meet the specification are subject to verification by the manufacturer.

4.2 Gloves are used for personal protection; therefore, when authorizing their use, a margin of safety shall be allowed between the maximum voltage on which they are used and the proof-test voltage at which they are tested. The relationship between proof-test voltage and the maximum voltage at which the gloves shall be used is shown in Table 1.

4.3 Work practices vary from user to user and are dependent upon many factors. These may include, but are not limited to, operating system voltages, construction design, work procedure techniques, weather conditions, and so forth. Therefore, except for the restriction set forth in this specification because of design limitations, the use and maintenance of this equipment is beyond the scope of this specification.

4.4 It is common practice and the responsibility of the user of this type of protective equipment to prepare complete instructions and regulations to govern the correct and safe use of such equipment.

5. Classification

5.1 Gloves covered under this specification shall be designated as Type I or Type II; Class 00, Class 0, Class 1, Class 2, Class 3, or Class 4.

5.1.1 *Type I,* non-resistant to ozone, made from a high-grade *cis*-1,4-polyisoprene rubber compound of natural or synthetic origin, properly vulcanized.

5.1.2 *Type II,* ozone-resistant made of any elastomer or combination of elastomeric compounds.

5.1.3 The class designation shall be based on the electrical properties as shown in Table 2 and Table 3.

6. Ordering Information

6.1 Orders for gloves under this specification should include the following information:

6.1.1 Type,

6.1.2 Class,

6.1.3 Length, Fig. 2

6.1.4 Size,

6.1.5 Color,

6.1.6 Cuff design, and

6.1.7 With or without a halogenation treatment.

6.2 The listing of types, classes, lengths, sizes, colors, and cuff designs is not intended to mean that all shall necessarily be available from manufacturers; it signifies only that, if made, they shall conform to the details of this specification.