Designation: D3283 – 98 (Reapproved 2012)

Standard Specification for Air as an Electrical Insulating Material[1]

This standard is issued under the fixed designation D3283; 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.

1. Scope

1.1 This specification applies to air used as an electrical insulating material in electrical equipment.

1.2 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D2029 Test Methods for Water Vapor Content of Electrical Insulating Gases by Measurement of Dew Point

E105 Practice for Probability Sampling of Materials

E260 Practice for Packed Column Gas Chromatography

2.2 *Other Documents:*

Specification G-7.1 Commodity Specification for Air[3]

3. Classification

3.1 This specification shall apply to Type I, gaseous air.

4. Manufacture

4.1 This specification applies to both atmospheric air and to air synthesized by blending oxygen and nitrogen in proper proportions.

5. Composition and Properties

5.1 The material shall conform to the chemical requirements specified in Table 1.

6. Sampling

6.1 *Gaseous Air in High Pressure Metal Containers*—Extract samples from the container or containers with an appropriate pressure reducing regulator. Screw the pressure regulator inlet connection on to the container valve outlet. Connect the regulator outlet connection to the gas sampling pipe or to the gas analyzing equipment by means of metal or glass tubing except that rubber tubing may be used to secure butt joints in metal-to-glass or glass-to-glass tubing. Take care to ensure that all tubing is clean and dry and the sampling apparatus is thoroughly purged of atmospheric air before the sample is taken. Where a multiplicity of containers are to be sampled, follow Practice E105 if it is considered satisfactory to sample less than the total number of containers.

7. Test Methods

7.1 The components enumerated in this specification shall be determined in accordance with the following:

7.1.1 *Carbon Monoxide and Carbon Dioxide*— Practice E260.

7.1.2 *Oxygen*—Practice E260.

7.1.3 *Dew Point*—Test Methods D2029.

8. Shipping

8.1 Air for shipment shall be packaged in metal containers that comply with the requirements of and be approved by the Interstate Commerce Commission. The inside of the cylinders shall be dry and free from oil and corrosive chemicals.

9. Keywords

9.1 dielectric; dielectric air; dielectric gas; electrical insulating gas; gaseous air; insulating air

---

[1] This specification is under the jurisdiction of ASTM Committee D27 on Electrical Insulating Liquids and Gasesand is the direct responsibility of Subcommittee D27.02 on Gases and Non-Mineral Oil Liquids.

Current edition approved May 1, 2012. Published May 2012. Originally approved in 1973. Last previous edition approved in 2004 as D3283 – 98(2004). DOI: 10.1520/D3283-98R12.

[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.

[3] Available from the Compressed Gas Assn., Inc., 500 Fifth Ave., New York, NY 10036.

TABLE 1 Composition and Properties for Air[A]

	Type I
Oxygen, volume %	19.5 to 23.5
Carbon monoxide, max, volume %	0.0020
Carbon dioxide, max, volume %	0.10
Nitrogen	predominantly balance
Dew point, max, °C	–58

[A] By agreement between purchaser and manufacturer, analysis may be required and limits established for elements or compounds not specified in the table of chemical composition.