

INCH-POUND

MIL-STD-202-103

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SUPERSEDING

MIL-STD-202G

w/CHANGE 2 (IN PART)

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(see 6.1)

DEPARTMENT OF DEFENSE
TEST METHOD STANDARD
METHOD 103, HUMIDITY (STEADY STATE)



AMSC N/A

FSC 59GP



MIL-STD-202-103

FOREWORD

1. This standard is approved for use by all Departments and Agencies of the Department of Defense.
2. This entire standard has been revised. This revision has resulted in many changes to the format, but the most significant one is the splitting the document into test methods. See MIL-STD-202 for the change summary.
3. Comments, suggestions, or questions on this document should be emailed to std202@dla.mil or addressed to: Commander, Defense Logistics Agency, DLA Land and Maritime, ATTN: VAT, P.O. Box 3990, Columbus, OH 43218-3990. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

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MIL-STD-202-103

METHOD 103
HUMIDITY (STEADY STATE)

1. SCOPE

1.1 Purpose. This test is performed to evaluate the properties of materials used in components as they are influenced by the absorption and diffusion of moisture and moisture vapor. This is an accelerated environmental test, accomplished by the continuous exposure of the specimen to high relative humidity at an elevated temperature. These conditions impose a vapor pressure on the material under test which constitutes the force behind the moisture migration and penetration. Hygroscopic materials are sensitive to moisture, and deteriorate rapidly under humid conditions. Absorption of moisture by many materials results in swelling, which destroys their functional utility, and causes loss of physical strength and changes in other important mechanical properties. Insulating materials that absorb moisture may suffer degradation of their electrical properties. This method, while not necessarily intended as a simulated tropical test, is of use in determining moisture absorption of insulating materials.

2. APPLICABLE DOCUMENTS

This section not applicable to this standard.

3. DEFINITIONS

This section not applicable to this standard.

4. GENERAL REQUIREMENTS

4.1. PROCEDURE.

4.1.1 Conditioning. The specimens shall be conditioned in a dry oven at a temperature of $40^{\circ} \pm 5^{\circ}\text{C}$ for a period of 24 hours. At the end of this period, measurements shall be made as specified.

4.1.2 Chamber. The chamber and accessories shall be constructed and arranged in such a manner as to avoid condensate dripping on the specimens under test, and such that the specimens shall be exposed to circulating air.

4.1.3 Exposure. The specimens shall be placed in a chamber and subjected to a relative humidity of 90 to 95 percent and a temperature of $40^{\circ} \pm 2^{\circ}\text{C}$ for the period of time indicated in one of the following test conditions, as specified:

<u>Test condition</u>	<u>Length of test</u>
A -----	240 hours
B -----	96 hours
C -----	504 hours
D -----	1,344 hours

When specified, a direct-current potential of 100 volts or as specified shall be applied to the specimens during the exposure period. The length of time for the application of voltage and the points of application shall be as specified.

4.2. FINAL MEASUREMENTS

4.2.1 At high humidity. Upon completion of the exposure period, and while the specimens are still in the chamber, the specified measurements shall be performed. These measurements may be compared to the initial measurements (see 4.1.1), when applicable.

4.2.2 After drying period. Upon completion of the exposure period or following measurements at high humidity if applicable, the specimens shall be conditioned at room ambient conditions for not less than 1 hour, nor more than 2 hours unless otherwise specified, after which the specified measurements shall be performed at room ambient conditions.

5. DETAILED REQUIREMENTS

5.1 Summary. The following details are to be specified in the individual specification:

- a. Measurements after conditioning (see 4.1.1).
- b. Test condition letter (see 4.1.3).
- c. The length of time and points of application of polarizing voltage, if applicable (see 4.1.3).
- d. Final measurements:
 - (1) At high humidity, if applicable (see 4.2.1).
 - (2) After drying period (see 4.2.2).

6. NOTES

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

6.1 Supersession data. The main body and 38 parts of this revision of MIL-STD-202 replace superseded MIL-STD-202.

Custodians:

Army - CR
Navy - EC
Air Force - 85
DLA - CC

Preparing activity:
DLA – CC

(Project 59GP-2015-007)

Review activities:

Army - AR, AT, AV, CR4, MI, SM, TE
Navy - AS, OS, SH
Air Force - 19, 99
NSA - NS

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil/>