



Designation: D1786 – 01 (Reapproved 2006)^{ε1}

Standard Specification for Toluene Diisocyanate¹

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^{ε1} NOTE—Replaced reference to D 4667 with D 5629 in March 2006.

1. Scope*

1.1 This specification covers toluene diisocyanate used as an ingredient in the production of polyurethane cellular materials.

NOTE 1—The properties included in this specification are those required to characterize toluene diisocyanate. Other requirements may become necessary and will be added as the necessary test methods become available.

1.2 The following precautionary caveat pertains only to the test methods portion, Section 6, 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 and health practices and determine the applicability of regulatory limitations prior to use.*

NOTE 2—There is no equivalent ISO standard.

2. Referenced Documents

2.1 ASTM Standards:²

[D883 Terminology Relating to Plastics](#)

[D4660 Test Methods for Polyurethane Raw Materials: Determination of the Isomer Content of Toluene Diisocyanate](#)

[D4661 Test Methods for Polyurethane Raw Materials: Determination of Total Chlorine in Isocyanates](#)

[D4663 Test Method for Polyurethane Raw Materials: Determination of Hydrolyzable Chlorine of Isocyanates](#)

[D4877 Test Method for Polyurethane Raw Materials: Determination of APHA Color in Isocyanates](#)

[D5155 Test Methods for Polyurethane Raw Materials: De-](#)

[termination of the Isocyanate Content of Aromatic Isocyanates](#)

[D5629 Test Method for Polyurethane Raw Materials: Determination of Acidity in Low-Acidity Aromatic Isocyanates and Polyurethane Prepolymers](#)

2.2 Federal Standard:

49 CFR Transportation Part 172.01³

3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, see Terminology [D883](#).

4. Classification

4.1 This specification covers three classes of toluene diisocyanates, based on isomer ratio, and three types based on acidity and hydrolyzable chloride.

4.2 Each class may be subdivided into three types on the basis of acidity differences as follows:

4.2.1 *Type I or A*—Acidity shall be between 0.0015 and 0.0045 determined as percent HCl. Hydrolyzable chloride shall be less than 0.01 %.

4.2.2 *Type II or B*—Acidity shall be between 0.0070 and 0.012 as percent HCl. Hydrolyzable chloride shall be less than 0.015 %.

4.2.3 *Type III or C*—Acidity shall be greater than 0.012 as percent HCl. Hydrolyzable chloride limits may be set at the convenience of the supplier and purchaser.

5. Requirements

5.1 These materials shall conform to the requirements prescribed in [Table 1](#).

6. Sampling and Test Methods

6.1 The materials shall be sampled and tested in accordance with Test Methods [D4660](#), [D4661](#), [D4663](#), [D4877](#), [D5155](#), and [D5629](#).

³ *Code of Federal Regulation* is available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401.

¹ This specification is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.22 on Cellular Materials—Plastics and Elastomers.

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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.

*A Summary of Changes section appears at the end of this standard.