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100 Barr Harbor Dr., West Conshohocken, PA 19428
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Standard Specification for Toluene Diisocyanate[1]

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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:*
D 883 Terminology Relating to Plastics[2]
D 4660 Test Methods for Polyurethane Raw Materials: Determination of Isomer Content of Isocyanaters[3]
D 4661 Test Methods for Polyurethane Raw Materials: Determination of Total Chlorine in Isocyanates[3]
D 4663 Test Method for Polyurethane Raw Materials: Determination of Hydrolyzable Chloride of Isocyanates[3]
D 4667 Test Method for Polyurethane Raw Materials: Determination of Acidity in Toluene Diisocyanate[3]
D 4877 Test Methods in Polyurethane Raw Materials: Determination of APHA Color Isocyanates[3]
D 5155 Test Method for Polyurethane Raw Materials: Determination of the Isocyanate Content of Aromatic Isocyanates[3]

2.2 *Federal Standard:*
49 CFR Transportation Part 172.01[4]

3. Terminology

3.1 *Defintions*—For definitions of terms used in this specification, see Terminology D 883.

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 D 4660, D 4661, D 4663, D 4667, D 4877, and D 5155.

7. Retest and Rejection

7.1 If any failure occurs, the material may be retested to establish conformity in accordance with agreement between the purchaser and the seller.

8. Packaging and Package Marking

8.1 *Packaging*—The material shall be packaged in standard commercial containers so constructed as to ensure compliance

[1] This specification is under the jurisdiction of ASTM Committee D-20 on Plastics and is the direct responsibility of Subcommittee D20.22 on Cellular Plastics.

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Modifications to the current edition include the following: the list of referenced documents was changed to reflect the withdrawal of Methods D 1638 and replacement by several test methods. Terminology and keywords sections have been added. An ISO equivalency statement has been added as Note 2.

[2] *Annual Book of ASTM Standards*, Vol 08.01.

[3] *Annual Book of ASTM Standards*, Vol 08.03.

[4] *Code of Federal Regulation* is available from the Superintendent of Documents, Government Printing Office, Washington, DC 20402.