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Plastics — Aromatic isocyanates for use in the production of polyurethanes — Determination of hydrolysable chlorine

Plastiques — Isocyanates aromatiques pour utilisation dans la production de polyuréthannes — Détermination du chlore hydrolysable



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/TC 61, *Plastics*, Subcommittee SC 12, *Thermosetting materials*.

This second edition cancels and replaces the first edition (ISO 15028:2004), which has been technically revised.

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Introduction

No International Standard for the determination of hydrolysable chlorine in isocyanates has been published. The main sources of hydrolysable chlorine in isocyanates are carbamoyl chloride and dissolved phosgene from the manufacturing process. Both of these compounds react with alcohols and water, forming ureas, carbamates, carbon dioxide and hydrochloric acid. These acidic materials neutralize basic catalysts used in polyurethane production, thus adversely affecting processing properties. This test method is based on and is technically equivalent to ASTM D 4663.

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Plastics — Aromatic isocyanates for use in the production of polyurethanes — Determination of hydrolysable chlorine

SAFETY STATEMENT — Persons using this document should be familiar with normal laboratory practice, if applicable. This document does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any regulatory requirements.

1 Scope

This International Standard specifies a method for the determination of the hydrolysable-chlorine content of toluene-2,4-diisocyanate, toluene-2,6-diisocyanate or mixtures of the two. This test method may also be applied to other isocyanates of suitable solubility, such as crude or refined polymeric isocyanates.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 385, *Laboratory glassware — Burettes*

ISO 648, *Laboratory glassware — Single-volume pipettes*

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*

ISO 4787, *Laboratory glassware — Volumetric instruments — Methods for testing of capacity and for use*

ISO 6353-2, *Reagents for chemical analysis — Part 2: Specifications — First series*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
polyurethane
polymer prepared by the reaction of an organic di- or polyisocyanate with compounds containing two or more hydroxyl groups

3.2
hydrolysable chlorine
organic or inorganic chlorine compounds formed in the production of isocyanates that react with methanol under the conditions of the test to liberate hydrogen chloride

4 Principle

The hydrolysable chlorine reacts with methanol, liberating hydrogen chloride. The titratable chlorides are then determined potentiometrically using a standard silver nitrate solution.

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